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ORIGINAL ARTICLE

The Impact of Different Forms of #fitspiration Imagery on Body Image, Mood, and Self-Objectification among Young Women

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Abstract The present study experimentally examined the impact of different forms of inspirational fitness images ("fitspiration") on women's body image. Australian female participants (n = 152, 17–30 years-old; M_{age} = 21.55, SD = 3.94) were randomly assigned to view fitspiration media which depicted the body in a functional (performing exercise) or non-functional (posed) way, with or without accompanying appearance-focused text. There were no main effects of image type or text presence for body satisfaction, mood, or state self-objectification. However, state body satisfaction decreased and negative mood increased over time following exposure to the fitspiration images. Trait self-objectification moderated the impact of image type and text on state body satisfaction, such that viewing functional images presented with appearance-focused text resulted in poorer body satisfaction for women with higher trait self-objectification, but not for those with lower self-objectification. The findings demonstrate that irrespective of focus or presence of text, exposure to fitspiration images decreases body satisfaction and increases negative mood, highlighting the potential negative consequences of engaging with fitspiration media.

Keywords Body image · Fitspiration · Body functionality · Media · Objectification

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Research on the impact of media has reliably demonstrated that exposure to thin-ideal images increases body dissatisfaction in women (see meta-analytic reviews by Grabe et al. 2008; Groesz et al. 2002). In recent years, social media sites such as Facebook and Instagram have provided a new platform for the transmission of societal body ideals. Although the thin ideal is still prominent, a new "fit" ideal has emerged (Boepple et al. 2016; Schaefer et al. 2015). In particular, "fitspiration" is a rising movement within social media sites which features ideal fitness images and promotes healthy eating and exercise through both text and imagery with a view to increasing physical activity and well-being (Boepple and Thompson 2016; Jong and Drummond 2016). Despite the fitness focus, the images promote weight loss and the importance of appearance, and only one body type is predominantly pictured in fitspiration posts, that is, a thin and toned body (Boepple et al. 2016; Carrotte et al. 2017; Tiggemann and Zaccardo 2016).

A small body of research exists demonstrating the negative impact of viewing ultra-fit images as distinct from thin-ideal images (e.g., Garvin and Damson 2008; Homan et al. 2012). Garvin and Damson (2008) demonstrated that women exposed to fitness magazines featuring ultra-fit images of individuals wearing swimwear, fitness clothing or engaging in exercise displayed greater depressive symptomatology and state anxiety in comparison to women who viewed neutral images from *National Geographic*. Homan et al. (2012) established that women who viewed photographs of thin and athletic women had greater levels of body dissatisfaction than did women who viewed control images of neutral objects. Furthermore, exposure to images of average weight women who appeared athletic did not result in greater body dissatisfaction relative to controls, suggesting that it is the thinness of typical fitness images that is the major contributor to negative body image. This suggestion is

supported by Benton and Karazsia (2015) who found that images that were both thin and muscular were just as detrimental to women's body image as classic thin-ideal images.

Although the foci of fashion and fitness media are very different in terms of what they sell (fashion versus fitness), the thin ideal is generally present in both. The effect of fitspiration imagery on women's body image is therefore likely to be similar to that observed for fashion, beauty, and fitness magazines. In line with this expectation, Tiggemann and Zaccardo (2015) have demonstrated that viewing fitspiration images results in greater body dissatisfaction (increased negative feelings and thoughts about one's body; Grogan 2008) and reduced state appearance self-esteem in comparison to viewing travel images among undergraduate women. Recently, Robinson et al. (2017) have shown that women exposed to fitspiration images report greater body dissatisfaction than women exposed to traditional thin-ideal images do. However, viewing fitspiration images also appears to inspire women to increase their fitness in comparison to women who view travel images (Tiggemann and Zaccardo 2015) or thin-ideal images (Robinson et al. 2017). The inspirational quality of these images and their focus on the positive health behaviour of exercise may be one reason that these images have grown in popularity on social media. Given their popularity, and the demonstrated link to body dissatisfaction, it is important to understand features within fitspiration imagery that may pose the most concern.

One prominent feature of fitspiration images is that many of them objectify the female body by placing it on display and focusing on how it looks rather than its functional capacity (Carrotte et al. 2017; Tiggemann and Zaccardo 2016). This objectification can lead some women to become preoccupied with their external appearance and to view their bodies as an object to be looked at, a process termed *self-objectification* (Fredrickson and Roberts 1997). Self-objectification can be experienced as a state, whereby certain cues or situations may prompt an observer's perspective of the self or as a relatively enduring individual difference trait (Miner-Rubino et al. 2002). Exposure to idealised imagery of the female body has been shown to increase state self-objectification among women. Harper and Tiggemann (2008) found that women who viewed magazine advertisements featuring female models reported higher levels of state self-objectification, body dissatisfaction, and negative mood than those who viewed advertisements featuring products only. In a study of young women exposed to music video clips, Prichard and Tiggemann (2012) reported higher state self-objectification among those who viewed music videos with an appearance focus compared to no-appearance focus. However, the state self-objectification experienced was reduced among participants who viewed the music videos while walking on a treadmill. The authors suggested that perhaps the engagement in exercise led participants to focus on the functionality and movement of their body rather than its appearance, reducing the potentially objectifying nature of the situation (Prichard and Tiggemann 2012). It remains unknown whether exposure to fitness images increases state self-objectification.

Fitspiration images can be categorised as showing the body in a functional or non-functional way. Content analyses (Boepple et al. 2016; Carrotte et al. 2017; Tiggemann and Zaccardo 2016) show that many of the images are taken in gymnasiums or fitness centres during exercise, and they depict the body physically doing something such as lifting weights, running or stretching. In this way, they demonstrate the functional capabilities of the female form. Other images can be considered non-functional in that they depict individuals in sedentary or posed positions, sometimes taken of themselves in the mirror (commonly termed "a selfie"). Although previous research has investigated the effect of fitness media on body dissatisfaction and mood (Garvin and Damson 2008; Homan et al. 2012; Robinson et al. 2017; Tiggemann and Zaccardo 2015), it has not taken into account any differences in the way the bodies were presented in the images.

It seems possible that imagery which focuses on active movement and body competence could prompt a focus on what the body can do and its functionality rather than on its appearance. In line with objectification theory (Fredrickson and Roberts 1997), viewing images that focus on body functionality should elicit a less objectifying experience for young women and result in more positive outcomes on body satisfaction and mood than would posed images. This potential positive effect from viewing the female form actively doing something could help explain the popularity of fitspiration images and their inspirational value. As such, the ability of these different types of images to elicit fitness inspiration and achievability, in addition to their effect on body dissatisfaction, mood and self-objectification, will be explored in the present study.

A common feature of fitspiration imagery is the presence of motivational quotes that are designed to inspire health and fitness (Boepple and Thompson 2016; Tiggemann and Zaccardo 2016). However, examination of these messages on fitspiration websites (Boepple and Thompson 2016) indicates that they are predominantly appearance-focused (e.g., "Do it for the 'Holy shit, you got hot'"), with approximately 42% of fitspiration pages promoting weight loss (e.g., "Think of that feeling you'll get when you've reached your goal weight"), 36% displaying objectifying messages (e.g., "Skinny girls look good in clothes, fit girls look good naked"), and 26% inducing body-related guilt (e.g., "Excuses don't burn calories"). Appearance-related comments themselves are associated with greater body image concern and self-objectification (Slater and Tiggemann 2015; Tiggemann and Boundy 2008). In one of the only known studies to examine the impact of objectifying words, Roberts and Gettman (2004) established that priming participants with appearance-related

words led to greater levels of state self-objectification than priming with words related to body competence or neutral words. Based on these findings, the presence of appearance-focused text within fitspiration imagery would likely heighten any negative body image outcomes. In other words, the presence (or absence) of appearance-focused text could be expected to interact with image type (functional or non-functional) in their effects on body image outcomes.

Some authors have suggested that the content of healthy living blogs (personal webpages that provide information on exercise, eating, and self-image related to an individual's lifestyle) and fitspiration webpages might negatively impact women who have existing body image concerns (Boepple and Thompson 2016). Previous research has demonstrated that women higher on trait self-objectification are more responsive to appearance-related stimuli in general (Calogero et al. 2009; Tiggemann and Boundy 2008). For example, women who reported greater trait self-objectification responded to subtle appearance-related cues (such as bathroom scales, a mirror, and covers of fashion magazines) with greater state self-objectification (Tiggemann and Boundy 2008). The extent to which body image outcomes are affected by media imagery and appearance-focused text is therefore likely to depend on (be moderated by) individual levels of trait self-objectification.

The present study aimed to examine the impact of different presentations of the body (functional or non-functional) within fitness images on state self-objectification, body satisfaction, and negative mood among young adult women aged between 17 and 30 years-old. Given that fitspiration imagery is often accompanied by appearance-focused text and that text has been shown sufficient to elicit an objectifying experience (Roberts and Gettman 2004), we also examined the effect of viewing fitspiration material with or without appearance-focused text. We expected that image type (functional, non-functional) and text condition (no text, text) would interact. Specifically, we predicted that non-functional images would elicit a greater decrease in state body satisfaction and a greater increase in negative mood and state self-objectification than functional images, but that the effect would be greater when images were presented with appearance-focused text than without any text. We also predicted that trait self-objectification would enhance the effect.

Method

Participants

Participants were 152 women aged between 17 and 30 years (M = 21.55, SD = 3.94) and with a mean body mass index (BMI) of 23.81 (SD = 5.44, range = 17.26–55.71). A majority was Caucasian (140, 92.10%), with the remaining participants identifying themselves as Asian (2.00%), Indigenous Australian (2.00%), or "other" (3.90%). Of the total sample, 98 (64%) were first year psychology students recruited from Flinders University in South Australia who received course credit in exchange for their participation. The remaining 54 (36%) participants were recruited online via links shared on general social networking sites (e.g., Facebook) and did not receive any incentive for participation. The first year students were significantly younger (M = 19.41, SD = 2.37) than those recruited online (M = 25.44, SD = 3.15), $t(150) = 12.28$, $p < .001$, $d = 2.16$, but they did not differ significantly in BMI ($p = .264$, $d = .18$) or ethnicity ($p = .318$, Cramer's V = .18).

Design and Experimental Manipulation

The study used a randomised 2 (image type: functional, non-functional) × 2 (text condition: no text, text) × 2 (time: pre-exposure, post-exposure) mixed design. Image type and text condition were between-subjects factors, and time was a within-subjects factor. The dependant variables were state body satisfaction, negative mood, and state self-objectification. Trait self-objectification was examined as a moderating variable.

Image Type

Two sets of 14 images depicting a thin and toned woman were utilised in the present study. The functional set of images displayed the women's bodies engaged in physical movement, action or exercise (e.g., running, squatting). The non-functional set of images depicted the same women's bodies in sedentary or posed positions. Pairs of functional and non-functional images depicted the same person in the same style of clothing with the same proportion of the body visible. Images were cropped to make the body rather than the background the main focus of the image. Matching images in this way controlled for body type and perceived attractiveness.

The final image sets were selected from 24 pairs of functional and non-functional images of the same woman sourced from popular public and freely available social media sites (e.g., Facebook, Instagram). These images were rated by four independent female raters in the target age range who were instructed to select the 14 image pairs which possessed the best image quality and similarity in attributes including clothing, proportion of body visible, hairstyle, and location. All four raters chose the same 13 image pairs, with the 14th chosen by three of the four raters.

Text Condition

Twenty appearance-related inspirational quotes were sourced from public social media sites (e.g., Facebook, Instagram) and

were rated by four independent female raters on a scale of 1 (*no appearance focus*) to 10 (*extreme appearance focus*), allowing a maximum total combined score of 40 for each quote. The 14 quotes which received the combined highest scores were included in the study (M = 31.00, SD = 2.20, range = 29–36). Quotes focused on looking good (e.g., "Train like a beast, look like a beauty"), the link between fitness and thinness (e.g., "Fit is the new thin"), and not making excuses (e.g., "No if's and/or jiggly butts!"). The authors collectively decided which quote best matched an image pair based on its relevance to the image. For example, the text "Suck it up and one day you won't have to suck it in" was matched with an image which focused on a female stomach.

Measures

Demographic Information and Exercise History

All participants were asked to record their age, ethnicity, and current weight and height. Current weight and height were used to calculate BMI (kg/m^2). In line with the cover story (that the study was about fitness and exercise motivation), current levels of physical activity were measured using the 7-day version of the International Physical Activity Questionnaire (Booth et al. 2003). Participants were asked to record how many days in the past 7 days they had engaged in vigorous, moderate or walking exercise and how much time was spent on the activity on each occasion in minutes. A total score for exercise per week was calculated by computing the sum of each activity's duration by its frequency, allowing for a comparison across groups for overall engagement in physical activity.

State Body Satisfaction and Mood

To measure state body satisfaction and mood immediately before and after viewing the fitness images, participants were presented with a series of visual analog scales (VAS; Heinberg and Thompson 1995; Tiggemann and Slater 2004). Following Prichard and Tiggemann (2012), four items (fat, physically attractive, satisfied with body size, satisfied with body shape) represented satisfaction with shape and size and five items (anxious, depressed, happy, angry, confident) represented state mood. Participants were asked to rate how they felt "right now" with regard to each dimension by sliding a marker along a 10 cm horizontal line with endpoints labelled "not at all" to "very much." Each scale was measured to the nearest millimetre, with scores ranging from 0 to 100. The relatively precise nature of this scale allowed for sensitivity to small changes across time (Heinberg and Thompson 1995). Items on each dimension were then averaged to gain an overall index of body satisfaction ("fat" was reverse scored) and negative mood ("happy" and "confident" were reverse scored).

State Self-Objectification

To assess state self-objectification pre-test and post-test, the State Self-Objectification Scale (Prichard and Tiggemann 2012) was administered. This scale presented participants with the ten attributes from the original Self-Objectification Questionnaire (Noll and Fredrickson 1998) and asked them to rate how important each attribute was to them ("right now") on VAS by sliding a marker to the appropriate position on a 10 cm horizontal line with endpoints of "not at all important" and "very important." Each item ranged from zero to 100 and was scored to the nearest millimetre. State self-objectification scores were calculated by determining the difference between ratings of appearance-based attributes (weight, sex appeal, physical attractiveness, firm/sculpted muscles, body measurements) and competency-based attributes (physical co-ordination, health, strength, physical fitness, energy level). The difference was then divided by five, resulting in scores ranging from −100 to +100, with higher more positive scores indicating greater state self-objectification.

Trait Self-Objectification

Trait self-objectification was measured using Noll and Fredrickson's (1998) Self-Objectification Questionnaire. Participants were asked to rank order a list of ten attributes in order of importance to their individual physical self-concept. As outlined in the state self-objectification measure, five attributes are appearance-based and five are competency-based. The most important item was scored nine points, second most important scored eight, and so on with the least important scoring zero (Noll and Fredrickson 1998). A total score for the scale was calculated by subtracting the sum of the competency-based rankings from the appearance-based rankings, producing a score ranging between −25 and +25. Higher and more positive scores indicate greater trait self-objectification (Fredrickson et al. 1998).

Achievability and Inspiration Ratings

Using VAS, participants were asked to rate from "not at all" to "very" how achievable they believed the bodies they saw were and how inspirational they found the images presented to them during the session overall. Each item ranged from zero to 100 and was scored to the nearest millimetre.

Procedure

The study received ethics approval from the Social and Behavioural Research Ethics Committee at Flinders University and was conducted online. It was advertised as a study on online fitness and exercise motivation. Completion of the online survey was considered as providing informed

consent. After completing baseline VAS measures of state body satisfaction, mood, and state self-objectification, the on-line platform Qualtrics randomly assigned participants to one of the four experimental conditions. To ensure attention, participants were asked to look at each image and rate on a VAS how inspirational they found the image. Following exposure to the images, participants repeated the VAS of state body satisfaction, mood, and state self-objectification. They then completed the trait measure of self-objectification and provided information on their current weight and height, and they rated how inspirational they found the imagery overall and how achievable they believed the bodies depicted were.

Results

Characteristics of the Sample

The sample reported exercising approximately 4.53 h per week (SD = 4.35, range = 0–19). There were no differences across conditions for amount of exercise undertaken per week, age, or BMI. Nor were there any significant differences in initial state body satisfaction, mood, or self-objectification at baseline across the experimental conditions (all Fs < 2.45, p > .066). Finally, there was no significant difference between conditions on trait self-objectification, $F(3, 142) = 1.86$, $p = .139$, indicating that this measure was not reactive to the experimental manipulation. There was also no significant difference on trait self-objectification between women recruited via social media or the university, $t(118) = 1.67$, $p = .097$, $d = .28$ (overall $M = -5.17$, $SD = 12.28$). Across the sample, trait self-objectification was negatively associated with baseline state body satisfaction, $r(143) = -.22$, $p = .009$, and positively associated with negative mood, $r(142) = .33$, $p < .001$, and state self-objectification, $r(143) = .61$, $p < .001$. State body satisfaction was negatively related to state mood, $r(150) = -.53$, $p < .001$, and state self-objectification, $r(152) = -.17$, $p = .036$, and there was a positive relationship between negative mood and state self-objectification, $r(150) = .21$, $p = .012$.

Condition and State Body Image, Mood, and Self-Objectification

An initial MANOVA was conducted to assess the effects of image type (functional, non-functional) and text presence (text, no text) on the three dependent variables of state body satisfaction, negative mood, and state self-objectification (means displayed in Table 1). Overall, there was a main effect of time, $F(3, 142) = 10.04$, $p < .001$, Wilks' Lambda = .83, $\eta p^2 = .18$. However, there was no significant interaction between time and image type, $F(3, 142) = .19$, $p = .903$, $\eta p^2 = .04$, or between time and text type, $F(3, 142) = .25$, $p = .864$, $\eta p^2 = .05$, and the three-way interaction among time, image type, and text type was not significant, $F(3, 142) = .46$, $p = .710$, $\eta p^2 = .01$.

Follow-up univariate mixed ANOVAs confirmed that there were no significant 2- or 3-way interactions for any outcome (all Fs < .90, p > .346). In terms of the main effect of time, this was significant for state body satisfaction, $F(1, 144) = 5.65$, $p = .019$, $\eta p^2 = .04$, and negative mood, $F(1, 144) = 29.76$, $p < .001$, $\eta p^2 = .17$, but not for state self-objectification, $F(1, 144) = .04$, $p = .846$, $\eta p^2 = .00$. Thus participants felt less satisfied with their bodies and greater negative mood following exposure to the fitness images.

Condition and Ratings of Inspiration and Achievability

Two-way between groups ANOVAs were performed to determine whether there were any significant differences in ratings of inspiration or achievability across the images displayed according to image type and text presence. Despite featuring the same person across the functional and non-functional images, functional images were rated as significantly more inspirational (M = 51.63, SD = 26.90) than non-functional images (M = 40.49, SD = 31.10), $F(1, 138) = 4.97$, $p = .027$, $\eta p^2 = .04$. They were also rated as more achievable (functional; M = 52.89, SD = 25.94; non-functional: M = 42.64, SD = 28.57), $F(1, 138) = 4.77$, $p = .031$, $\eta p^2 = .03$. The presence of text did not alter perceptions of inspiration, $F(1, 138) = .50$, $p = .479$, $\eta p^2 = .00$, or achievability, $F(1, 138) = 2.00$, $p = .159$, $\eta p^2 = .01$. The interactions for inspiration, $F(1, 138) = .71$, $p = .400$, $\eta p^2 = .01$, and achievability, $F(1, 138) = .25$, $p = .618$, $\eta p^2 = .00$, were not significant.

Trait Self-Objectification as a Moderator

Given trait self-objectification was a continuous variable, hierarchical multiple regression was used to determine whether it would moderate the effect of image type and text presence on state body satisfaction, mood, and state self-objectification. In each regression, the baseline state measure was entered at Step 1. At Step 2, centred trait self-objectification, image type condition, and text presence condition were entered. This was followed by the two-way product variables at Step 3 and the three-way product variable at Step 4. Results are presented in Table 2 and are only discussed in relation to trait self-objectification (because effects of image type and text condition have already been reported).

For body satisfaction, Step 2 did not explain any additional significant variance, $F_{change}(3, 138) = 1.30$, $p = .278$, nor did Step 3, $F_{change}(3, 135) = .64$, $p = .589$. However, at Step 4, the addition of the three-way interaction term among trait self-objectification, image type, and text presence added significant variance, $F(1, 134) = 8.86$, $p = .003$ (see Table 2). No significant interaction effects were evident for state mood or

Table 1 Descriptive statistics for study variables across experimental conditions and over time

Variable	Functional Image				Non-functional Image				Change after	
	Text (n = 36)		No text (n = 38)		Text (n = 37)		No text (n = 37)		Exposure (n = 148)	
Testing	M (SD)		M (SD)		M (SD)		M (SD)		M (SD)	
Body satisfaction										
Pre-exposure	37.57	(22.43)	38.59	(23.23)	40.05	(20.15)	47.75	(23.90)	41.00	$(22.61)_a$
Post-exposure	33.64	(24.15)	36.56	(24.15)	38.96	(21.47)	44.46	(26.52)	38.43	$(24.22)_b$ *
Negative mood										
Pre-exposure	34.90	(19.29)	34.21	(14.60)	33.21	(19.53)	30.39	(17.23)	33.17	$(17.64)_a$
Post-exposure	39.34	(23.05)	38.53	(16.43)	38.19	(20.80)	35.43	(21.13)	37.87	$(20.30)_b$ ***
State self-objectification										
Pre-exposure	−5.21	(14.72)	−5.57	(15.30)	−4.67	(18.15)	−13.93	(19.35)	−7.35	(17.25)
Post-exposure	−4.30	(18.75)	−5.24	(15.25)	−3.83	(17.74)	−15.35	(17.56)	−7.18	(17.82)

Different subscripts denote significant changes from pre- to post-exposure

*p < .05. ***p < .001

state self-objectification as outcome variables, although trait self-objectification did significantly predict state self-objectification (β = .20, p = .001).

The form of the significant three-way interaction for body satisfaction is illustrated in Fig. 1. Following Aiken and West (1991), one standard deviation above and below the mean were used to represent high and low levels of trait self-objectification respectively. Simple slopes analyses indicated that self-objectification was not significantly related to body satisfaction in the functional no text condition (β = .04, p = .614), the non-functional text condition (β = .02, p = .789), or the non-functional no text condition (β = −.17, p = .089). However, the relationship was significant in the functional text condition (β = −.29, p = .001). Women with higher levels of trait self-objectification experienced relatively lower body satisfaction in response to viewing functional images paired with appearance-focused text.

Discussion

With the present study we aimed to examine the effect of viewing fitspiration images of the body displayed in a functional (actively doing exercise) or a non-functional (posed) way, as well as the impact of appearance-related text, on state body satisfaction, negative mood, and self-objectification

Table 2 Hierarchical multiple regressions examining trait self-objectification as a moderator of the relationship between condition and state body satisfaction

Predictors	Step 1			Step 2			Step 3			Step 4		
	b	β	t	b	β	t	b	β	t	b	β	t
Baseline measure	.92	.86	19.59***	.90	.84	18.55***	.90	.84	18.25***	.88	.82	18.24***
Image type[a]				.76	.02	.35	−.47	−.01	−.15	−1.36	−.03	−.45
Text presence[b]				.98	.02	.45	−.70	−.01	−.23	−.35	−.01	−.12
TSO				−.17	−.09	−1.91	−.16	−.08	−1.05	.09	.04	.52
Image type x TSO							.13	.04	.70	−.43	−.15	−1.68
Text presence x TSO							−.16	−.06	−.87	−.67	−.24	−2.72**
Image type x text presence							2.99	.05	.68	3.15	.06	.74
Image type x text presence x TSO										1.05	.27	2.98**
Model statistics	R^2 = .73 $F(1141)$ = 383.82***			R^2 = .74 $F(4138)$ = 97.54***			R^2 = .74 $F(7135)$ = 55.58***			R^2 = .76 $F(8134)$ = 52.27***		
Change statistics				ΔR^2 = .007 $\Delta F(3138)$ = 1.30			ΔR^2 = .004 $\Delta F(3135)$ = .64			ΔR^2 = .016 $\Delta F(1134)$ = 8.86**		

[a] Functional = 0, non-functional = 1. [b] No text = 0, text present = 1. TSO = trait self-objectification

*p < .05. **p < .01. ***p < .001

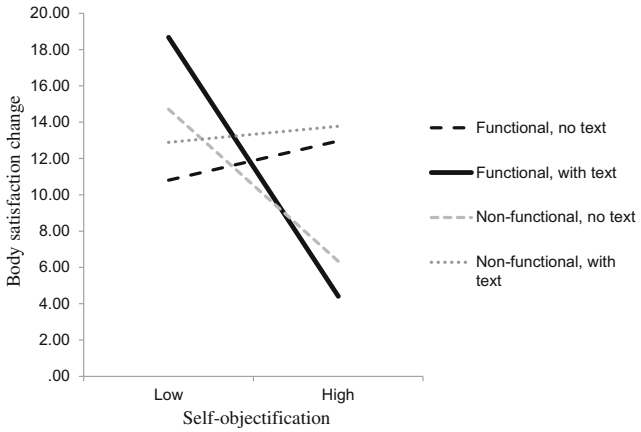

Fig. 1 Body satisfaction change as a function of image condition and trait self-objectification. The only significant slope is for the functional image with text

among young adult Australian women. The major finding was clear. Women showed decreased satisfaction with their body and increased negative mood following exposure to the fitspiration material, with no significant effect of image type or text condition. This change occurred despite functional images being seen as more inspiring and achievable. In addition, trait self-objectification moderated the impact of image type and text presence on state body satisfaction. Women with higher levels of trait self-objectification experienced relatively poorer body satisfaction in response to viewing functional images presented with appearance-focused text.

The finding that exposure to fitspiration images of thin and toned women led to lower body satisfaction and greater negative mood is consistent with general research on the impact of thin-ideal media depicted in magazines, television shows, and music videos (Hargreaves and Tiggemann 2002; Harper and Tiggemann 2008; Hawkins et al. 2004; Prichard and Tiggemann 2012; Stice and Shaw 1994) and images of thin and athletic women (Benton and Karazsia 2015; Homan et al. 2012). It is also consistent with two recent studies that have shown that fitspiration images, in particular, have a detrimental effect on body satisfaction relative to control images of travel inspiration (Tiggemann and Zaccardo 2015), and thin ideal images (Robinson et al. 2017). In contrast to the effects observed on body satisfaction and negative mood, there was no increase in state self-objectification following exposure to fitness images in the present study. It is possible that fitspiration images, due to their focus on fitness, do not promote self-objectification in the same way that images of the thin ideal do, even though close to half of these images depict some degree of objectification (Tiggemann and Zaccardo 2016).

In contrast to prediction, there was no significant difference between participants who viewed images depicting women in a functional or non-functional way on body satisfaction, mood, or state self-objectification. In the context of objectification theory (Fredrickson and Roberts 1997), which suggests that a focus on body functionality and competence is associated with more positive body image outcomes, this finding was unexpected. The findings are, however, in line with recent research suggesting that functionality-based images are no better for women's body image than traditional media images (Mulgrew and Tiggemann 2016). Indeed, Tiggemann and Zaccardo (2015) have speculated that adding tone, strength or fitness to the prescription to be thin may serve to provide women with additional ways in which to feel inadequate.

Overall, the presence of appearance-focused text did not lead to lower satisfaction or greater negative mood and state self-objectification. This is inconsistent with the limited amount of research that has focused on the impact of objectifying words (Roberts and Gettman 2004) and may be a result of the overall focus on appearance and thinness within the images presented. Findings from the present study suggest that for women in general, viewing thin athletic images can have a detrimental effect regardless of the model's activities in the photograph. They also indicate that appearance-related verbal messages do not have an impact above and beyond that of viewing thin athletic women. It seems probable that thinness is the strongest factor at play here, and it does not matter what the model is doing or what the verbal message says. Indeed, previous research on images depicting the thin and athletic ideal supports this notion (e.g., Benton and Karazsia 2015; Homan et al. 2012). Given that content analyses (e.g., Tiggemann and Zaccardo 2016) suggest that around 17% of fitspiration images are of normal weight women, future research could look at determining whether images that depict the body in a functional or non-functional manner have a differential effect depending on the weight of the fitness model.

Interestingly, however, there was a three-way interaction among image type, text presence, and trait self-objectification on state body satisfaction, whereby trait self-objectification moderated the effect of the different image conditions on state body satisfaction. Specifically, women with higher self-objectification experienced lower body satisfaction than did women with lower self-objectification in response to the combination of viewing functional images with text, but not in response to the other image-text combinations. It may be that exposure to appearance-related text primed individuals with higher levels of trait self-objectification to focus more on appearance. Taken together with the finding that functional images were considered more inspirational and achievable than non-functional images, it is possible that the functional images elicited some degree of body shame at not meeting the presented fit ideal in women who objectify to a greater extent.

Limitations and Future Directions

The findings of the present study should be considered in light of some potential limitations. Although exposure to

the fitspiration images used in the presented study resulted in decreased body satisfaction and mood, we did not include any control condition containing non-fitspiration images. Doing so would control for the potential effects of completing the baseline state measures and demand characteristics, and it would allow for more definitive conclusions about the overall impact of fitspiration images. However, the present finding that exposure to fitspiration images leads to lower body satisfaction is consistent with recent research that has shown negative effects on body satisfaction relative to control images (Robinson et al. 2017; Tiggemann and Zaccardo 2015). It is now important that future research investigates the features present within fitspiration images (e.g., functionality, objectification, thinness, muscularity, verbal messages) to disentangle which component(s) may be most detrimental. In this program of research, the present study has taken a first step.

It should be noted that in both the present study and in prior research (Mulgrew and Hennes 2015; Mulgrew and Tiggemann 2016), the word "functional" refers to only a few aspects of body functionality (e.g., exercising, being active). Body functionality is actually a much more complex construct that encompasses many other dimensions, including internal processes and bodily senses. Previous research has shown that when participants are asked to describe their own body functionality in holistic terms (including other dimensions such as creative endeavours and bodily senses), they experience greater body appreciation (Alleva et al. 2016). For fitness images to have a positive effect on body image, it is possible that the focus on body competence and functionality must be more holistic in nature. It may also need to explicitly relate to the participant's own body functionality and not that of the woman in the image. Future research could examine the impact of instructing participants to focus on their own body functionality and what their body can do (e.g., via a functionality writing task; Alleva et al. 2016) prior to or while viewing fitspiration images.

Fitspiration is designed to motivate its viewers to exercise and be healthy. Previous research has shown that relative to travel images, fitspiration does inspire women to intend to exercise (Tiggemann and Zaccardo 2015). The findings from the present study add to this literature and show that functional images provide more inspiration to exercise than non-functional images. Although the functional and non-functional image pairs depicted the same woman, one difference between the image type conditions was who was taking the photo. For the non-functional condition, many of the images were selfies. As noted by Macintyre (2013), selfies are generally viewed as narcissistic and although popular on social media, may be more likely to attract a negative reaction and hence may have been less inspiring than a non-selfie photograph. Future research could usefully compare the impact of non-functional fitspiration images that are selfies with those that are not.

Overall, although the sample size was large enough to determine moderate main effects, our study was underpowered to detect interaction effects (Cohen 1992). In addition, the sample recruited was quite an active one, averaging 4.5 h of exercise each week. The cover story may have inadvertently attracted participants who regularly engage in exercise and who are not representative of the general population. Fitspiration images may have a very different effect on sedentary or overweight individuals who may be further away from the fit ideal than regular exercisers. The potential impact of these images on the body image of other populations (e.g., men, adolescents or new parents) also remains unknown and would be a useful avenue for future research. Lastly, the study was conducted online. To ensure participants paid attention to each image, they were asked to rate how inspirational they found it. We were, however, unable to determine how long participants viewed each image. Accordingly, we have no means of ensuring that participants engaged with the fitspiration material equally. Nevertheless, in the real world not everyone engages with social media in the same way. Thus an online study may be more indicative of how people respond to online media in general.

Practice Implications

The findings of the present study, together with other recent studies on the effects of viewing fitspiration imagery (Robinson et al. 2017; Tiggemann and Zaccardo 2015), provide growing evidence that acute exposure to these types of images has a negative effect on young adult women's body image. The cumulative effects of such exposure may well be considerably greater. Recent research has also demonstrated that women who post fitspiration images on social media are more likely to engage in disordered eating and compulsive exercise behaviours (Holland and Tiggemann 2017). Taken together, these findings suggest that clinicians should be mindful of the potential negative effects of fitspiration material in their clients. Engaging with this material may provide a socially sanctioned way of justifying excessive exercise and dietary restriction for some women. In general, women should be advised that viewing and posting fitspiration images could be problematic and to limit their exposure to them. However, women are likely to be resistant to such messages given the popularity of fitspiration on social media and the common perception that such images inspire healthy living (Jong and Drummond 2016). Other avenues currently used to reduce the impact of engaging with idealised media on body satisfaction (e.g., media literacy, body acceptance) should therefore be expanded to incorporate social media in general and fitspiration imagery in particular.

Conclusion

In sum, the present study demonstrated that exposure to fitspiration images led to decreased body satisfaction and increased negative mood over time. In contrast to prediction, viewing appearance related media which displays the body in a more functional way did not result in more positive outcomes for women's body image. Functional images were, however, considered more inspirational and achievable than non-functional images. The present study also showed that the presence of inspirational quotes did not affect how satisfied women felt about their own body, their mood, or the extent to which they self-objectified. When trait self-objectification was taken into consideration, for women with higher trait self-objectification viewing functional images presented with appearance-focused text resulted in relatively poorer body satisfaction. Overall, the present findings highlight the potential harms of engaging with fitspiration media and advise against excessive exposure. Future research is now needed to identify particular damaging features and those at greatest risk, as well as factors that might mitigate the effects of exposure, in order to best provide avenues for possible intervention.

Compliance with Ethical Standards The manuscript conforms to APA standards on the ethical treatment of participants. The project was approved by the Social & Behavioural Research Ethics committee at the authors' institution. Completion of the online survey was considered as informed consent. There were no conflicts of interest.

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