#fitspo or #loveyourself? The impact of fitspiration and self-compassion Instagram images on women's body image, self-compassion, and mood.

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Abstract

This study experimentally examined the impact of exposure to fitspiration images and self-compassion quotes on social media on young women's body satisfaction, body appreciation, self-compassion, and negative mood. Female undergraduate students ($N = 160$) were randomly assigned to view either *Instagram* images of fitspiration, self-compassion quotes, a combination of both, or appearance-neutral images. Results showed no differences between viewing fitspiration images compared to viewing neutral images, except for poorer self-compassion among those who viewed fitspiration images. However, women who viewed self-compassion quotes showed greater body satisfaction, body appreciation, self-compassion, and reduced negative mood compared to women who viewed neutral images. Further, viewing a combination of fitspiration images and self-compassion quotes led to positive outcomes compared to viewing only fitspiration images. Trait levels of thin-ideal internalisation moderated some effects. The findings suggest that self-compassion might offer a novel avenue for attenuating the negative impact of social media on women's body satisfaction.

Keywords: Social Media, Fitspiration, Self-compassion, *Instagram*, Body image, Body appreciation

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A substantial body of literature has demonstrated that the mass media are a powerful and influential contributor to women's body dissatisfaction (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Meta-analyses of correlational and experimental studies have confirmed that exposure to 'thin-ideal' images portrayed in magazines and on television is associated with body dissatisfaction among women (Grabe, Ward, & Hyde, 2008; Levine & Murnen, 2009; Want, 2009). More recently, research has found similar effects related to exposure to 'newer' forms of media, in particular the Internet and social media. Time spent on the Internet, and particularly on social networking sites such as *Facebook*, has been related to poorer body image outcomes for both adult women and adolescent girls (Fardouly, Diedrichs, Vartanian, & Halliwell, 2015a; Fardouly & Vartanian, 2015; Tiggemann & Slater, 2013). Engagement in particular activities within the social media environment (e.g., 'appearance-related' activities, photo sharing) may be especially influential on body image (McLean, Paxton, Wertheim, & Masters, 2015; Meier & Gray, 2014). Given these findings, recent research has begun to examine the impact of one particular social networking service, *Instagram,* due to its sole focus on photo sharing and imagery. The current study investigates the impact of viewing two specific types of images found on *Instagram* (fitspiration and images containing self-compassion quotes) on women's body image, self-compassion, and mood.

Social Media and Body Image

Social networking services, such as *Facebook*, *Snapchat*, and *Instagram*, are Internet-based sites that allow users to create public or private profiles, form a network of 'friends' or 'followers', and share, view, and comment on user-generated content (Perloff, 2014). Social networking services are now more popular than conventional media formats among young

women (Bair, Kelly, Serdar, & Mazzeo, 2012), with 90% of 18-29 year old women reported to be active users of social media (Perrin et al., 2015).

A number of correlational studies have reported associations between exposure to *Facebook* and poorer body image in adult women (Fardouly & Vartanian, 2015) and adolescent girls (Tiggemann & Miller, 2010; Tiggemann & Slater, 2013, 2014). These studies have used 'time spent on *Facebook'* as an indicator of social media engagement, and found relationships between this measure and self-objectification, weight dissatisfaction, thin-ideal internalisation, appearance comparison, and drive for thinness. Experimental studies (e.g., Fardouly, Diedrichs, Vartanian, & Halliwell, 2015b) have also found brief exposure to *Facebook* to be associated with poorer outcomes on mood and body image among women high in the tendency to make appearance comparisons. More recently, it has been proposed that rather than overall social media usage driving the association with poorer body image outcomes, a more nuanced approach, which considers specific components of the social media environment, may be required. Specifically, photo-based activities, such as sharing, viewing, and commenting on images of oneself and others, have been highlighted as playing an important role (Holland & Tiggemann, 2016). This suggestion has been supported in a study with American adolescent girls, whereby engagement in photo-based activities on *Facebook* was correlated with internalisation of the thin-ideal, self-objectification, and drive for thinness (Meier & Gray, 2014). Similarly, McLean and colleagues (McLean et al., 2015) found that Australian adolescent girls who regularly share 'selfies', and who are more invested in, and more likely to manipulate (edit) their self-images, reported poorer body image.

Recently, *Instagram* (a social networking service solely for photo and video sharing) has risen in popularity, with over 600 million active users sharing over 95 million photos per day (Instagram, 2016). It is the second most used social networking site in the U.S. after

Facebook, with 32% of US Internet users accessing Instagram weekly (Stein, 2017).

Instagram is particularly popular with young women, with 59% of women aged 18-29 years

using this service (Perrin et al., 2015).

A popular trend that has emerged on the Internet in recent years, and in particular on

Instagram, is 'fitspiration.' Fitspiration (a blending of the words 'fitness' and 'inspiration')

arose as an antidote to the trend of 'thinspiration' (a blending of 'thinness' and 'inspiration'),

which glamorises thinness and promotes unhealthy eating habits (Ghaznavi & Taylor, 2015).

Fitspiration consists of images and messages that purport to motivate people to exercise and

pursue a healthier lifestyle (Abena, 2013), and aims to encourage strength and female

empowerment (Tiggemann & Zaccardo, 2015). However, content analyses have

demonstrated that just like thinspiration, fitspiration also promotes a homogenous body shape

(tall, lean, toned, and 'perfectly proportioned'), and often contains guilt-inducing messages,

stigmatises weight and body fat, and emphasises dieting and restrictive eating (Boepple, Ata,

Rum, & Thompson, 2016; Boepple & Thompson, 2016; Tiggemann & Zaccardo, 2016). In

terms of body image, the ideal body upheld in 'fitspiration' shares many features with the

'traditional' thin-ideal body (tall and extremely thin), but adds the further dimensions of

fitness and (moderate) muscularity (Simpson & Mazzeo, 2016; Tiggemann & Zaccardo,

2015). As such, it is likely to be just as unattainable for most women (Krane, Waldron,

Michalenok, & Stiles-Shipley, 2001; Krane, Waldron, Stiles-Shipley, & Michalenok, 2001).

Thus, despite its purported aim of empowerment and inspiration, it appears that fitspiration is

likely to communicate messages that are potentially harmful to women's body image.

Indeed, a recent experimental study supported the claim that exposure to fitspiration

images is detrimental to body satisfaction (Tiggemann & Zaccardo, 2015). Australian

undergraduate women who were exposed to fitspiration images were found to have increased

body dissatisfaction and negative mood, and reduced state self-esteem compared to women

who were exposed to appearance-neutral (travel) images. Trait appearance comparison tendency was found to mediate the effect of image type on mood, body dissatisfaction, and self-esteem (Tiggemann & Zaccardo, 2015).

To date, there has been very little empirical consideration of potentially *positive* aspects of the social media environment. One potentially positive feature of social media is that its user-generated nature allows for the possibility of a wider variety of images and content than has been customarily transmitted via traditional media channels. For example, YouTube video bloggers (vloggers) are increasingly popular, suggested to be in part due to their perceived authenticity (Morris & Anderson, 2015; Tolson, 2010). Individuals who do not fit the dominant thin-ideal standard of beauty (e.g., 'plus-sized' women, who have very rarely featured in traditional media imagery), have also increased in visibility in the social media environment, for example through 'plus-sized' fashion blogs and *Instagram* accounts (Scaraboto & Fischer, 2013). Studies also document that consumer demand for greater appearance diversity in media images is present among young adult consumers (e.g., Diedrichs, Lee, & Kelly, 2011).

Self-Compassion

In recent years, research in the field of body image has made an important shift from a primary focus on body image *disturbance* to consideration of *positive* body image (Halliwell, 2015). Positive body image is a multi-faceted construct that incorporates an overarching love and respect for the body, appreciating the uniqueness of and feeling gratitude toward the body, and emphasising one's body's assets rather than dwelling on imperfection (Tylka & Wood-Barcalow, 2015b). A related, but somewhat broader concept, is self-compassion, which can be defined as engaging in self-kindness, rather than self-criticism, and learning to accept your own 'humanness' by understanding that having flaws and making mistakes are a part of human nature (Neff, 2003). Recently, Kelly, Vimalakanthan, and Miller (2014)

argued that self-compassion may play a protective role in women's body image concerns by promoting de-personalisation of disappointment and encouraging self-acceptance. Correlational research has demonstrated that women high in self-compassion experience less body shame and body surveillance, engage in fewer body comparisons, and place less emphasis on appearance as an indicator of self-worth (Daye, Webb, & Jafari, 2014; Kelly et al., 2014; Mosewich, Kowalski, Sabiston, Sedgwick, & Tracy, 2011; Wasylkiw, MacKinnon, & MacLellan, 2012). Further, self-compassion has been found to buffer the relationship between media thinness-related pressure and both disordered eating and thin-ideal internalisation (Tylka, Russell, & Neal, 2015). A recent systematic review of 28 studies concluded that self-compassion was consistently linked to lower levels of eating pathology, and was implicated as a protective factor against poor body image and eating pathology (Braun, Park, & Gorin, 2016).

These findings suggest that self-compassion might usefully be employed in intervention efforts aiming to reduce body dissatisfaction and/or increase positive body image. A recent study examined the impact of a self-compassion based meditation intervention on women's self-compassion, body appreciation, body shame, and body dissatisfaction. Women in the intervention condition listened to a podcast that focused on body sensations, affectionate breathing, and loving-kindness meditation for 20 minutes each day for three weeks. Compared to a waitlist control group, women who received the intervention were more self-compassionate, appreciative of their bodies, and experienced less body shame and dissatisfaction (Albertson, Neff, & Dill-Shackleford, 2015).

Representations of self-compassion are present on social media. On *Instagram*, the hashtag #selfcompassion yields over 60,000 images (June, 2017). Many of these images feature quotes such as "*Cut yourself some slack. You're doing better than you think*," "*Be gentle with yourself*," and "*Do things with kindness*," which embody the key features of self-

compassion. A related hashtag, #selflove, yields over 8 million returns (June, 2017) and contains many similar quotes. Generally, these quotes are displayed on 'appearance-neutral' backgrounds (like wallpaper or scenery) and do not typically feature people. These messages of self-compassion are in contrast to the messages contained in the quotes that often accompany fitspiration images, such as "*Get real or stay fat*," and *"To change your body you must first change your mind"* (Boepple et al., 2016; Tiggemann & Zaccardo, 2016). It seems plausible that exposure to messages promoting self-compassion may impact positively on women's body image, although this has yet be examined in a social media context.

The Current Study

The overall aim of the current study was to examine the impact of exposure to both fitspiration images and images containing self-compassion quotes on *Instagram* on women's state body satisfaction, body appreciation, negative mood, and self-compassion. Following Tiggemann and Zaccardo (2015), we hypothesized that women who viewed fitspiration images on *Instagram* would show lower levels of state body satisfaction, positive body image (i.e., body appreciation), self-compassion, and higher levels of negative mood than women who viewed appearance-neutral control images (interior design images) (Hypothesis 1). Second, we predicted that women who viewed self-compassion quotes would experience more positive body image and self-compassion, and reduced negative mood compared to women who viewed control images (Hypothesis 2). Finally, we aimed to investigate whether the addition of self-compassion quotes to fitspiration images can 'buffer' the expected negative effects of viewing fitspiration images. We predicted that women who viewed a combination of fitspiration and self-compassion images would experience more positive body image and self-compassion and reduced negative mood compared to women who viewed only fitspiration images (Hypothesis 3).

Method

Participants

Participants were 160 female undergraduate students studying in the south of England and Wales. The participants were aged between 18 and 25 years ($M = 21.21$ years, $SD = 2.06$), and had a mean Body Mass Index (BMI: kg/m^2) of 23.37 ($SD = 2.76$), which falls within the "normal" weight range (World Health Organisation, 2016). Eighty-one (50.3%) participants identified themselves as White, 36 (22.4%) as Asian British/Asian other, 22 (13.7%) as Black British/Black other, 17 (10.6%) as mixed, and 4 (2.5%) as "other." The majority of the participants were psychology students ($N = 42$, 26.3%), 16 participants were studying Law (10.0%), 14 were studying Pharmacy (8.8%), and 12 were studying mathematics (7.5%), with the remainder ($N = 76$, 47.5%) studying a variety of other degrees (e.g., chemistry, criminology, biology, business, geography).

Design

The study employed a between-subjects experimental design with four levels of the independent variable *Instagram* image type (control, fitspiration, self-compassion, fitspiration and self-compassion). Participants were randomly assigned to one of the four conditions using restricted randomisation with minimisation. This method ensures moderately equal cell sizes and is considered methodologically equivalent to randomisation (Moher, Schulz, & Altman, 2001). The major dependent variables were state body dissatisfaction, body appreciation, self-compassion, and negative mood. Trait tendency for appearance comparison and for internalisation of the thin ideal were examined as potential moderating variables.

Experimental Stimuli

Four *Instagram* accounts were created for the present study, each containing 20 images sourced from public *Instagram* accounts. For the control condition featuring appearance-neutral images, the search term 'interior design' was used to select images of

home interiors that did not contain any text or human bodies. Images for the 'fitspiration'

condition depicted young women with lean and toned bodies wearing form-fitting work-out

clothing. Half of these images consisted of women actively engaging in physical activity,

while the remainder consisted of women posing 'passively' for the camera.   These images

were sourced from *Instagram* images containing the hashtag 'fitspiration' or 'fitspo.' The

'self-compassion' images were sourced from *Instagram* accounts with the words 'self-

compassion,' 'self-love,' or 'positive body image' in the name, and contained quotes that

conveyed the basic principles of self-compassion, self-acceptance, and understanding one's

own imperfections. These images contained a self-compassion quote, and usually

background patterns or images (e.g., flowers, geometric shapes), but did not contain any

images of human bodies. The 'fitspiration and self-compassion' condition contained 15 of

the images used in the 'fitspiration' condition and five of the images used in the 'self-

compassion' condition (in an attempt to more closely replicate likely *Instagram* usage).

Hashtags were added to all images (e.g., #fitspo, #selfacceptance, #innerbeauty) to enhance

ecological validity.

        The 20 images used in the 'fitspiration' and 'self-compassion' conditions were

selected from an initial pool of 60 images per condition, which were pilot tested with 30

women aged 18-25 years. The women were provided with a definition of 'fitspiration' (*The

term "FITSPIRATION," incorporating the words "fitness" and "inspiration," is a

motivational message that attempts to encourage individuals to 'persevere' and 'push'

themselves to exercise and pursue a healthier lifestyle. Images of this term tend to depict

women in work-out gear with very fit and toned bodies either engaging in a form of exercise

or passively posing for the camera*) and 'self-compassion' (*The term "SELF-COMPASSION"

is defined as the ability to recognise and accept that everybody has imperfections and will

encounter situations in which they feel inadequate. Self-compassion is about accepting and*

honouring your 'humanness' and rather than engaging in self-criticism you treat yourself with kindness and understand that making mistakes is a part of everyday life. It's also about understanding that these personal inadequacies are a shared human experience - it's something that everybody goes through rather then something that happens to "me" alone) and asked to rate each image on the extent to which the image met the definition (1 = *definitely disagree*, 6 = *definitely agree*). In addition, the images were rated as to whether they were typical of the images one would see on *Instagram*. For each condition, the 20 images that scored most highly across these two questions were selected.

Measures

Instagram and social media usage. Participants were asked to indicate whether or not they had an *Instagram* account, how much time they spent on *Instagram* per day (*no time; < 10 mins; 10-30 mins; 31-60 mins; > 60 mins*), the number of accounts they follow (open response), how often they post pictures (*never; less than once per month; once a month; 2-3 times per month; once a week; 2-3 times per week; daily*), and what their uploaded pictures mainly consist of (*selfies; pictures of yourself or friends taken by someone else; food; possessions/items; scenery and places; animals; other people such as family, friends, celebrities; memes/quotes; other*). Participants were also asked to specify any other social networking services they used (e.g., *Facebook*, *Pinterest, Twitter, Tumblr*), and to indicate their average daily use on these sites.

Body satisfaction. State body satisfaction was measured before and after viewing the *Instagram* images using three Visual Analogue Scales (VAS) following Thompson and Heinberg (1995) and Tiggemann and Zaccardo (2015). Each VAS consisted of a 100-point horizontal line with the end-points labelled *not at all* and *extremely*. Participants were requested to indicate how they were feeling 'right now' by moving a marker to any point along the horizontal line. The three VAS (*satisfied with my weight, satisfied with my overall*

appearance, and *satisfied with my body shape*) were averaged to create a body satisfaction score (pre- and post-image exposure). Lower scores are indicative of higher body dissatisfaction, whereas higher scores indicate higher body satisfaction. Internal reliability was high (pre-exposure, $\alpha = .96$; post-exposure, $\alpha = .98$).

Body appreciation. State body appreciation was measured before and after viewing the *Instagram* images using three VAS. The three items ('Despite my flaws, I accept my body for what it is,' 'My feelings towards my body are positive for the most part,' and 'My self-worth is independent of my body shape or weight') were taken from the Body Appreciation Scale (Avalos, Tylka, & Wood-Barcalow, 2005) and adapted into a state measure by asking participants how they were feeling 'right now.' As above, the items were averaged to create pre- and post-exposure body appreciation scores. Internal reliability was high (pre-exposure, $\alpha = .90$; post-exposure, $\alpha = .92$).

Self-compassion. State self-compassion was measured before and after viewing the *Instagram* images using two VAS, with two items adapted from the Self-Compassion Scale (Neff, 2003). The two items were taken from the self-kindness subscale ("I give myself the caring and tenderness I need" and "I try to be patient and understanding towards the aspects of myself I don't like"). The wording of the latter item was modified from 'personality' to 'myself' to broaden its applicability. The items were adapted into a state measure by asking participants how they were feeling 'right now.' Internal reliability was high (pre-exposure, $\alpha = .87$, post-exposure, $\alpha = .92$).

Negative mood. State negative mood was measured before and after viewing the *Instagram* images with four VAS asking participants to report on how 'anxious,' 'depressed,' 'happy,' and 'confident' they were feeling 'right now.' Scores were averaged (with the two positive mood scales reversed) to create a negative mood score, with higher scores indicating a greater state of negative mood. Internal reliability was high (pre-exposure, $\alpha = .91$, post-

exposure $\alpha = .93$).

Trait appearance comparison. The Physical Appearance Comparison Scale (PACS; Thompson, Heinberg, & Tantleff, 1991) was used to assess the tendency for making appearance comparisons. Participants indicated the frequency with which they engage in appearance comparison behaviours in different social settings (e.g., "In social situations I sometimes compare my figure to the figures of other people"). Participants responded to five items using a 5-point response scale range from *never* (1) to '*always* (5). Scores were summed, with higher scores indicating a greater tendency for appearance comparison. In the present sample, the internal reliability was unacceptably low ($\alpha = .51$), however, it improved following the removal of the one negatively-worded item ($\alpha = .92$).

Trait thin-ideal internalisation. The extent to which participants had internalised the thin-ideal was measured using the general internalisation subscale of the Sociocultural Attitudes Towards Appearance Scale-3 (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). Participants rated the extent to which they agreed with nine statements (e.g., 'I compare my body to the bodies of people who are on TV') using a 5-point scale (1 = *definitely disagree*, 5 = *definitely agree*). Internal consistency was high ($\alpha = .95$).

Procedure

The institutional ethics committee approved the study. Participants were recruited to a study on "*Instagram* and memory recall." Specifically, participants were told that the research was investigating whether using *Instagram* had an impact on memory recall and attention and whether personality characteristics influenced this. They were either recruited via an online psychology participant pool, and received course credit for participation, or were approached on university grounds (libraries and study areas), and were entered into a prize draw for a shopping voucher. After providing informed consent, participants were randomly allocated to one of four experimental conditions (control, fitspiration, self-

compassion, fitspiration and self-compassion). They completed all measures and viewed the *Instagram* images on an *iPad*. Participants first completed measures of general social networking usage and then completed baseline VAS of body satisfaction, self-compassion, body appreciation, and negative mood. They were then presented with an *Instagram* account containing 20 images and were asked to view the images for 5 minutes. Participants were not required to view each image for a specific length of time, rather could move back and forth through the images at their own pace. Following exposure to the *Instagram* account, participants completed the post-exposure VAS measures, and the measures of trait appearance comparison and internalisation of the thin ideal. In order to ensure attention to the images, and to aid the cover story, participants were asked to confirm that they viewed the *Instagram* account, and were also asked to recall a number of features of the *Instagram* account they had just viewed (e.g., features of the images, words seen, hashtags used). All participants confirmed they had viewed their respective *Instagram* account, and all participants recalled at least five hashtags consistent and accurate to their condition (e.g., participants in the self-compassion condition only recalled hashtags relevant to self-compassion). Based on these findings, we are confident that participants attended to the images. The entire experimental procedure lasted approximately 20 minutes per participant.

Analytic Strategy

      Preliminary analyses. Data screening revealed minimal missing data ($< 1\%$ across all variables) and consequently list-wise deletion was employed. Skew, kurtosis, and multicollinearity were acceptable. There were no univariate or multivariate outliers. Analyses of variance indicated there was no significant difference between the conditions on age, $F(3,159) = 1.26$, $p = .291$, or BMI, $F(3,159) = 0.54$, $p = .654$. Additionally, chi-square analysis revealed no significant difference between conditions on time spent on *Instagram*, $\chi^2 (12) = 13.80$, $p = .313$. ANOVAs were also conducted to assess the equivalence of trait

comparison and internalisation across conditions to determine if they could be considered as moderators. There was no difference in internalisation between conditions, $F(3,156) = 1.82$, $p = .145$. However, appearance comparisons differed significantly between conditions, $F(3, 156) = 4.24$, $p = .007$. Bonferroni post-hoc comparisons revealed participants in the fitspiration condition had a significantly greater tendency to make appearance comparisons ($M = 3.11$, $SD = 0.67$) compared to those in the self-compassion condition ($M = 2.89$, $SD = 0.53$), with no differences between the other conditions. Therefore, we could not be confident that the measure of appearance comparisons was not reactive to the experimental manipulation. Consequently, appearance comparisons were removed as a moderator from subsequent analyses.

Main analyses. Eight hierarchical moderated multiple regression analyses were conducted to investigate the impact of *Instagram* exposure condition on each of the primary outcomes: state body dissatisfaction, body appreciation, self-compassion, and negative mood respectively. The regression analyses also analysed the potential moderating effects of trait internalisation. BMI was significantly correlated with post-exposure body image. Therefore, mean-centered BMI scores were entered as a covariate at Step 1, alongside mean-centered baseline scores on the outcome measures. Experimental condition was dummy coded into orthogonal contrasts and entered at Step 2. Mean-centered scores on trait thin-ideal internalisation were entered at Step 3. Finally, interaction terms between each of the condition contrasts and the moderator internalisation were entered at Step 4.

The eight regression analyses were structured in the same way, but each regression analysis differed at Steps 2 and 4, with different condition contrasts and corresponding interaction terms. In the first four regression analyses, the control condition was nominated as the comparison condition, with the contrasts including *control vs. fitspiration*, *control vs. self-compassion*, and *control vs. fitspiration and self-compassion*, respectively, to test Hypotheses

1 and 2. The results from these regression analyses are reported in Tables 1-4. In the remaining four regression analyses, the contrasts were restructured with the fitspiration condition as the comparison condition, to allow for the comparison of *fitspiration vs. fitspiration and self-compassion* conditions to test Hypothesis 3. Only results pertaining to the coefficients and corresponding interaction terms of the unique contrast *fitspiration vs. fitspiration and self-compassion* are reported in Tables 1-4, as the remaining results were identical to the previous analyses. As the moderator, thin-ideal internalisation was mean-centered in the regression analyses, the mean differences (B, β) in the outcome variables reported indicate the difference between conditions at mean levels of thin-ideal internalisation ($M = 3.16$, $SD = 0.97$). When significant moderation was observed (i.e., interaction terms were significant), simple slopes analyses were conducted in accordance with Jaccard and Turrisi (2003) to explore the differences in the outcome between conditions at low (-1SD) and high (+1SD) levels of internalisation.

A partial Bonferonni adjustment was used to assess the significance of the coefficients in the regression models ($p < .028$) due to the significant mean correlation ($r = .73$) between the outcome variables (Perneger, 1998). Using G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009), we conducted a post-hoc power analysis with a sample size of 160, a nine predictor variable equation (two covariates, three dummy coded conditions, one continuous moderator, three interaction terms), and the partial Bonferonni adjusted alpha level of $p < .028$. Statistical power was .15 for detecting small effects ($f^2 = .02$), .94 for detecting moderate effects ($f^2 = .15$), and 1.0 for detecting large effects ($f^2 = .35$; Cohen, 1988). Consequently, there was sufficient power in the regression analyses to detect moderate and large effects, but insufficient power to detect small effects. A total sample size of 787 would have been necessary to detect significance of small effects ($f^2 = .02$) at power of .80 on the dummy coded predictor variables and their corresponding interaction terms, and this was not

feasible in the current study.

Results

Instagram and Social Media Usage

One hundred and twenty participants (75%) reported having an *Instagram* account, 140 (87.5%) had a *Facebook* account, 62 (38.8%) had a *Twitter* account, 17 (10.6%) had a *Pinterest* account, 11 (6.9%) had a *Tumblr* account, and 12 (7.5%) reported using another form of social media (e.g., *Snapchat*). Modal time spent on *Instagram* was 31-60 minutes per day. Participants reported having an average of 867.7 'followers' (*SD* = 1614.6) on *Instagram*, and 'following' an average of 848.6 other accounts (*SD* = 1554.9). All participants (100.0%) reported using their smartphone/iPad as their primary device for using *Instagram*. Just over one half of *Instagram* users (54.1%) reported posting a picture at least once a week or more, with 'selfies/group selfies' being the most commonly posted type of picture (45.8%).

Body Satisfaction

Table 1 presents a summary of the regression analyses for body satisfaction, including change statistics for each step and beta coefficients for each predictor in the final model. The final model with all predictors and interaction terms accounted for a significant proportion of the total variation in participants' post-exposure state body satisfaction (R^2 = .78, *adjusted* R^2 = .61, $F(9,149) = 25.84$, $p < .001$). Contrary to our hypothesis, the non-significant coefficient for the '*control vs. fitspiration*' contrast indicated that there was no post-exposure difference in body satisfaction between the control condition (*M* = 50.24) and those who viewed fitspiration images (*M* = 44.94). Consistent with our hypotheses, however, the significant coefficient for the '*control vs. self-compassion*' contrast indicated that women who viewed self-compassion images (*M* = 67.48) reported significantly greater body satisfaction than those who viewed control images. The significant interaction term indicated that these results

were moderated by trait thin-ideal internalisation. Simple slopes analysis revealed that, among women low in thin-ideal internalisation, there was no difference in body satisfaction between those who viewed self-compassion ($M = 61.70$) and control images ($M = 53.76$; $\beta = .15$, $t = 1.68$, $p = .095$). However, like women with mean levels of thin-ideal internalisation (as indicated by the significant coefficient for '*control vs. self-compassion*' contrast in the main regression analysis reported above), simple slopes analyses indicated that women high in thin-ideal internalisation reported significantly greater body satisfaction at post-exposure after viewing self-compassion images ($M = 73.99$) compared to those who viewed control images ($M = 46.65$; $\beta = .29$, $t = 4.34$, $p < .001$). Also consistent with our hypothesis, the significant coefficient for the '*fitspiration vs. self-compassion and fitspiration*' contrast in the main regression analysis indicated that women who viewed fitspiration and self-compassion images ($M = 56.95$) reported greater body satisfaction than those who viewed fitspiration images only ($M = 44.94$). This effect was not moderated by thin-ideal internalisation.

Body Appreciation

Table 2 presents a summary of the regression analyses for body appreciation. The final model with all predictors and interaction terms accounted for a significant proportion of the total variation in participants' post-exposure state body appreciation ($R^2 = .78$, *adjusted R^2* $= .60$, $F(9, 149) = 24.39$, $p < .001$). Contrary to our hypothesis, the nonsignificant coefficient for the '*control vs. fitspiration*' indicated that there was no post-exposure difference in body appreciation between the control condition ($M = 53.63$) and those who viewed fitspiration images ($M = 47.45$). Consistent with our hypothesis, however, the significant coefficient for the '*control vs. self-compassion*' contrast indicated that women who viewed self-compassion images ($M = 66.00$) reported significantly greater body appreciation than those who viewed control images ($M = 53.63$). Also consistent with our hypothesis, the significant coefficient for the '*fitspiration vs. self-compassion and fitspiration*' contrast indicated that women who

viewed fitspiration and self-compassion images ($M = 56.70$) reported greater body appreciation than those who viewed fitspiration images only ($M = 47.45$). These effects were not moderated by thin-ideal internalisation.

Self-Compassion

Table 3 presents a summary of the regression analyses for self-compassion. The final model with all predictors and interaction terms accounted for a significant proportion of the total variation in participants' post-exposure state self-compassion ($R^2 = .73$, *adjusted R^2* = .53, $F(9,149) = 18.84$, $p < .001$). Consistent with our hypothesis, the significant coefficient for the '*control vs. fitspiration*' indicated women who viewed fitspiration images ($M = 46.56$) reported significantly less self-compassion that women in the control condition ($M = 54.83$). This effect was not moderated by thin-ideal internalisation. Also, consistent with our hypothesis, the significant coefficient for the '*control vs. self-compassion*' contrast indicated that women who viewed self-compassion images ($M = 65.82$) reported significantly greater self-compassion than those who viewed control images ($M = 54.83$). The significant interaction term indicated that these results were moderated by trait thin-ideal internalisation. Simple slopes analysis revealed that, among women low in thin-ideal internalisation, there was no difference in self-compassion between those who viewed self-compassion ($M = 61.41$) and control images ($M = 57.89$; $\beta = .09$, $t = .862$, $p = .390$). However, like women with average levels of thin-ideal internalisation (as indicated by the significant coefficient for '*control vs. self-compassion*' contrast in the main regression analysis reported above), simple slopes analyses indicated that women high in internalisation reported significantly greater self-compassion at post-exposure after viewing self-compassion images ($M = 70.85$) compared to those who viewed control images ($M = 51.71$; $\beta = .46$, $t = -4.13$, $p < .001$). Also consistent with our hypothesis, the significant coefficient for the '*fitspiration vs. self-compassion & fitspiration*' contrast in the main regression analysis indicated that women who

viewed fitspiration and self-compassion images ($M = 55.82$) reported greater self-compassion than those who viewed fitspiration images only ($M = 46.56$). These effects were not moderated by thin-ideal internalisation.

Negative Mood

Table 4 presents a summary of the regression analyses for negative mood. The final model with all predictors and interaction terms accounted for a significant proportion of the total variation in participants' post-exposure state mood ($R^2 = .82$, adjusted $R^2 = .67$, $F(9,149) = 33.49$, $p < .001$). Contrary to our hypothesis, the nonsignificant coefficient for the '*control vs. fitspiration*' indicated that there was no post-exposure difference in negative mood between the control condition ($M = 45.25$) and those who viewed fitspiration images ($M = 47.25$). Consistent with our hypothesis, however, the significant coefficient for the '*control vs. self-compassion*' contrast indicated that women who viewed self-compassion images ($M = 35.08$) reported significantly less negative mood than those who viewed control images ($M = 45.19$). The significant interaction term indicated that these results were moderated by trait thin-ideal internalisation. Specifically, simple slopes analysis revealed that, among women low in thin-ideal internalisation, there was no difference in mood between those who viewed self-compassion ($M = 36.39$) and control images ($M = 40.98$; $\beta = -.09$, $t = -1.07$, $p = .286$). However, women high in thin-ideal internalisation reported significantly less negative mood at post-exposure after viewing self-compassion images ($M = 34.80$) compared to those who viewed control images ($M = 46.03$; $\beta = -.24$, $t = -4.08$, $p = < .001$). Also consistent with our hypothesis, the significant coefficient for the '*fitspiration vs. self-compassion and fitspiration*' contrast indicated women who viewed fitspiration and self-compassion images ($M = 36.92$) reported less negative mood than those who viewed fitspiration images only ($M = 47.25$). This effect was not moderated by thin-ideal internalisation.

Discussion

The overarching aim of the present study was to examine the impact of fitspiration images and self-compassion quotes on *Instagram* on women's body image, self-compassion, and negative mood. Contrary to Hypothesis 1, the current study did not find that exposure to fitspiration images resulted in significantly poorer body image and negative mood compared to exposure to neutral *Instagram* images. Consequently, we did not replicate the significant findings of Tiggemann and Zaccardo (2015) on these outcomes. This might be explained by methodological discrepancies between the two studies (e.g., different control images: travel in the Tiggemann & Zaccardo study, interior design in the current study). However, this appears unlikely given the overwhelming similarity on most other design characteristics (e.g., similar number and content of fitspiration images). Given that the present study is only the second experimental study to examine the impact of fitspiration images on body image and mood, the inconsistent findings indicate that further replication is necessary to fully elucidate the impact of exposure to this particular type of imagery.

Interestingly, although we found no differences on body image and mood, we found that women who viewed fitspiration images reported significantly less self-compassion at post-exposure than women who viewed control images. Consequently, viewing fitspiration images on *Instagram* does not appear to be benign, and we found partial support for Hypothesis 1. This finding might be explained by the fact that fitspiration images and hashtags often reference or imply the need for self-control and discomfort to achieve goals, and can therefore contain guilt-inducing messages (Boepple et al., 2016; Boepple & Thompson, 2016). This is in direct contrast to the concept of self-compassion, which advocates loving self-kindness and being non-judgemental to oneself.

The second aim of the current study was to examine the impact of exposure to self-compassion quotes on women's body image and mood. Although some research has suggested that self-compassion may operate as a buffer against poor body image by

potentially disrupting the pathway by which risk factors operate (Albertson et al., 2015; Braun et al., 2016; Homan & Tylka, 2015; Tylka & Kroon Van Diest, 2015), no research prior to the present study had examined the potential impact of viewing quotes that encapsulate the key messages of self-compassion in the social media environment. Our findings show that brief exposure to such quotes may be beneficial to women's body image, levels of self-compassion, and mood. Compared to women who viewed neutral images, women who viewed self-compassion quotes on *Instagram* reported greater body satisfaction, body appreciation, self-compassion, and lower negative mood. This is an interesting and novel finding that offers some hope for a possible positive influence of social media. While quotes that appear to encapsulate self-compassion seem ubiquitous on social media (with #selflove retuning over 8 million images on *Instagram*), the fact that viewing a relatively small number of these quotes (20) for a brief period (5 minutes) led to women feeling more positively about their bodies, more self-compassionate, and happier, is noteworthy.

The final aim of the current study was to investigate whether the addition of self-compassion quotes to fitspiration images could buffer the expected negative effects of viewing fitspiration images. Unfortunately, given the lack of negative effects from exposure to fitspiration images, it was not possible to demonstrate a true buffering effect. However, as predicted in Hypothesis 3, women who viewed a combination of fitspiration and self-compassion images displayed more body satisfaction, body appreciation, and self-compassion, and less negative mood compared to women who viewed only fitspiration images (and did not differ compared to viewing the neutral control images). The fact that the inclusion of only five self-compassion quotes alongside 15 images of lean and toned bodies resulted in participants feeling more positively towards their bodies is noteworthy, further highlighting the potential benefit of viewing self-compassionate content in the social media environment.

This study also investigated whether the impact of viewing fitspiration and self-compassion *Instagram* images was moderated by trait levels of thin-ideal internalisation. Prior research indicates that women with higher levels of thin-ideal internalisation of sociocultural appearance ideals are more likely to be affected by exposure to thin-ideal media imagery than women with lower levels of internalisation (Halliwell & Diedrichs, 2012). However, in the current study, we found that thin-ideal internalisation did not moderate the impact of viewing fitspiration images relative to control or relative to fitspiration and self-compassion images. This unexpected finding may be because the measure of thin-ideal internalisation used in the current study questions the extent to which individuals wish to be like, and compare themselves to, models and people seen in traditional media formats (e.g., television, magazines). Alternatively, social media image feeds, such as those on *Instagram*, can contain a mixture of images of real-life friends and acquaintances, and celebrities. Therefore, the relationship between thin-ideal internalisation as it is commonly measured and social media exposure may not be as straightforward as has been previously observed in studies examining traditional media exposure.

Nonetheless, the impact of viewing self-compassion images relative to control images was moderated by thin-ideal internalisation. Specifically, improvements in body satisfaction, self-compassion, and mood were only observed among women with average and high levels of thin-ideal internalisation. This was not the case with body appreciation, however. The impact of exposure to media imagery on body appreciation is it its infancy, as is research evaluating the impact of self-compassion interventions on body image. Therefore, it is difficult to know the reason for these nonsignificant findings. One explanation could be that women who have a propensity to internalise appearance ideals are less likely to follow self-compassion related content on social media in their everyday lives. Consequently, there may have been greater room for state-based improvements after observing self-compassion quotes

on *Instagram* in the current study for these women. This explanation is purely speculative, however, and it does not explain why there were no effects on body appreciation. Unfortunately, our data cannot provide insights into the underlying mechanisms for these effects. Further, it should be noted that only three items of the Body Appreciation Scale (Avalos et al., 2005) were used to measure body appreciation in the current study, and two of these items were not retained in the revised Body Appreciation Scale-2 (Tylka & Wood-Barcalow, 2015a). Further research is necessary to understand and replicate the current findings regarding the role of thin-internalisation and body appreciation in the social media environment.

Taken together, the present study's findings suggest that self-compassion might offer a practical avenue for attenuating the known negative impact of social media on women's body satisfaction. Although the current findings only demonstrate the immediate impact of very short-term exposure to self-compassionate content, they suggest that further exploration of this approach is worthwhile. Future research that investigates the potential for longer-term benefit of exposure to self-compassionate content would be valuable. Traditionally, intervention approaches that aim to improve body satisfaction have employed techniques of teaching media literacy skills in modular-based in-depth interventions face-to-face and online. However, the social media environment may offer the opportunity for a novel approach to intervention. It could be that the encouragement of inclusion of body positive and compassionate content into women's social media feeds (that for many likely includes both thin and toned bodies and messages about the importance of striving to achieve these ideals) offers a way to mute the negative impacts of exposure to such content (Fardouly & Vartanian, 2016; Tiggemann & Zaccardo, 2015), and could be considered a 'light-touch,' cost-effective, and scalable intervention strategy. In addition, teasing apart the content of self-compassion quotes, to examine the impact of more generic self-compassion quotes (e.g.,

"It is not selfish to love yourself, take care of yourself, and make your happiness a priority. It is necessary"), compared to more specific body-focused self-compassion quotes (e.g., "You are beautiful no matter what shape you are") would be a useful future pursuit.

As with all research, the current findings need to be considered in light of possible limitations of the study. First, like the majority of the body image literature, the current participants were university students, thus limiting the generalisability of the findings to other groups of women. Second, the study examined very short-term exposure to two different types of *Instagram* images. Women were only shown 20 images for a period of 5 minutes. Given that participants reported spending a modal time of 31-60 minutes per day on *Instagram*, the limited experimental exposure is not representative of the actual exposure that women likely have to *Instagram* imagery. Future research might usefully aim to investigate the impact of more 'naturalistic' exposure to social media images, for example by employing ecological momentary assessments, as has been suggested elsewhere (Fardouly & Vartanian, 2016). Finally, despite the fact that one of the strengths of the study was our attempt to make the viewing conditions more ecologically valid than previous research (e.g., by displaying the images in actual *Instagram* accounts, on iPads, and allowing participants to view each image for as long as they like), participants were still not able to interact with the images as they might in reality, for example by 'liking' or commenting on the images. Again, finding ways to incorporate realistic social media use into research studies (across a number of social media platforms) will be critical for understanding the full impact of this media.

In spite of these limitations, the present study makes an important contribution to the growing body of literature focusing on the impact of exposure to 'new' media. Our findings regarding the positive impact of exposure to self-compassion quotes displayed on social media on women's body satisfaction and body appreciation are novel and noteworthy. Given the proliferation of images and content encouraging women to aspire to unrealistic and

unattainable body ideals, and the known negative impacts of exposure to such content, the

current study instead suggests that encouraging women to take a kind, compassionate view of

themselves via social media may positively impact on their body image and mood, and thus

offer a novel avenue for intervention.

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Table 1

Body Satisfaction Regression Analysis

Step and Variable	B	β	t	95% CI for B Lower	95% CI for B Upper	sr^2	R^2	Adj R^2	ΔR^2	df	ΔF
Step 1							.45	.44	.45	2,156	63.40***
Body Mass Index	-0.65	-.08	-1.43	-1.54	.25	.00					
Baseline Body Satisfaction	0.65	.64	11.36***	.54	.76	.34					
Step 2							.56	.55	.12	3, 153	14.10***
Control vs. Fitspo (1)	-5.31	-.10	-1.61	-11.84	1.23	.00					
Control vs. Self-Comp (2)	17.24	.33	4.97***	10.39	24.08	.06					
Control vs. Self-Comp & Fitspo (3)	6.70	.13	2.01	.12	13.28	.01					
Fitspo vs. Self-Comp & Fitspo (4)	12.01	.23	3.65***	5.51	18.50	.03					
Step 3							.58	.56	.01	1,152	2.26
Thin-ideal Internalisation (Int)	-3.63	-.16	-1.63	-8.01	.76	.00					
Step 4							.61	.59	.04	3, 149	4.389*
1 x Int	2.91	.07	0.93	-3.25	9.06	.00					
2 x Int	9.58	.17	2.53*	2.11	17.06	.02					
3 x Int	-4.47	-.09	-1.31	-11.24	2.30	.00					
4 x Int	-7.38	-.14	-2.13	-14.23	-.53	.01					

Note. B, β, t, sr^2 from the final model. *$p < .028$. ***$p < .001$. ***$p < .0001$. 'Fitspo' = Fitspiration, 'Self-Comp' = Self-compassion, 'Int' = Thin-ideal internalisation. 'Fitspiration vs. Self-Compassion & Fitspiration' contrast and its interaction term are from a separate but identically structured regression analysis with corresponding dummy codes entered at Steps 2 and 4.

Table 2

Body Appreciation Regression Analysis

Step and Variable	B	β	t	95% CI for B Lower	95% CI for B Upper	sr^2	R^2	Adj R^2	ΔR^2	df	ΔF
Step 1							.44	.43	.44	2,156	61.09***
Body Mass Index	-0.29	-.04	-0.76	-1.05	.47	.02					
Baseline Body Appreciation	0.61	.65	11.55***	.51	.72	.36					
Step 2							.57	.56	.13	3,153	15.45***
Control vs. Fitspo (1)	6.27	.14	-2.17	-11.98	-.56	.01					
Control vs. Self-Comp (2)	13.57	.30	4.47***	7.57	19.57	.05					
Control vs. Self-Comp & Fitspo (3)	3.15	.07	1.08	-2.59	8.90	.00					
Fitspo vs. Self-Comp & Fitspo (4)	9.42	.21	3.28**	3.74	15.11	.03					
Step 3							.58	.57	.01	1,152	4.38
Thin-ideal internalisation (Int)	-2.45	-.12	-1.25	-6.31	1.42	.00					
Step 4							.60	.57	.01	3,149	1.72
1 x Int	0.58	.02	0.21	-4.81	5.98	.00					
2 x Int	4.31	.09	1.31	-2.19	10.80	.00					
3 x Int	-3.59	-.08	-1.20	-9.51	2.34	.00					
4 x Int	-4.17	-.10	-1.38	-2.88	10.32	.01					

Note. B, β, t, sr^2 from the final model. *$p < .028$. ***$p < .001$. ***$p < .0001$. 'Fitspo' = Fitspiration, 'Self-Comp' = Self-compassion, 'Int' = Thin-ideal internalisation. 'Fitspiration vs. Self-Compassion & Fitspiration' contrast and its interaction term are from a separate but identically structured regression analysis with corresponding dummy codes entered at Steps 2 and 4.

Table 3

Self-compassion Regression Analysis

Step and Variable	B	β	t	95% CI for B Lower	95% CI for B Upper	sr^2	R^2	Adj R^2	ΔR^2	df	ΔF
Step 1							.35	.34	.35	2, 156	41.14***
Body Mass Index	-0.30	-.05	-0.81	-1.04	.44	.00					
Baseline Self-compassion	0.53	.54	9.09***	.42	.65	.26					
Step 2							.47	.46	.13	3, 153	12.39***
Control vs. Fitspo (1)	-8.26	-.20	-2.88*	-13.94	-2.59	.03					
Control vs. Self-Comp (2)	10.99	.27	3.68***	5.10	16.89	.04					
Control vs. Self-Comp & Fitspo (3)	0.99	.02	0.34	-4.69	6.66						
Fitspo vs. Self-Comp & Fitspo (4)	9.25	.23	3.27**	3.66	1484	.03					
Step 3							.47	.47	.02	1, 152	5.48*
Thin-ideal internalisation (Int)	-3.15	-.17	-1.65	-6.92	.62	.00					
Step 4							.50	.50	.04	3, 149	4.33*
1 x Int	0.93	.03	0.35	-4.41	6.27	.01					
2 x Int	7.70	.18	2.35*	1.22	14.18	.00					
3 x Int	-4.78	-.12	-1.62	-10.59	1.04	.02					
4 x Int	-5.71	-.14	-1.92	-11.58	.165	.01					

*Notes: B, β, t, sr^2 from the final model. *$p < .028$. ***$p < .001$. ***$p < .0001$. 'Fitspo' = Fitspiration, 'Self-Comp' = Self-compassion, 'Int' = Thin-ideal internalisation. 'Fitspiration vs. Self-Compassion & Fitspiration' contrast and its interaction term are from a separate but identically structured regression analysis with corresponding dummy codes entered at Steps 2 and 4.*

Table 4

Negative Mood Regression Analysis

Step and Variable	B	β	t	95% CI for B Lower	95% CI for B Upper	sr^2	R^2	Adj R^2	ΔR^2	df	ΔF
Step 1							.58	.58	.58	2,156	107.90***
Body Mass Index	0.28	.04	0.72	-.49	1.05	.00					
Baseline Negative Mood	0.68	.74	14.62***	.59	.77	.47					
Step 2							.64	.63	.06	3,153	8.64***
Control vs. Fitspo (1)	-2.05	.04	0.70	-3.79	7.92	.00					
Control vs. Self-Comp (2)	-12.60	-.25	-4.05***	-18.75	-6.45	.04					
Control vs. Self-Comp & Fitspo (3)	-5.44	.11	-1.84	-11.30	.42	.01					
Fitspo vs. Self-Comp & Fitspo (4)	-7.49	-.15	-2.54*	-13.31	-1.67	.01					
Step 3							.65	.64	.01	1,152	4.39
Thin-ideal internalisation (Int)	4.34	.19	2.17	.39	8.29	.01					
Step 4							.67	.65	.02	3,149	2.69
1 x Int	-2.50	-.06	-0.89	-8.03	3.03	.00					
2 x Int	-8.26	.15	-2.40*	-15.06	-1.45	.01					
3 x Int	1.26	.03	0.41	-4.83	7.34	.00					
4 x Int	3.99	.07	1.16	-2.81	10.79	.00					

Note. B, β, t, sr^2 from the final model. *p < .028. ***p < .001. ***p < .0001. 'Fitspo' = Fitspiration, 'Self-Comp' = Self-compassion, 'Int' = Thin-ideal internalisation. 'Fitspiration vs. Self-Compassion & Fitspiration' contrast and its interaction term are from a separate but identically structured regression analysis with corresponding dummy codes entered at Steps 2 and 4.