Body Image 43 (2022) 244–252

Contents lists available at ScienceDirect

Body Image

journal homepage: www.journals.elsevier.com/body-image

TikTok on the clock but the #fitspo don't stop: The impact of TikTok fitspiration videos on women's body image concerns

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ARTICLE INFO

Article history:
Received 3 March 2022
Received in revised form 12 September 2022
Accepted 19 September 2022
Available online 1 October 2022

Keywords:
Body image
Fit ideal internalisation
Appearance comparison
Fitspiration
Social media
TikTok
Women

ABSTRACT

Fitspiration is a popular social media trend that aims to inspire individuals to improve their health and fitness through diet and exercise. However, viewing fitspiration content on Instagram has been identified as a contributor to negative body image, especially for young women. With the growing popularity of the video sharing platform TikTok and concerns over its content, the present study aimed to experimentally examine the effect of exposure to fitspiration TikTok videos on young women's body dissatisfaction, appearance comparison and mood. The roles of state appearance comparison as a mediator and trait fit ideal internalisation as a moderator were also considered. Young women (18–25, N = 120) from Australia were randomly allocated to view a set of fitspiration videos or a set of art control videos from TikTok. Results indicated that exposure to fitspiration TikTok videos increased state appearance comparison and state negative mood relative to art TikTok videos but did not directly increase state body dissatisfaction. State appearance comparison significantly mediated the effect of TikTok videos on body dissatisfaction and mood, however, there was no moderating effect of trait fit ideal internalisation. These findings highlight the importance of state appearance comparison in relation to viewing fitspiration content on TikTok.

1. Introduction

Body image is broadly defined as an individual's perceptions and attitudes towards the size, shape and appearance of their body (Grogan, 2006). Negative body image has become increasingly prevalent among young Australian women, with 45.9 % reporting body image as one of their greatest concerns in 2020 compared to 15.7 % of their male counterparts (Tiller et al., 2021). The rise in young women reporting body image disturbance has been generally attributed to sociocultural factors (Tiggemann, 2011b); of those, the mass media is postulated as the most pervasive and significant source of influence on negative body image (Grabe et al., 2008). This is due to the mass media's ability to disseminate imagery that reinforces an unrealistic and unattainable idealised standard of beauty to female viewers (Tiggemann & McGill, 2004).

For decades, traditional mass media outlets (television, magazines and billboards) have disseminated beauty ideals for women, particularly the thin ideal that portrays women as curvaceously slender, physically appealing but unrealistically thin (Tiggemann, 2011a). Thin ideal imagery is problematic as it suggests to female viewers that this body type is a normal standard of attractiveness that should be desired and attained (Grabe et al., 2008), leading to the internalisation of the thin ideal. However, its unattainability results in a discrepancy between a woman's internalised ideal body and the body she currently has, resulting in heightened body dissatisfaction and negative mood (Rallis et al., 2007). Since the creation of social media, research has explored platforms such as Facebook and Instagram and found that overall time spent using social media has been correlated with body image concerns (Jiotsa et al., 2021), with an effect size comparable to that produced by traditional media sources (Tiggemann & Slater, 2014). Furthermore, active engagement with photo content on social media, such as posting photos of oneself and liking or viewing photos of others, has been associated with increased weight dissatisfaction, drive for thinness, thin ideal internalisation (Meier & Gray, 2014), and negative mood (Fardouly et al., 2015).

In addition to the thin ideal, a 'fit' ideal is now a popular and current trend on social media (Deighton-Smith & Bell, 2018;

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https://doi.org/10.1016/j.bodyim.2022.09.004
1740-1445/

Uhlmann et al., 2018), characterised by both thinness and visible tone (Boepple, et al., 2016; Boepple & Thompson, 2016; Carrotte et al., 2017). The rising popularity of the fit ideal has occurred in parallel with the social media trend "fitspiration" (fitness + inspiration), an online source of images and videos intended to promote an active and healthy lifestyle through dieting and exercise (Boepple & Thompson, 2016). However, in practice, fitspiration content is not as healthy as it appears and the actual outcomes for individuals who view fitspiration content vary greatly. Several published studies sampling young, Caucasian women and men from the UK, Australia, and North America report that while exposure to fitspiration content does increase inspiration and motivation to exercise, it also increases body dissatisfaction and negative mood (Arigo et al., 2021; Holland & Tiggemann, 2017; Raggatt et al., 2018; Tiggemann & Zaccardo, 2015). Furthermore, content posted using fitspiration hashtags is more likely to include 'selfie'-like posing imagery than diet and exercise motivation (Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018), and often depicts women in sexually objectifying ways (Boepple, et al., 2016; Carrotte et al., 2017).

To date, all published experimental research on fitspiration content and social media has focussed on images from Instagram (Prichard et al., 2017, 2020; Robinson et al., 2017; Rounds & Stutts, 2020; Slater et al., 2017; Tiggemann & Zaccardo, 2015), due to the undeniable presence of fitspiration content and the popularity of the platform. This research has typically found that young, Caucasian women from Australia and the UK who viewed Instagram fitspiration images experienced greater body dissatisfaction relative to women who viewed control images (Prichard et al., 2020; Tiggemann & Zaccardo, 2015). While its negative impact relative to control images is clear, there is mixed evidence as to whether fitspiration imagery is worse than thin-ideal imagery for body image concerns. Some studies report that exposure to fitspiration imagery not only elicits the same negative body image consequences as thin-ideal imagery (Robinson et al., 2017), but is more harmful to body dissatisfaction and appearance comparisons (Dignard & Jarry, 2021). Other studies report that fitspiration imagery is not as harmful as thin-ideal imagery (Griffiths et al., 2018; Griffiths & Stefanovski, 2019; Krug et al., 2020). Further, it remains unknown whether the negative effects of fitspiration imagery are consistent across newer social media platforms and content formats besides images, specifically videos. This is particularly important given the momentous rise in popularity of TikTok in the past three years (Moreno, 2021).

TikTok is a mobile application that allows users to record short 15–180 second videos, overlayed with popular music tracks or recorded audio, and share videos with other users (Khattab, 2020). Similar to the functions of Instagram, users can create content as well as view others' content, and engage with content by liking, commenting and sharing videos. TikTok also allows users to 'tag' their videos with themed words or phrases, to allow their content to be search for and viewed. To date, there is no published research evaluating the type of content viewers are exposed to on TikTok and its impact on viewers' overall wellbeing. However, anecdotal evidence from Dempster (2020) highlights concerns from eating disorder support groups over content on TikTok promoting the thin ideal through weight loss methods; stating videos on the platform depict extreme dieting, restrictive eating and shame-inducing comparisons to models and celebrities. Thus, further investigation of TikTok content and its potential influence on young women's body image is warranted.

Currently, fitspiration is "trending" on TikTok. A search (January 2022) of fitspiration content on TikTok revealed videos using the hashtag *fitspo* had been viewed 991.4 million times, while the hashtag *fitspiration* had been viewed 106 million times. This highlights the ubiquity of this trend. Thus, with the known negative effects of still fitspiration imagery from Instagram on women's body image, it is necessary to examine the role of video fitspiration content on TikTok relative to a non-appearance control, for body image concerns.

1.1. Appearance comparison and fit ideal internalisation

Appearance comparison is a salient facilitator of the negative impact caused by fitspiration (Fardouly et al., 2015; Fardouly et al., 2017). Social Comparison Theory (Festinger, 1954) proposes that individuals are innately driven to make self-evaluations based upon comparisons with others across multiple dimensions, including physical appearance (Wheeler & Miyake, 1992). Appearance comparison can be considered as a trait variable, whereby the tendency to engage in appearance comparisons is determined by individual difference (Schaefer & Thompson, 2014), or as a state variable that occurs in response to specific situations such as viewing idealised imagery (Tiggemann & Zaccardo, 2015). State appearance comparison is considered a predominant driving force when examining the effects of idealised imagery. Previous research has demonstrated that state appearance comparison mediates the relationship between viewing fitspiration imagery and body dissatisfaction as well as mood (Fardouly et al., 2018; Tiggemann & Zaccardo, 2015), but has not demonstrated moderation by trait appearance comparison.

A second consideration in the context of viewing fitspiration imagery is fit ideal internalisation. With the apparent effects of fit ideal imagery on state-level body image disturbance, researchers have begun to suggest that exposure to this imagery may be linked to women's internalisation of the fit ideal at a trait level, akin to internalisation of the thin ideal (Uhlmann et al., 2018). This is highly concerning, as thin ideal internalisation has previously been found to moderate the relationship between exposure to thin ideal imagery and body image disturbance (Dittmar & Howard, 2004). Furthermore, initial exploratory examination has demonstrated that women who internalise the fit ideal are at risk of exhibiting a range of negative psychological and behavioural outcomes, including body dissatisfaction, negative mood, compulsive exercise and dieting (Uhlmann et al., 2018). Given this, it is important to also consider if trait levels of fit ideal internalisation may influence women's responses to fitspiration content.

1.2. The present study

Despite the growing popularity of TikTok, and the subsequent increase of video-based content on social media, no published research to date has experimentally examined fitspiration videos on this platform. The primary aim of the present study was to experimentally investigate the effect of viewing fitspiration videos posted to TikTok on young women's body image relative to control videos. It was hypothesised that women exposed to fitspiration TikTok videos would report greater state body dissatisfaction, mood, and appearance comparison compared to participants who viewed control art TikTok videos. The second aim was to examine the role of state appearance comparison as a potential mediator of the effect of TikTok video exposure. It was predicted that greater state appearance comparison would mediate the effect of TikTok condition on state body dissatisfaction and negative mood. The final aim of the present study was to examine the role of fit ideal internalisation in relation to fitspiration TikTok videos. Trait fit ideal internalisation was predicted to moderate the relationship between exposure to TikTok videos and state body dissatisfaction as well as mood, such that those with higher fit ideal internalisation would report greater state body dissatisfaction and negative mood in the fitspiration condition.

2. Method

2.1. Participants

Overall, 120 females aged between 17 and 25 years old were recruited from Adelaide, South Australia. Mean age of participants was 21.06 (*SD* = 2.40), while mean Body Mass Index was 23.85 (*SD* = 5.93). Participants (*N* = 50) were recruited from the Flinders University first year psychology pool and received course credit in lieu of their participation. Remaining participants (*N* = 70) were recruited via online sources, such as professional Facebook groups, Facebook advertising, and the University's volunteer and research webpage, and were entered into a raffle draw to receive 1 of 8 $25 shopping vouchers as reimbursement for their participation. Participants recruited from the general population (*M*= 21.17, *SD*= 2.55) were slightly older than the first year psychology student population (*M*= 20.38, *SD*= 2.00), $t(118) = -1.83$, $p = .03$, $d = 0.35$, however the two samples did not differ on body mass index (BMI), $t(115) = 0.86$, $p = .121$, $d = 0.15$. As all participants were still within the age range of 17–25, the two samples were collapsed to provide a single overall sample.

2.2. Design

An online, between groups experimental design was used to examine the effect of TikTok video type (fitspiration, art control) on the dependent variables of state body dissatisfaction, state mood, and state appearance comparison. State appearance comparison post-exposure to TikTok videos was tested as a potential mediator and trait fit ideal internalisation was tested as a potential moderator of the relationship between TikTok video condition and state body dissatisfaction and mood.

2.3. Experimental manipulation: TikTok video stimuli

Two sets of TikTok videos were used in this study: 36 fitspiration videos for the experimental condition and 38 art videos for the control condition. Art was selected as a suitable control due to its popularity on TikTok (270 billion views, Jan 2022), and its non-appearance focus. All videos were sourced from public profiles on TikTok, using the 'discover' search function. Similar to Instagram, TikTok's 'discover' function allows users to search for hashtags, which groups similar content together, and view TikToks that use that particular hashtag. The fitspiration videos were found by searching the hashtag *fitspo*, while videos for the art condition were collected by searching the hashtag *art*. Videos were then sorted to show the most popular videos first (determined by the combined views and likes for each video), where 30 min of content from each search was collected. This produced 110 fitspiration TikToks and 116 art TikToks for piloting.

Fitspiration TikToks were similar to fitspiration imagery found on Instagram. All videos contained Caucasian female subjects, with the subject herself the primary focus of the video. Engaging in exercise was the most common activity (62.16 %), with the rest of the videos involving subjects posing in activewear (37.85 %). Fitspiration TikToks either focussed on the whole body (51.35 %) or specific body parts (48.65 %). TikToks in the art control condition depicted individuals either creating or showcasing their artwork. Art TikToks featured a small focus on specific body parts (i.e., hands, arm, and face) so that the items in the questionnaire regarding appearance comparisons would make sense to participants in the art condition.

The final sets of videos were chosen based on the results of a pilot study conducted with six women from the target age group. The raters were asked to indicate if each video was representative of typical fitspiration or art TikToks from 1 (*not at all representative*) to 7 (*extremely representative*). Videos were also rated on their overall visual and audio quality from 1 (*poor quality*) to 7 (*good quality*) and the extent to which each video contained a focus on overall appearance or specific body parts (1 = *no appearance focus* to 7 = *high appearance focus*). Ten minutes of content was then selected for each condition based on these ratings.

Pilot TikTok videos that scored highly on quality and representativeness were chosen. Additionally, Fitspiration TikToks were also selected if they had a high score on appearance focus. The final set of TikTok videos in each condition did not differ on video quality (Fitspiration $M = 6.41$, $SD = 1.13$; Art $M = 6.82$, $SD = 0.75$, $p = .072$) or representativeness (Fitspiration $M = 6.30$, $SD = 2.18$; Art $M = 6.54$, $SD = 1.30$, $p = .570$), but as anticipated, videos in the fitspiration condition ($M = 6.26$, $SD = 1.39$) had greater appearance focus than videos in the art control ($M = 2.17$, $SD = 1.90$, $p < .001$). Each TikTok video ran for approximately 6–30 s. Due to the varying length of each video, having an equal number of videos in each set was not feasible. Instead, each final set contained exactly 10 min of content.

2.4. Questionnaire measures

2.4.1. Demographic information

Participants were asked to indicate their age, gender, and education status at the beginning of the study. Following Tiggemann et al. (2018), participants were asked to self-report their social media use, including which social media applications they used and the time spent per day on each application. TikTok was included as an additional platform for this study. Given the study's focus on fitspiration, following Prichard and Tiggemann (2008), participants were also asked questions about their general physical activity, including sports/activities they engage in and how many minutes per day they spent doing the activity so that total levels of physical activity could be calculated. At the end of the study, participants were asked to self-report their height and weight to calculate participants' BMI.

2.4.2. State body dissatisfaction and mood

State body dissatisfaction and mood were measured at baseline and following exposure to TikTok videos in both conditions, using Visual Analogue Scales (VAS). VAS are particularly sensitive to small changes across time (Heinberg & Thompson, 1995). Consistent with Prichard et al. (2020), four items were included to measure body dissatisfaction (physical attractiveness, satisfaction with body shape, satisfaction with body size, and fat) and another five to measure state mood (sad, angry, happy, confident and anxious). Items for each variable were averaged to create total mean state body dissatisfaction and mood scores for each participant, with physical attractiveness, satisfaction with body shape, satisfaction with body size, happy and confident reverse scored. Participants were asked to respond to each question based on how they felt in the present moment by moving the marker along a horizontal line, ranging from "*not at all*" (0) to "*very much*" (100), with higher scores indicating greater dissatisfaction and negative mood. Internal reliability of body dissatisfaction and negative mood measures were acceptable at baseline ($\alpha = 0.85$ and $\alpha = 0.72$ respectively) and post-exposure ($\alpha = 0.92$ and $\alpha = 0.72$ respectively).

2.4.3. State social comparison

To assess the magnitude of appearance comparisons made by participants while viewing TikTok videos, state appearance comparison was measured following exposure to the videos using the State Appearance Comparison Scale (SACS; Tiggemann & McGill, 2004). As stimuli are required to evoke appearance comparisons at a state-level, pre-exposure measures were not taken. The SACS consists of three items relating to appearance comparisons. Participants were asked to rate the extent to which they thought about their

appearance while viewing the TikTok videos on a 7-point Likert scale; ranging from "*no thought*" (1) to "*a lot of thought*" (7); and the extent they compared their body overall and specific body parts to individuals in the videos; ranging from "*no comparison*" (1) to "*a lot of comparison*" (7). State appearance comparison was calculated by averaging scores from the three items, with higher scores reflecting greater state appearance comparison. Items on the SACS have been found to have high internal reliability in similar studies (α = 0.85, Robinson et al., 2017; α = 0.91, Tiggemann & Zaccardo, 2015). In the current study, internal validity was also high, α = 0.92.

2.4.4. Trait fit ideal internalisation

The Fit Ideal Internalisation Test (FIIT; Uhlmann et al., 2020) was used to measure participants' pre-existing internalisation of the fit ideal. Fit ideal internalisation is a stable characteristic of the individual that is irresponsive to situational factors, thus state-level measurement was not required. To increase relevancy of questions for participants, measurement occurred following exposure to TikTok videos. The FIIT is a 20-item, 5-point Likert scale that measures fit idealisation (the extent to which an individual desires to embody the fit ideal), fit overvaluation (the degree of value and meaning an individual places on attaining the fit ideal, such as social value or self-worth) and behavioural drive (diet, exercise and/or supplement use behaviours an individual engages in to achieve a fit ideal body). Participants were asked to rate their agreeance with each item, ranging from "*strongly disagree*" (1) to "*strongly agree*" (5). Total scores were calculated for each of the FIIT subscales, with a composite FIIT score calculated by totalling scores from all three subscales. In the current study, internal reliability for total FIIT scores (α = 0.94) and FIIT subscales (idealisation, α = 0.90; overvaluation, α = 0.91; drive, α = 0.90) was high.

2.5. Procedure

Following ethics approval from the University's Human Research Committee, participants were recruited through the School of Psychology's research management system and professional Facebook groups for a study titled "Social Media, Exercise, and Wellbeing". Upon clicking the link to the online study, participants were provided with an Information Sheet regarding the study and were informed that the study aimed to examine the relationship between social media, exercise, and wellbeing. Overall, 161 individuals clicked on the study link, with 120 completing the follow-up VAS measures and eligible for inclusion in the full study. Interested participants consented and proceeded to the study.

Participants first completed a set of demographic questions regarding age, level of education, social media usage, and general physical activity. Participants then completed a pre-exposure VAS for baseline state body dissatisfaction and negative mood. Participants were randomly allocated to one of two TikTok conditions (experimental; fitspiration TikTok content, control; art TikTok content) by Qualtrics. Participants were then shown 10 minutes of TikTok videos in their condition. After each video, participants rated the likelihood of sharing the video they had watched, to ensure participant engagement. Following TikTok video exposure, participants completed a follow-up state body dissatisfaction and negative mood VAS, as well as the measures of state appearance comparison and trait fit ideal internalisation. Finally, participants were asked to provide their height and weight and were thanked for their time.

2.6. Data analysis

Data from 120 participants was downloaded into IBM SPSS for cleaning and statistical analysis. Missing data were identified for BMI (n = 3), ethnicity (n = 3) and fit ideal internalisation (n = 2) and this is reflected in the degrees of freedom values for relevant analyses. Independent samples t-test was used to test for group differences on demographic and baseline measures. Two-way Mixed ANOVAs were used to measure the effect of TikTok condition and time on state body dissatisfaction and negative mood. Model 1 and Model 4 of SPSS macros PROCESS was used to test mediation and moderation, respectively. In the analyses conducted, a 0.05 alpha level was used to indicate significance. The effect size measures used were partial eta squared (ηp^2) and Cohen's *d*. Suggested benchmarks for Cohen's d (0.20, 0.50 and 0.80) and partial eta squared (0.01,0.06 and.14) were used, which represent small, medium, and large effects respectively (Cohen, 1988).

According to G*power (Faul et al., 2007), 120 participants were sufficient to detect a medium effect (0.25) using an alpha of.05 and power.80 for a two-way mixed analysis of variance (ANOVA). This number of participants was also sufficient to conduct mediation (Fritz & Mackinnon, 2007). However, based on a small effect (f^2 =.02), power of.80, and an alpha of.05, we were underpowered to detect moderation.

3. Results

3.1. Characteristics of the sample

In the overall sample (*N* = 120), Instagram was the most popular social media site, with participants spending an average of 4.93 hours (*SD* = 4.84) on the site daily; followed by Facebook (*M* = 4.83, *SD* = 4.46), YouTube (*M* = 3.79, *SD* = 4.09) and TikTok (*M* = 2.62, *SD* = 3.62). Time spent engaging in physical activity was 2.58 hours (*SD* = 1.80) per week. Overall, a large proportion of the sample were Caucasian, with 8 % from an Asian background, 2 % African, and 4 % identifying as 'other'.

Sample characteristics by TikTok condition are presented in Table 1. A series of independent samples t-tests indicated that there were no baseline differences between the two conditions on BMI, $t(115) = -0.59$, $p = .554$, $d = 0.11$, overall social media use, $t(118) = -1.11$, $p = .094$, $d = 0.20$, TikTok use, $t(118) = 0.80$, $p = .188$, $d = 0.15$, usual physical activity behaviour, $t(118) = 0.21$, $p = .782$, $d = 0.01$, or age $t(118) = -1.69$, $p = .253$, $d = 0.32$. There was also no difference in the distribution of ethnicity between conditions (Caucasian vs other ethnicities), $\chi^2(1, N = 120) = 0.88$, $p = .349$. Importantly, there was also no significant difference between groups on baseline body dissatisfaction, $t(118) = 0.87$, $p = .151$, $d = 0.16$, baseline negative mood, $t(118) = -0.58$, $p = .562$, $d = 0.11$, or fit ideal internalisation (fitspiration condition: $M = 59.16$, $SD = 19.23$; art condition $M = 58.15$, $SD = 20.24$), $t(118) = -0.28$, $p = .784$, $d = 0.05$.

Table 1
Means (SD) and frequencies of participant characteristics by TikTok condition.

	TikTok Condition	
	Fitspiration TikTok *(N = 61)*	Art TikTok *(N = 59)*
Demographics		
BMI	24.44 (6.39)	23.78 (5.49)
Age	21.20 (2.38)	20.47 (2.18)
Usual physical activity behaviour (hours per week)	2.61 (1.81)	2.63 (1.77)
Social media use (hours per day)	4.29 (2.64)	3.81 (2.06)
TikTok use (hours per day)	0.57 (0.83)	0.70 (0.93)
Ethnicity		
Caucasian	78 %	72 %
Asian	18 %	14 %
African	0 %	3 %
Other	4 %	11 %
Prefer not to say	0 %	0 %

Notes. BMI = Body Mass Index in kg/m^2.

3.2. Effect of TikTok condition on state body dissatisfaction and negative mood

A series of two-way mixed ANOVAs were conducted to analyse the effects of TikTok video condition and time on state body dissatisfaction and negative mood. Results revealed there was a significant interaction between TikTok condition and time, $F(1, 118) = 12.56$, $p < .001$, $\eta p^2 = .096$. Simple effects analysis showed that the increase in state body dissatisfaction scores from baseline to post exposure was not significant in the fitspiration condition ($p = .123$, 95 % CI of the difference = −4.65 to 0.56). However, there was a significant decrease in state body dissatisfaction across timepoints for participants in the art control condition ($p < .001$, 95 % CI of the difference = 1.96–7.25).

For state negative mood, results revealed a significant interaction between TikTok condition and time, $F(1, 118) = 7.19$, $p = .008$, $\eta p^2 = .057$. Simple effects analysis showed that there was a significant increase in state negative mood scores from baseline to post exposure in the fitspiration condition ($p = .041$, 95 % CI of the difference= −6.71 to −0.15), and there was no significant decrease in mood in the art control condition ($p = .087$, 95 % CI of the difference = −0.43 to 6.24). Means and adjusted means for state body dissatisfaction and state negative mood at baseline and post exposure are presented in Table 2.

3.3. Effect of TikTok condition on state appearance comparison

To examine whether viewing fitspiration TikToks would lead participants to make more state social comparison compared to the art control videos, an independent samples t-test was used. Results indicated participants who viewed fitspiration TikToks ($M = 4.61$, $SD = 1.73$) made significantly greater state appearance comparisons than participants who viewed the art control TikToks ($M = 2.38$, $SD = 1.46$), $t(118) = -7.61$, $p < .001$, $d = 1.39$.

3.4. Mediation by state appearance comparison on body dissatisfaction and negative mood

Two mediation analyses using PROCESS Model 4 (Hayes, 2018) were conducted in SPSS to test if state appearance comparison would mediate the effect of video condition on participants' body dissatisfaction and negative mood. The 95 % Confidence Intervals (CI) for indirect effects were constructed using bootstrapping with 10,000 samples. Significant mediation is shown when the sum of 0 does not fall between the upper and lower bounds of the bootstrap CI's, with full or partial mediation shown in the residual direct effect becoming non-significant. TikTok condition was entered as the independent variable, with the art condition as the reference group. Post-exposure body dissatisfaction and negative mood were entered as the dependent variables in the relevant analyses, and state appearance comparison was entered as the mediator. Baseline body dissatisfaction and negative mood were controlled for as covariates in the relevant analyses.

Table 2
Means (SD) for state body dissatisfaction and negative mood by TikTok condition.

	State Body Dissatisfaction		State Negative Mood	
	Baseline	Post-exposure	Baseline	Post-exposure
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Fitspiration TikTok *(N = 61)*	55.61 (19.90)	57.66 (22.96)	38.33 (15.68)	41.76 (17.19)
Art TikTok control (N = 59)	59.11 (23.78)	54.50 (23.46)	36.62 (16.65)	33.71 (12.91)

Note. Higher scores= greater body dissatisfaction and negative mood.

For state body dissatisfaction, as shown in Fig. 1, the total effect of TikTok condition on body dissatisfaction was significant, $b = 6.48$, 95 % CI [2.75, 10.20], $p < .001$. The direct effect shows that after controlling for state appearance comparison effects, the relationship between TikTok condition and body dissatisfaction was no longer significant, $b = 2.22$, 95 % CI [-2.22, 6.78], $p = .336$, indicating full mediation. The bootstrap confidence intervals for the indirect effect through state appearance comparison indicate the mediation was significant, $b = 4.26$, 95 % CI = [1.01, 7.85]. As the control condition was entered as the reference group, this indicates that exposure to fitspiration TikToks was associated with higher state appearance comparison, and in turn greater state body dissatisfaction.

For state negative mood, as shown in Fig. 2, the total effect of TikTok condition on mood was significant, $b = 6.98$, 95 % CI [2.82, 11.13], $p = .001$. The direct effect of TikTok condition on negative mood after controlling for the effects of state appearance comparison indicates full mediation, $b = 2.67$, 95 % CI [-2.22, 7.57], $p = .282$. The bootstrap confidence intervals for the indirect effect indicates the mediation was significant, $b = 4.31$, 95 % CI [1.05, 8.01].

3.5. Moderation by trait fit ideal internalisation on body dissatisfaction and negative mood

To test whether trait fit ideal internalisation moderated the effect of TikTok condition on body dissatisfaction and negative mood, PROCESS Model 1 (Hayes, 2018) was used in SPSS. Post-exposure body dissatisfaction and negative mood scores were entered as the dependent variables in the relevant analyses, while fit ideal internalisation was entered as the moderator. Baseline body dissatisfaction and negative mood were controlled for as covariates. All continuous variables were mean-centred.

Regression coefficients of the moderation analysis are shown in Table 3 for body dissatisfaction and negative mood. Results showed that together, TikTok condition and fit ideal internalisation accounted for a significant 81.01 % of variance in body dissatisfaction scores, $R^2 = .81$, $F(4, 115) = 125.46$, $p < .001$. However, there was no significant interaction between TikTok condition and fit ideal internalisation, $R^2_{change} = 0.05$, $F_{change}(4, 115) = 1.84$, $p = .069$.

For negative mood, results showed that, TikTok condition and fit ideal internalisation significantly accounted for 49.94 % of variance in negative mood scores, $R^2 = .50$, $F(4, 115) = 28.68$, $p < .001$. Again, there was no significant interaction between TikTok condition and fit ideal internalisation, $R^2_{change} = 0.12$, $F_{change}(4115) = 2.70$, $p = .103$.

4. Discussion

The present study sought to determine the impact of exposure to fitspiration TikTok content on young women's body image, appearance comparison and negative mood, as well as the role of appearance comparison and fit ideal internalisation within these relationships. The findings indicate that viewing fitspiration TikTok videos led to increased negative mood and appearance comparison than viewing art TikTok videos. Conversely, exposure to art TikTok videos resulted in decreased body dissatisfaction relative to the fitspiration TikTok videos. The effect of TikTok condition on both body dissatisfaction and negative mood was not moderated by trait fit ideal internalisation but was mediated by state appearance comparison. These findings extend previous research to a new social media platform and highlight the impacts that fitspiration TikTok videos can have on young women (Arigo et al., 2021; Dignard & Jarry, 2021; Prichard et al., 2020; Rounds & Stutts, 2020).

Overall, the finding that exposure to fitspiration TikTok videos increased negative mood and appearance comparison aligns with previous experimental research on the negative impact of fitspiration imagery on Instagram, with effects comparable to the medium-large effect sizes typically found in Instagram fitspiration research

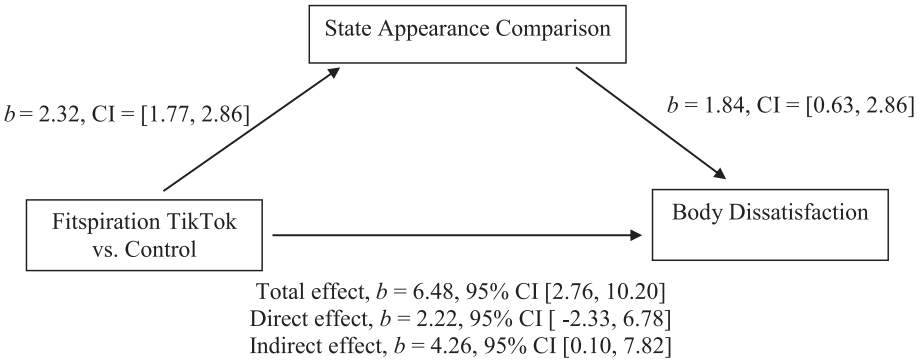

Fig. 1. Path coefficients for the TikTok condition/body dissatisfaction/state appearance comparison mediation analysis. CI = confidence intervals.

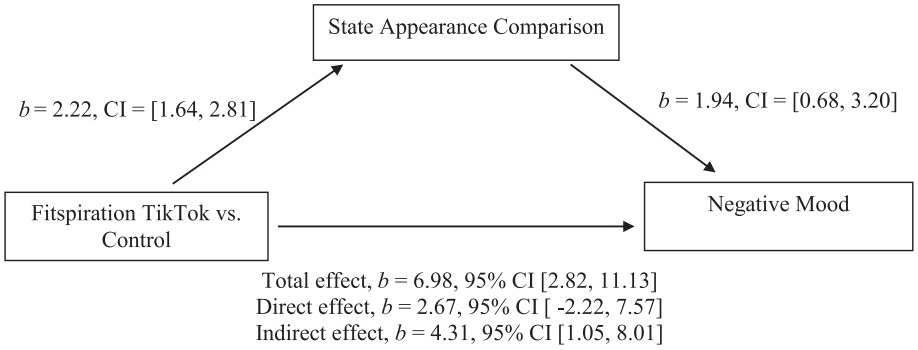

Fig. 2. Path coefficients for the TikTok condition/negative mood/state appearance comparison mediation analysis. CI = confidence intervals.

Table 3
Regression coefficients of the moderating effect of fit ideal internalisation on the relationship between TikTok condition and body dissatisfaction.

Body Dissatisfaction Variable	*b*	SE_b	95% CI for *b*	*p*
Fitspiration TikTok (vs Art)	6.53	1.87	[2.84, 10.24]	< .001
Mean Fit Ideal Internalisation	-0.30	0.15	[−0.59, −0.00]	.048
Fitspiration TikTok (vs Art) x Mean Fit Ideal Internalisation	0.17	0.10	[−0.14, 0.36]	.069
Baseline Body Dissatisfaction	0.96	0.05	[0.87, 1.05]	< .001
Negative Mood Variable	***b***	**SE_b**	**95 % CI for *b***	***p***
Fitspiration TikTok (vs Art)	6.89	2.07	[2.79, 10.98]	< .001
Mean Fit Ideal Internalisation	-0.17	0.17	[−0.50, 0.16]	.305
Fitspiration TikTok (vs Art) x Mean Fit Ideal Internalisation	0.17	0.11	[−0.04, 0.38]	.103
Baseline Negative Mood	0.62	0.06	[0.50, 0.75]	< .001

(Krug et al., 2020; Prichard et al., 2020; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). As fitspiration content attributes messages of health and fitness to an unrealistic and unattainable beauty ideal for women (Ramme et al., 2016; Tiggemann et al., 2018; Uhlmann et al., 2018), most fall short of this ideal despite the desire to achieve it (Ramme et al., 2016). Hence, it is not surprising that negative mood and appearance comparisons increased after viewing fit idealised TikTok videos.

While exposure to art TikTok videos resulted in decreased body dissatisfaction relative to exposure to fitspiration TikTok videos, there was no significant increase in body dissatisfaction as a result of exposure to fitspiration TikTok videos. This finding contradicts what has been found in Instagram fitspiration studies (Arigo et al., 2021; Prichard et al., 2020; Rounds & Stutts, 2020). One possible explanation is that the physical movement inherent in TikTok videos may have reminded viewers of the functionality of their bodies. This may have led women to incorporate perceptions of their physical competency and capability into evaluative judgements regarding their body (Alleva et al., 2015). Previous work has found that content focussing on body functionality as opposed to physical appearance can improve body image for young women (Alleva et al., 2015; Mulgrew & Tiggemann, 2018). Thus, while fitspiration videos still portray an idealised body to females using social media, women may be more inclined to acknowledge body functionality in response to this type of TikTok material.

It is also possible that while the TikTok videos were pilot tested and rated as representative of fitspiration on TikTok, they may not have included some of the harmful themes typically found in fitspiration Instagram content. Previous Instagram fitspiration content analyses have found that women are often depicted in highly sexualised ways, including posing in an alluring manner or showing high degrees of skin (Carrotte et al., 2017; Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018). Future research could explore the impact of sexualised fitspiration content on young women's body image.

Art TikToks were selected as the control stimuli in this study due to the lack of appearance-focussed content in the videos, which was confirmed by independent raters through a pilot study. There is some evidence to suggest that exposure to other neutral imagery, in particular nature imagery, can improve body image (Swami et al., 2018), and it is possible that exposure to art TikTok videos had the same positive effect. This finding highlights the potential ability of other content, such as art imagery, in momentarily reducing negative body image outcomes for young women when using social media.

Appearance comparison was also found to be significant in the relationship between TikTok videos and body dissatisfaction and mood, mediating both relationships. This is a key finding and suggests that viewing fitspiration TikToks increases body dissatisfaction via appearance comparisons in young women. This finding emphasises the importance of appearance comparisons when viewing fitspiration content. It also aligns with previous work that has found

state appearance comparison to be the mechanism through which fitspiration content leads to negative body image outcomes (Dignard & Jarry, 2021; Tiggemann & Zaccardo, 2015), as well as research finding appearance comparison to be a significant mediator without a direct relationship between viewing fitspiration content and body dissatisfaction (Griffiths et al., 2018). This provides support to the notion that fitspiration imagery promotes a focus on appearance rather than fitness and health (Deighton-Smith & Bell, 2018; Rounds & Stutts, 2020). Fitspiration imagery emphasises the aesthetic qualities of the female physique by drawing viewers' attention to specific body parts (Tiggemann & Zaccardo, 2015); giving viewers opportunities to upwardly compare their appearance with the subject of the imagery, leading to negative impacts on body image and mood.

To address the negative impact of appearance comparisons, interventions for content consumers that provide viewers with the tools to process fitspiration content without making upward comparisons to those depicted are needed. For example, research has found that the type of motivation for comparison arising from exposure to thin and fit idealised content, including fitspiration, could be key in reducing negative body image for women. In particular, self-evaluative motivations (making comparisons based on evaluating one's appearance) have been associated with body-focussed anxiety, body dissatisfaction and low self-worth (Casale et al., 2019; de Vaate et al., 2018). In contrast, self-improvement motivations (making comparisons based on the desire to improve an aspect of oneself) have been linked to increased exercise behaviours (MacIntyre et al., 2020) and body satisfaction (Knobloch-Westerwick, 2015). Thus, it is possible that targeting self-improvement motivations relative to fitness and appearance within the context of fitspiration may lead to lower levels of body dissatisfaction and increased exercise behaviour. Further research is needed to distinguish between these different motivations for comparisons on individual body image in relation to fitspiration.

The negative consequences from fitspiration content on social media platforms also needs to be communicated to those who post *#fitspiration* and *#fitspo* content to social media, including fitness models, professionals, and influencers. Currently, there is no published research exploring content creators' understanding of the consequences of idealised imagery like fitspiration content for their followers, nor initiatives targeting social responsibility, diverse content creation or education on negative body image. Future research should consider the design and implementation of such interventions.

The present study also examined the role of fit ideal internalisation as a moderator of the relationship between fitspiration TikTok content and body image. Trait fit ideal internalisation did not significantly moderate the effect of TikTok content on state body dissatisfaction or mood. While these findings should be considered within the context of insufficient power, there are a few potential interpretations that can be made from this finding. First, this result aligns with previous fitspiration research examining the impact of trait variables in relation to social media that have not demonstrated moderation by trait variables, such as social comparison (e.g., Robinson et al., 2017; Tiggemann & Zaccardo, 2015). It is possible that trait-level body image concerns, including fit ideal internalisation and appearance comparison, may not be as important as state level experiences when examining exposure to fitspiration content. Future research could usefully explore whether fit ideal internalisation functions as a state variable that increases due to exposure to fitspiration content. Second, it may be that trait-level variables, such as fit ideal internalisation, are more influential when looking at long-term exposure to fitspiration material. Exposure to fitspiration content in the present study was relatively short, and the impact of daily exposure to TikTok material or long-term use remains unknown. For example, previous longitudinal research has identified that consistent exposure to idealised social media content (e.g., fitspiration on Instagram) increases trait appearance comparison and beauty ideal internalisation (Fioravanti et al., 2021; Marengo et al., 2018; Steinsbekk et al., 2021), supporting the argument that typical engagement with fitspiration content on social media is an influential factor of trait body image variables over longer periods of time.

Finally, this finding may relate to the current measurement of fit ideal internalisation compared to thin ideal internalisation. Fit ideal internalisation was measured using the FIIT (Uhlmann et al., 2020). The FIIT was created to appropriately measure the fit ideal's simultaneous presentation of thin-ideal and muscular-ideal attributes, which were previously measured separately using the SATAQ-4 (Schaefer et al., 2015). While the FIIT and SATAQ-4 include items related to individual drive, valuation and internalisation of the ideals measured, only the SATAQ-4 includes items addressing sociocultural impacts on those variables. Sociocultural factors, specifically social media, are considered the most salient influence of negative body image and purveyors of idealised imagery (Tiggemann, 2011b), and thus play an important role in both fit ideal as well as thin ideal internalisation. Further adaptations to include items that measure sociocultural factors, including social media specifically, could improve the accuracy of the FIIT by addressing factors outside of the individual that influence internalisation of the fit ideal.

The findings of the present study should be interpreted in the context of its limitations. The sample used in this study consisted predominantly of Caucasian Australian women aged 17–25, and the TikTok videos themselves featured predominantly Caucasian women. While this aligns with other experimental fitspiration research across Australia, the UK and the United States (Arigo et al., 2021; Prichard et al., 2020; Rounds & Stutts, 2020), the homogeneity of these samples limits the generalisability of these findings to the broader population. Very little is known about the effects of fitspiration content on adolescent, middle-aged and older women, as well as women from other ethnic backgrounds. Given adolescent girls are the largest users of social media (eSafety Research, 2021), future research should examine whether fitspiration social media content has the same negative effect on younger samples. It is also important to explore whether there is consistency of these effects across ethnicities, by examining fitspiration content posted by women from non-Caucasian backgrounds.

Further, the present study did not examine whether the effect of fitspiration TikTok content on body dissatisfaction and mood led to changes in exercise behaviour. To date, neither intentions to exercise nor actual exercise behaviour following exposure to fitspiration videos have been examined. This is important to consider given the growing popularity of fitspiration videos on TikTok as well as other platforms that allow video posting (e.g., Instagram Reels, YouTube). Future research should investigate the relationship between social media fitspiration videos and exercise behaviours. Finally, participants' awareness of the study's true intentions was not assessed, and it remains unknown whether this may have influenced their responses to TikTok videos.

The present findings hold important theoretical and practical implications. They further contribute to our understanding of how appearance-based content, particularly fitspiration content, on newer social media platforms negatively impact body image (Prichard et al., 2020; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). Furthermore, the results add to the growing evidence that state appearance comparison is an important facilitator of negative body image when viewing idealised social media content (Fardouly et al., 2017; Pasko & Arigo, 2021; Robinson et al., 2017; Tiggemann et al., 2018). The experimental design of the present study allows for causal direction to be interpreted in the finding that brief exposure to fitspiration TikTok videos results in short-term increases in state appearance comparison and negative mood for young women.

Research is now needed to examine the impact of longer-term exposure to idealised content on TikTok.

While our findings demonstrate the negative impact of fitspiration content on TikTok, very little is known about other types of content, both positive and negative, posted to TikTok. For example, a content analysis of eating disorder recovery material on TikTok found that while some eating disorder content was deemed positive from the perspective of creating community, other content posted actually promoted eating disorders (Herrick et al., 2021). Of concern are the recent, popular TikTok trends involving "challenges" created by social media influencers for viewers to partake in, which glorify dramatic appearance changes through diet, exercise, and beautification filters (Liu, 2021). Given their focus, these are likely to have negative effects on body image and should be explored. Concerns are also rising that the platforms' "randomised" algorithm (which generates content to view without needing to follow users or hashtags) is populating users' feeds with targeted content, including body shaming, extreme dieting and glorification of eating disorders, based on their interactions with particular videos (Dempster, 2020; Khattab, 2020; Liu, 2021). Further examination of TikTok content is necessary to fully understand the types of content users are exposed to, particularly those related to body image.

The findings of the present study suggest clinicians as well as social media influencers should be wary of the kinds of appearance-based content posted and viewed on social media platforms. This is particularly the case for social media platforms like TikTok that, due to their online nature and immense popularity, may not have the same regulations as traditional media platforms to moderate the content created by users. For example, while the code of ethics for Australian Association of National Advertisers (2021) prohibits the use of overtly sexual images for outdoor advertising, it does not address content created for social media. This leaves room for a range of potentially detrimental appearance-based content to appear on social media. Future research could usefully conduct a content analysis of other content on TikTok (including fitspiration content) to better understand the overall content viewers are exposed to, as well as what percentage of that content is related to body image.

To conclude, the findings of the present study indicate that exposure to fitspiration videos leads to increased negative mood and appearance comparison. Further, state appearance comparison was a significant mediator of the relationship between exposure to TikTok videos and body dissatisfaction and negative mood. This finding extends previous published research demonstrating the harmful effects of fitspiration content (Prichard et al., 2020; Robinson et al., 2017; Tiggemann & Zaccardo, 2015) and appearance comparison to idealised imagery (Engeln et al., 2020; Fardouly et al., 2017) to a newer social media platform. Further research is required to definitively establish if trait fit ideal internalisation is an important mechanism through which fitspiration affects body image. It is also important that new and emerging trends are examined in relation to their potential impact on body image concerns.

CRediT authorship contribution statement

Samantha Pryde: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing. **Ivanka Prichard:** Supervision, Conceptualization, Methodology, Investigation, Writing – review & editing.

Data availability

The authors do not have permission to share data.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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