

## If you have it, do not flaunt it

*Effects of fitfluencer images and captions on exercise intention*

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### Samenvatting

*Als je het hebt, pronk er dan niet mee: Effecten van fitfluencer-afbeeldingen en bijschriften op trainingsintentie*

Op basis van theorieën omtrent *self-objectification*, *social comparison*, *self-determination*, en *framing*, onderzochten wij de effecten van *fitfluencer* afbeeldingen en bijschriften die zich focussen op uiterlijk (versus minder uiterlijkgericht) op sportintentie en onzeker en geïnspireerd voelen. We deden een online experiment met een 3 (afbeelding: uiterlijkgerichte vrouwelijke fitfluencer, vs. niet uiterlijkgerichte fitfluencer, vs. niet uiterlijkgerichte zonder fitfluencer) x 3 (onderschrift: focus op voordelen voor uiterlijk vs. gezondheid- vs. stemming) *between-subjects design* onder twee steekproeven ( $N_{sample 1} = 494$ ,  $N_{sample 2} = 253$ ). Resultaten tonen dat 1) in beide steekproeven vrouwen die een uiterlijkgerichte afbeelding hadden gezien de laagste sportintentie hadden, 2) door uiterlijkgerichte afbeeldingen kunnen vrouwen zich onzeker voelen, en 3) effecten verschillen niet tussen de bijschriften. Deze bevindingen suggereren dat uiterlijkgerichte fitfluencer Instagram-afbeeldingen de minst gewenste effecten hebben, zelfs als ze vergezeld worden door een bijschrift dat de gezondheids- of stemmingsvoordelen van sporten benadrukt.

**Abstract**

Drawing upon theories on self-objectification, social comparison, self-determination, and framing, we examined the effects of female fitfluencer Instagram images and captions focusing on physical appearance (vs. less focused on appearance) on exercise intention and feeling insecure and inspired. We conducted an online experiment with a 3 (image: appearance-focused female fitfluencer, vs. not appearance-focused fitfluencer, vs. not appearance-focused no fitfluencer)  $\times$  3 (caption: focus on appearance vs. health vs. mood benefits) between-subjects design amongst two samples ( $N_{sample 1} = 494$ ,  $N_{sample 2} = 253$ ). Results show that 1) in both samples, women who had seen an appearance-focused image reported the lowest exercise intention; 2) appearance-focused images can make women feel insecure, and 3) effects did not vary between captions. These findings suggest that fitfluencer Instagram images that focus on appearance have the least desirable effects, even if they are accompanied by a caption emphasizing the health or mood benefits of exercise.

**Keywords:** fitspiration, fitness influencers, fitfluencers, Instagram, physical exercise, self-objectification

**Introduction**

*Fitspiration* is a popular social media phenomenon designed to motivate people to exercise and pursue a healthy lifestyle (Tiggemann & Zaccardo, 2018). In particular, fitspiration entails fitness-related images or videos on social media such as Instagram or TikTok that are often accompanied by a motivational caption. Although any social media user can post fitspiration using hashtags such as #fitspiration and #fitspo (Santarossa et al., 2019), there are also social media influencers who operate in this niche (Sokolova & Perez, 2021). These fitness influencers (i.e., *fitfluencers*) are often referred to as *fit girls* or *fit boys*. This study focuses specifically on female fitfluencer content on Instagram, because fitspiration content is often posted on Instagram, most often depicts women, and fitfluencers are often female (e.g., Lisdero & Duperré, 2021; Tiggemann & Zaccardo, 2018).

Although fitspiration is meant to be encouraging and inspiring, research has provided evidence for negative consequences of fitspiration on viewers' and followers' mood, body image, and body satisfaction (e.g., Benton & Karazsia, 2015; Cataldo et al., 2021; Dignard & Jarry, 2021; Prichard et al., 2020). These negative

effects are explained by two issues. First, the majority of fitspiration images focus on appearance by showing fitfluencers' thin and toned figures (Boepple & Thompson, 2016; Santarossa et al., 2019; Simpson & Mazzeo, 2017; Talbot et al., 2017; Tiggemann & Zaccardo, 2018). These appearance-focused images emphasize the thin ideal, stimulate women to focus on their own appearance, and instigate the feeling that bodies are objects (i.e., self-objectification). Second, although the image captions play an important role in the effects of fitspiration posts (Fioravanti et al., 2021), captions frequently focus on benefits of physical exercise on appearance (e.g., becoming more attractive) and rarely emphasize health (e.g., maintaining physical well-being) and mood (e.g., coping with stress) benefits (Boepple & Thompson, 2016; Santarossa et al., 2019; Simpson & Mazzeo, 2017). This means that fitspiration often attempts to inspire women towards health and fitness by focusing on appearance.

Fortunately, research has also shown that fitspiration *can* inspire women to improve their fitness and eat healthily (Tiggemann & Zaccardo, 2015). Yet, there is little knowledge about which specific images and captions are most likely to evoke such positive effects. Do images of good-looking bodies inspire followers, or do they make them feel insecure? And which captions are most motivational? In this study, we aim to investigate which fitfluencer images and captions are most likely to motivate female viewers to exercise. Because of their prevalence and predominantly negative impact, we specifically compare the effects of appearance-focused images and captions to less appearance-focused versions (i.e., images that do not focus on showing thin and toned bodies, and captions emphasizing the mood and health benefits of exercise) on exercise intention. Additionally, we examine which images and captions are perceived as most inspiring and which can make women feel insecure. In this way, this study provides more insight into how fitfluencers can best contribute to healthy behaviour.

## Effects of What a Fitfluencer Shows

The main goal of fitspiration is to *inspire* others to become fit and healthy. Thus, ideally, fitfluencers should motivate their viewers and followers to exercise (more). At the same time, fitfluencers are frequently criticized for making girls feel insecure and feel bad about their bodies. However, the effects of fitspiration likely depend on the nature of the posts. Fitspiration posts combine images with textual messages (i.e., the image caption), and the effects of posts are likely to be influenced by both components.

Objectification theory (Fredrickson & Roberts, 1997) and the notion of self-objectification plays an important role in our understanding of the effects of appearance-focused social media content on women's perception of their own body and intention to exercise. The theory posits that women who live in an objectifying culture learn to perceive and describe themselves from others' perspectives, and internalize the view that they are sexual objects and that they should conform to cultural body ideals and be sexually attractive. Media play an important role in this. For instance, appearance-focused pictures and headlines in magazines and social media teach women to care about their appearance (cf. Aubrey, 2010). This process in which constant evaluation and objectification (e.g., media presentation of bodies and body parts) makes women internalize this external view of themselves and start to view themselves 'as a body' is referred to as 'self-objectification' (Strelan et al., 2003; De Vries & Peter, 2013).

Research has shown the importance of images on social media in self-objectification. Prior studies suggest that emphasizing the body of another woman, for example showing her only partially dressed, increase women's focus on their own appearance (De Vries & Peter, 2013; Moradi & Huang, 2008). Other studies show that appearance-focused images can instigate self-objectification (Aubrey et al., 2009; Prichard et al., 2018). Self-objectification, in turn, has negative consequences for mental health, such as increases in depressive and eating disorder symptoms (Dakanalis et al., 2015; Jones & Griffiths, 2015). Furthermore, women are less likely to exercise when they objectify themselves and feel negatively about their bodies (Melbye et al., 2007).

In the context of fitspiration, research has shown that fitspiration images can make women feel pressured to attain an idealized physique (Krug et al., 2020). In addition, appearance-focused fitspiration images and captions lead to lower body satisfaction and a negative mood (Prichard et al., 2018; Tiggemann & Zaccardo, 2015). The effects of fitspiration images on body satisfaction depend on what type of body is depicted: Images that show thin and fit bodies seem to decrease body satisfaction more than images that show normal-weight athletic or muscular bodies (Benton & Karazsia, 2015; Homan et al., 2012; Robinson et al., 2017). These appearance-focused images combining thin and toned bodies is exactly what is often depicted on social media (Santarossa et al., 2019; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018).

Social comparison theory (Festinger, 1954) helps to explain the negative effects of these thin and toned bodies on social media. According to this

theory, people have the tendency to compare themselves with others to evaluate themselves, their opinions, and their abilities. This comparison can be upward and downward. Upward comparisons entail comparing the self to others who are better off, and thus typically produce negative consequences. Downward comparisons entail comparing the self to others who are worse off, and thus typically have positive consequences. On social media, women often compare their appearance to others, and these comparisons are most often upward (Fardouly et al., 2017; Vogel et al., 2015). These upward comparisons are likely a consequence of the fact that people post their best pictures on social media, and images are often enhanced by filters and digital editing (Tiggeman et al., 2020). In the context of fitspiration, women are thus likely to evaluate their own appearance by comparing themselves to (female) fitfluencers. In line with this reasoning, studies indeed found that fitspiration images can induce social and appearance comparison (Robinson et al., 2017; Tiggemann & Zaccardo, 2015). More importantly, this comparison between the thin and toned body of a fitfluencer to one's own body is most likely upward, which instigates negative outcomes such as feeling more insecure and lower self-evaluations (Vogel et al., 2015).

Thus, fitspiration can motivate people to pursue healthy goals (e.g., improve one's fitness and to eat healthily; Tiggeman & Zaccardo, 2015). However, based on self-objectification, social comparison theory, and prior studies showing the unfavourable effects of appearance-focused images, we expect that fitspiration images that focus on appearance do not evoke such positive responses. Specifically, we expect that appearance-focused images make women feel insecure, are perceived as less inspiring, and are less likely to motivate them to exercise compared to images that focus less on appearance. We therefore compare the effects of a fitspiration image of a female fitfluencer who shows her thin and toned body to the same – but less appearance-focused – image of the fitfluencer fully dressed. However, even when the fitfluencer is fully clad and does not show her body, she is still thin and toned: Her appearance may not be emphasized but is still visible. Therefore, we also compare the appearance-focused image to a picture that does not depict the fitfluencer at all. This leads to the hypothesis:

*H1: Viewing fitfluencer Instagram posts with an appearance-focused image of a female fitfluencer a) leads to lower self-reported exercise intention, b) makes women feel less inspired, and c) makes women feel more insecure, compared to images that are less appearance-focused (i.e., a fully dressed fitfluencer or showing no fitfluencer).*

## Effects of What a Fitfluencer Says

Next to the images, the impact of fitspiration posts is influenced by the accompanying caption. In other words, the effects of fitspiration do not only depend on what the fitfluencer shows, but also what she says. For instance, research has shown that image captions advocating body positivity were associated with better weight esteem, whereas Instagram captions reflecting aspirational health and fitness messages were associated with poorer weight esteem (Fioravanti et al., 2021).

Thus, whether fitfluencers are able to motivate their followers to exercise also likely depends on what motives they emphasize in their posts. Self-determination theory (Ryan & Deci, 2000) provides a framework to understand human motivation for their behaviour and choices. In the context of physical exercise, the motives and reasons people have to exercise are important predictors of whether and how often people actually exercise (Ryan & Deci, 2000; Sebire et al., 2009; Teixeira et al., 2012). According to self-determination theory, there is a distinction between *intrinsic motives*, which are more related to basic psychological needs (e.g., health and happiness) and *extrinsic motives*, which are more related to needs that are less essential to wellbeing (e.g., social recognition; Ryan & Deci, 2000; Sebire et al., 2009; Teixeira et al., 2012).

Reasons to exercise are often divided into seven motivations: weight control, attractiveness, body tone, health, fitness, enjoyment, and mood improvement (Silberstein et al., 1988; Strelan et al., 2003). Linking this to self-determination theory, motives related to weight control, body tone, and attractiveness (e.g., to lose weight, to improve body shape, and becoming more attractive) focus on physical appearance and on conforming to cultural ideals of being found attractive by others, and thus are extrinsic. In contrast, reasons related to health (e.g., to improve resistance to illness, to maintain physical well-being) and mood (e.g., to improve mood, to cope with stress) are intrinsic.

Research has shown that intrinsic motives for exercising are more likely to result in actual physical exercise than extrinsic motives (Sebire et al., 2009; Sibley et al., 2013; Teixeira et al., 2012). Moreover, individuals with stronger appearance-related motives for exercise are less physically active and less physically fit and healthy (Ingledeew & Markland, 2008; Segar et al., 2006; Sibley et al., 2013). Furthermore, appearance-related reasons to exercise and lose weight are consistently associated with negative psychological states

such as increased body dissatisfaction and decreased self-esteem (Vartanian et al., 2012). In addition, women who exercise for appearance-related reasons have also been shown to experience higher levels of self-objectification and lower levels of adherence to exercise (O'Hara et al., 2014; Strelan et al., 2003). In contrast, non-appearance-related motives, such as health and mood, are positively related to intentions to exercise and physical health and fitness (DiBartolo et al., 2007; Ingledeu & Markland, 2008; Segar et al., 2006; Sibley et al., 2013).

Following self-determination theory, intrinsic motives, such as those focused on improving mood and health, should be more persuasive and motivational than appearance-focused, extrinsic motives. Thus, the way that a caption accompanying an image on Instagram is *framed* may influence women's responses to it. Framing is described as 'selecting some aspects of a perceived reality and make them more salient in a communicating text' (Entman, 1993, p. 52). Research has indeed found evidence for framing in the context of fitspiration (Aubrey, 2010; Lewallen, 2016). A content analysis of women's health magazines showed that the most common frames are health and appearance frames (Aubrey & Hahn, 2016). Moreover, magazine articles with an appearance frame led to higher body shame and appearance-related motivation to exercise compared to magazine articles with a health frame (Aubrey, 2010). On Instagram, body negative captions accompanying fitspiration images (e.g., 'I hate my body') have demonstrated to lower women's self-esteem, compared to body positive captions (e.g., 'A fit, healthy body. That is the best fashion statement.'). (Lewallen, 2016). However, other studies found no positive benefit of body-positive captions on body dissatisfaction, body appreciation, or body image, regardless of the images they were attached to (Brown & Tiggeman, 2020; Tiggemann et al., 2020).

Applying self-determination and framing theory to fitspiration, we propose that a post that is framed to emphasize the appearance benefits of exercise makes the appearance-related motives for exercising more salient. Because appearance-related motives are negatively related to engaging in physical exercise, and have been shown to reduce self-worth and instigate self-objectification (Ingledeu & Markland, 2008; Segar et al., 2006; Sibley et al., 2013), we expect that captions that focus on these motives can lead to women feeling insecure, are unlikely to be perceived as inspiring, and are less successful in stimulating exercise behaviour. In contrast, posts that focus on intrinsic motives to exercise, such as health or mood benefits, are more likely



to inspire viewers to exercise (DiBartolo et al., 2007; Ingledew & Markland, 2008; Segar et al., 2006; Sibley et al., 2013). We therefore hypothesize:

*H2: Viewing fitfluencer Instagram posts with an appearance-focused caption (emphasizing appearance benefits of exercise) a) leads to less exercise intention, b) makes women feel less inspired, and c) makes women feel more insecure, compared to captions that are not appearance-focused (i.e., emphasizing mood or health benefits of exercise).*

## Interaction of What a Fitfluencer Shows and Says

The combination of the focus of fitspiration images and captions could also make its effects stronger or, some combinations, weaker. It is well established that appearance-focused images on social media can have negative effects on viewers' mood, body image, and body satisfaction (e.g., Benton & Karazsia, 2015; Cataldo et al., 2021; Dignard & Jarry, 2021; Prichard et al., 2020). In combination with an appearance-focused caption, this negative effect of appearance-focused images may even be stronger, and thus is expected to be the least inspiring and least motivating to exercise.

In contrast, if captions emphasizing the health and mood benefits of exercise can indeed inspire women, such captions may also mitigate the detrimental effects of appearance-focused images. A combination of an appearance-focused image with a not appearance-focused caption (emphasizing health or mood benefits of exercise), could then still inspire women and increase their exercise intention.

However, contrary to this hypothesis, previous research suggests that the visual imagery of an Instagram post is a more potent contributor to body image than any accompanying text (Tiggemann et al., 2020). This would mean that the caption that is attached to an image, does not influence the effects the images, whether it is appearance-focused or not.

Additionally, research also showed that body positive Instagram content improved body satisfaction and negative mood, compared to thin ideal content, regardless of whether the content included body positive captions only, images only, or combined images and captions (Cowles et al., 2023). Thus, based on the literature, it is unclear whether and how different images



and captions may interact. To gain a better understanding of the potential interaction between the focus of images and captions, we ask:

*RQ1: Do the effects of the focus of the fitfluencer Instagram image (appearance-focused vs. not appearance-focused) and caption (appearance-focused vs. not appearance-focused) on a) likelihood to engage in physical exercise, b) feeling inspired, and c) feeling insecure interact?*

## Methods

### Experimental Design

We conducted the same online experiments with a 3 (image: appearance-focused female fitfluencer, vs. not appearance-focused fitfluencer vs. not appearance-focused showing no fitfluencer) x 3 (caption: focus on appearance vs. health vs. mood benefits) between subjects design amongst two samples. Table 1 presents an overview of the two samples.

### Procedure and Sample 1

The experiment was developed and administrated in cooperation with Dutch women's magazine Glamour. The magazine posted an invitation to our study on their website (Glamour.nl) in a section focusing on beauty and body. The invitation explicitly mentioned that Glamour was doing a study in cooperation with two Universities on sports and was looking for women aged 18 years and older. The message linked to our experiment in Qualtrics. Amongst the participants, Glamour raffled off five 'surprise boxes' with beauty products.

Women who clicked the link were first informed about their rights and asked to provide their informed consent. They were then randomly assigned to one of our conditions. In the instructions, we asked participants to look at an Instagram post as they would normally do. We then showed them one post by a female fitfluencer who is known for her involvement in CrossFit (a specific type of fitness), followed by our questionnaire. Participation took about 20 minutes.

A total of 791 women responded to our call on the Glamour website. We excluded participants who did not consent to participating in the study ( $N = 81$ ), did not fill out the complete questionnaire ( $N = 203$ ), and participants who were younger than 18 years old ( $N = 13$ ). The final sample consisted of

494 women ( $N$  per experimental group ranged between 52 and 60). These women were between 18 and 64 years old ( $M = 24.73$ ,  $SD = 6.14$ ), of whom 88% had an Instagram account, 62% followed female fitfluencers on Instagram or other social media, and 18% was familiar with the fitfluencer portrayed in this study. Because the study was posted on the body and beauty section of the website, most participants in this sample exercised relatively frequently (55% engaged in physical exercise three times a week or more).

## Sample 2

Because Sample 1 had a very strong focus on beauty, working out, and being fit, which could influence our results, we replicated the same experiment amongst a student sample. This sample was collected via the lab website of the University of Amsterdam that invites students to participate in various studies. Students received research credits in exchange for their participation.

A total of 302 women participated in our experiment. We excluded those who did not fill out the complete questionnaire ( $N = 48$ ) and one participant who was younger than 18 years old. The final sample consisted of 253 female students ( $N$  per experimental group ranged between 26 and 30) aged between 18 and 30 years ( $M = 20.72$ ,  $SD = 2.16$ ). Of this sample, 96% had an Instagram account, 43% followed fit girls, and 9% was familiar with the depicted fitfluencer. In this sample, frequency of exercising was less skewed (18% engaged in physical exercise three times a week or more, and 46% three times a month or less).

## Stimulus Materials

The Instagram posts were made in cooperation with an actual fitfluencer, fit girl Christel, who owns Instagram account @fitgirlChris and had 47,300 followers at the time the studies were conducted. Figure 1 shows an example of the images and captions used in the experiments.

To manipulate the image, we created three versions. Two conditions depicted the fitfluencer in the same pose lifting weights. The images only differed with regard to the clothing she wore: in the appearance-focused condition the fitfluencer wore tight clothing showing off her toned belly, in the not appearance-focused condition the fitfluencer was fully dressed, with loose clothing covering her toned belly. The third condition did not depict the fitfluencer but showed a close-up of sport attributes, creating the not appearance-focused image without a fitfluencer.

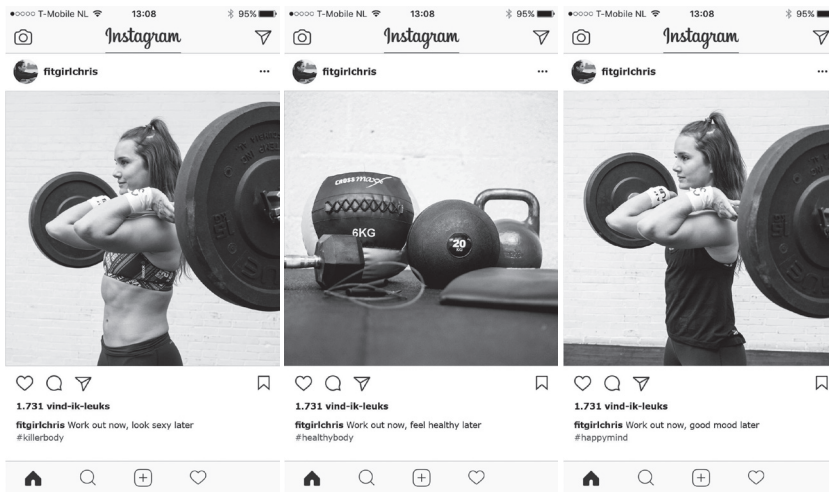


Figure 1. Examples of stimulus materials

Note. Left: appearance-focused image and caption. Middle: not appearance-focused image not depicting fitfluencer and caption focusing on health benefits. Right: not appearance-focused image showing fitfluencer and caption focusing on mood benefits.

To manipulate the focus of the caption, we created three captions. The appearance-focused caption emphasized the appearance benefits of physical exercise by saying ‘Work out now, look sexy later #killerbody’; the caption emphasizing the health benefits of physical exercise stated ‘Work out now, feel healthy later #healthybody’; and the caption emphasizing mood benefits said ‘Work out now, good mood later #happymind’.

## Measures

All measures were identical in the two samples. Table 1 shows the descriptive statistics of all variables for both studies.

**Exercise intention.** To measure participants’ intention to perform physical exercise, we asked them: ‘What is the likelihood (in percentages) that you will exercise in the following month?’ (based upon Lowe et al., 2002). Answer options ranged from 0 to 100 percent.

**Feeling inspired.** To measure the extent to which women felt inspired by the Instagram post, we asked them: ‘You have just seen an Instagram post by fit girl Chris. Please indicate to what extent you agree or

**Table 1. Descriptive statistics of variables measured in Sample 1 and 2**

	<b>Sample 1 (N = 494)</b>	<b>Sample 2 (N = 253)</b>
Exercise intention	$M = 95.90, SD = 15.44$	$M = 78.70, SD = 30.53$
Feeling inspired	$M = 3.31, SD = 1.87$	$M = 3.14, SD = 1.64$
Feeling insecure	$M = 2.45, SD = 1.74$	$M = 2.63, SD = 1.55$
Frequency of physical exercise	1% never 3% < 1 x per month 10% 1-3 x per month 31% 1-2 x per week 55% > 3 x per week	6% never 13% < 1 x per month 27% 1-3 x per month 36% 1-2 x per week 18% > 3 x per week
Have an Instagram account	88%	96%
Instagram use	12% never 3% yearly 9% monthly 14% weekly 62% daily	4% never 1% yearly 6% monthly 12% weekly 77% daily
Social media use	0% never 0% yearly 3% monthly 7% weekly 90% daily	1% never 0% yearly 1% monthly 4% weekly 93% daily
Exposure to female fitfluencers	13% never 7% yearly 20% monthly 41% weekly 18% daily	19% never 11% yearly 27% monthly 32% weekly 11% daily
Following female fitfluencers	62%	43%
Familiar with fit girl Chris	18%	9%
Following fit girl Chris	8%	2%
Age	$M = 24.73, SD = 6.14$	$M = 20.72, SD = 2.16$
Height (in cm)	$M = 170.53, SD = 6.81$	$M = 170.49, SD = 6.30$
Weight (in kg)	$M = 66.67, SD = 10.87$	$M = 62.61, SD = 9.05$
BMI	$M = 22.89, SD = 3.24$	$M = 21.57, SD = 3.17$

disagree with the following statement: 'The post inspired me' (1 = *strongly disagree*, 7 = *strongly agree*; based on Tiggeman & Zaccardo, 2015). We used the term 'fit girl' in the questionnaire because the account was called @fitgirlChris. As this is a commonly used term on social media and we expected participants to be more familiar with this term than fitfluencers.

**Feeling insecure.** To measure the extent to which participants felt insecure after seeing the post, the statement about feeling inspired was followed by

the statement ‘The post made me feel insecure’ (1 = *strongly disagree*, 7 = *strongly agree*).

**Control variables.** We took into account several control variables. Participants’ **frequency of exercise** was measured by asking how often they exercised on average in the past half year (1 = *Never*, 2 = *Less than once a month*, 3 = *1-3 times a month*, 4 = *1-2 times a week*, 5 = *3 times a week or more*). We also asked participants whether they **owned an Instagram account** (1 = *No*, 2 = *Yes*). To gain insight into their **Instagram use** and general **social media use** we asked how often (1 = *Never*, 2 = *Yearly*, 3 = *Monthly*, 4 = *Weekly*, 5 = *Daily*) they used Instagram, how often they used social media in general (Facebook, Twitter, blogs, Instagram), and how often they looked at blogs, social media posts, or other content of fit girls (**exposure to female fitfluencers**). Furthermore, we asked them whether they **followed female fitfluencers** on Instagram or other social media, whether they were **familiar with fit girl Chris**, and whether they **followed fit girl Chris** on Instagram (1 = *No*, 2 = *Yes*; social media and influencer control variables measures based upon Boerman, 2020). We also asked participants to fill out their **height** (in cm) and **weight** (in kg) and used this information to calculate their Body Mass Index (BMI). Lastly, we asked for their **age** (in years).

## Results

### Randomization Checks

The six experimental conditions in Sample 1 did not significantly differ with respect to frequency of exercise,  $\chi^2(32) = 27.94, p = .672$ , having an Instagram account,  $\chi^2(8) = 6.97, p = .539$ , Instagram use,  $\chi^2(32) = 37.28, p = .239$ , social media use,  $\chi^2(32) = 29.78, p = .579$ , exposure to fit girls,  $\chi^2(32) = 22.09, p = .905$ , following fit girls,  $\chi^2(8) = 6.07, p = .640$ , familiarity with fit girl Chris,  $\chi^2(8) = 8.13, p = .421$ , following fit girl Chris,  $\chi^2(8) = 4.27, p = .832$ , age,  $F(8, 485) = 0.39, p = .927$ , and BMI,  $F(8, 485) = 0.96, p = .466$ .

There were also no differences across the conditions in Sample 2 regarding frequency of exercise,  $\chi^2(32) = 30.64, p = .536$ , having an Instagram account,  $\chi^2(8) = 6.13, p = .633$ , Instagram use,  $\chi^2(32) = 27.74, p = .682$ , social media use,  $\chi^2(32) = 27.36, p = .701$ , exposure to fit girls,  $\chi^2(32) = 38.50, p = .199$ , following fit girls,  $\chi^2(8) = 4.27, p = .832$ , familiarity with fit girl Chris,  $\chi^2(8) = 7.76, p = .457$ , following fit girl Chris,  $\chi^2(8) = 7.57, p = .477$ , age,  $F(8, 244) = 0.87, p = .543$ , and BMI,  $F(8, 244) = 0.45, p = .888$ . Thus, randomization was successful in both samples.

Because frequency of exercise, age, and BMI were correlated with some of the dependent variables (see correlation matrices in online appendix), we included them as covariates in all analyses.

### Effect of Fitfluencer Images

To test the hypotheses and answer the research question, we ran MANCOVAs for both samples. The type of image and caption were entered as independent variables, exercise intention, feeling inspired, and feeling insecure were the dependent variables, and frequency of exercise, age, and BMI were included as covariates. Table 2 presents the means and standard deviations of the dependent variables for the image and caption conditions in both studies.

The main effect of image type on exercise intention was significant in Sample 1,  $F(2, 482) = 4.08, p = .017, \eta^2 = .02$ , and Sample 2,  $F(2, 241) = 3.05, p = .049, \eta^2 = .03$ . Post hoc analyses using simple contrasts comparing the appearance-focused image to the two images that were not appearance-focused showed slight differences between the two studies. In Sample 1, the appearance-focused image ( $M = 93.81, SD = 19.39$ ) significantly led to less intention to exercise compared to the not appearance-focused image of the fitfluencer ( $M = 96.86, SD = 12.77, p = .014$ ), and compared to the image not depicting a fitfluencer ( $M = 96.93, SD = 13.36, p = .013$ ).

In Sample 2, the appearance-focused image ( $M = 72.88, SD = 34.10$ ) led to significantly less intention to exercise compared to the not appearance-focused image of the fitfluencer ( $M = 81.55, SD = 28.57, p = .016$ ). However, we found no significant difference in exercise intention between the appearance-focused image and the image not depicting a fitfluencer ( $M = 81.93, SD = 27.72, p = .115$ ).

Furthermore, results revealed no significant main effect of the image on feeling inspired, Sample 1:  $F(2, 482) = 0.72, p = .489$ , Sample 2:  $F(2, 241) = 0.79, p = .618$ .

The image did significantly influence the extent to which women felt insecure in Sample 1:  $F(2, 482) = 5.65, p = .004, \eta^2 = .02$ . Post hoc analyses using simple contrasts showed that the appearance-focused image ( $M = 2.74, SD = 1.86$ ) made women feel significantly more insecure compared to the picture not depicting a fitfluencer ( $M = 2.09, SD = 1.56, p = .001$ ). We did not find a significant difference between the appearance-focused and not appearance-focused image of the fitfluencer ( $M = 2.53, SD = 1.73, p = .406$ ). The student sample (i.e., Sample 2) did not replicate this effect of image type on feeling insecure:  $F(2, 241) = 1.90, p = .152$ .

**Table 2. Effects of image and caption on exercise intention, feeling inspired, and feeling insecure**

	Image		Caption			
	Appearance-focused fitfluencer	Not appearance- focused fitfluencer	Not appearance- focused, no fitfluencer	Appearance benefits	Health benefits	Mood benefits
Exercise intention						
Sample 1	93.81 (19.39) <sup>a</sup>	96.86 (12.77) <sup>b</sup>	96.93 (13.36) <sup>b</sup>	96.20 (15.50)	94.54 (17.79)	96.93 (12.67)
Sample 2	72.88 (34.10) <sup>a</sup>	81.55 (28.57) <sup>b</sup>	81.93 (27.72) <sup>ab</sup>	75.85 (33.99)	82.10 (28.11)	78.72 (28.65)
Feeling inspired						
Sample 1	3.32 (1.94) <sup>a</sup>	3.42 (1.91) <sup>a</sup>	3.18 (1.78) <sup>a</sup>	3.27 (1.87)	3.28 (1.89)	3.37 (1.87)
Sample 2	3.15 (1.62) <sup>a</sup>	3.23 (1.68) <sup>a</sup>	3.02 (1.62) <sup>a</sup>	3.08 (1.71)	3.24 (1.64)	3.09 (1.56)
Feeling insecure						
Sample 1	2.74 (1.86) <sup>a</sup>	2.53 (1.73) <sup>a</sup>	2.09 (1.56) <sup>b</sup>	2.42 (1.79)	2.36 (1.62)	2.57 (1.79)
Sample 2	2.87 (1.61) <sup>a</sup>	2.43 (1.48) <sup>a</sup>	2.57 (1.54) <sup>a</sup>	2.70 (1.57)	2.60 (1.60)	2.57 (1.49)

Note. . Table presents means with standard deviations between parentheses. Sample 1 N = 494, Sample 2 N = 253.

ab For image conditions: means with different superscript in same column differ significantly from each other at  $p < .05$ . No significant differences found between caption conditions.



In sum, these results support H1a: the appearance-focused image did lead to less exercise intention compared to not appearance-focused images. We found no support for H1b: the appearance-focused image did not make women feel less inspired. Our results provide tentative and partial support for H1c: compared to an image not depicting any fitfluencer, an appearance-focused image of a female fitfluencer can make women feel insecure.

### Effects of Fitfluencer Captions

In both samples, The MANCOVA showed no significant main effect of the caption on the exercise intention, Sample 1:  $F(2, 482) = 0.07, p = .937$ , Sample 2:  $F(2, 241) = 1.88, p = .156$ , feeling inspired, Sample 1:  $F(2, 482) = 0.05, p = .951$ , Sample 2:  $F(2, 241) = 0.24, p = .786$ , and feeling insecure, Sample 1:  $F(2, 482) = 0.60, p = .547$ , Sample 2:  $F(2, 241) = 0.18, p = .832$ .

Thus, our results do not support H2: The focus of the caption did not influence women's intention to exercise, and did not seem to make women feel more or less inspired or insecure.

### Interaction Effects of Images and Captions

With respect to RQ1a, we found no significant interaction between the image and caption on exercise intention in Sample 1,  $F(4, 482) = 1.19, p = .313$ , and Sample 2,  $F(4, 241) = 2.20, p = .070$ .

In addition, we found no significant interaction between the caption and image on feeling inspired in Sample 1:  $F(4, 482) = 0.57, p = .684$ , and Sample 2:  $F(4, 241) = 2.39, p = .051$ .

Finally, we found no interaction effects on feeling insecure in both samples, Sample 1:  $F(4, 482) = 0.58, p = .676$ , Sample 2:  $F(4, 241) = 2.33, p = .057$ .

With respect to RQ1, we found no evidence for any interaction effects between the images and caption on intention to exercise, feeling inspired or feeling insecure.

## Conclusion and Discussion

The current study investigated what types of images and captions posted on Instagram by female fitfluencers are most likely to motivate women to exercise. The results of an experiment in two different samples provide three important

insights. First, in both samples, appearance-focused fitfluencer images *decreased* women's self-reported intention to exercise in the next months, compared to images that do not focus on appearance. Thus, fitspiration images focusing on appearance appear to mostly demotivate women, rather than inspire them. Second, we found that appearance-focused images *can* make women who regularly exercise, are interested in beauty, and are familiar with fitfluencers feel insecure. Third, we found that the caption of a fitfluencer Instagram post did not affect exercise intentions, nor made women feel inspired or insecure.

More specifically, our study reveals that women who had seen an image that focuses on appearance by showing a female fitfluencer showing off her thin and toned body reported a lower chance that they would exercise the next month, in comparison to women who had seen an image of a fully dressed fitfluencer or no fitfluencer. Interestingly, exercise intentions appeared to be highest for those exposed to the image that did not show a fitfluencer at all. Thus, despite the term *fitspiration*, appearance-focused images from a female fitfluencer rather demotivates than inspires. Flaunting a thin and toned body does not seem to motivate women to exercise. These findings are in line with previous studies that show the negative effects of appearance-focused fitspiration (e.g., Benton & Karazsia, 2015; Cataldo et al., 2021; Dignard & Jarry, 2021; Prichard et al., 2020).

In addition, we found that appearance-focused images *can* make women feel insecure. This effect on insecurity was only found in our sample of women who were interested in beauty and body; often followed fitfluencers (i.e., fit girls); and exercised a lot. This effect was not found for our student sample that reported to exercise less and were also less familiar with fitfluencers. This means that appearance-focused fitfluencer content can actually make their target audience – women who are interested in fitness and familiar with fitfluencers – feel insecure, providing insights into an important underlying mechanism that could explain the negative effect of fitspiration on body image and body satisfaction (Benton & Karazsia, 2015; Prichard et al., 2018; Robinson et al., 2017; Tiggemann & Zaccardo, 2015).

Theoretically, these two findings provide new evidence for the importance of objectification theory (Fredrickson & Roberts, 1997) and social comparison theory (Festinger, 1954) in the context of fitspiration by influencers on Instagram. Fitfluencer images focusing on appearance – by depicting a female fitfluencer showing off her thin and toned body – can induce self-objectification and upward comparison, making women feel insecure, and demotivating them to exercise.

Based on self-determination theory (Ryan & Deci, 2000) and framing theory (De Vreese, 2002), we expected that captions that emphasize appearance-related motives for exercise could decrease intentions to exercise. Interestingly, we did not find evidence for such framing effects: The different captions emphasizing specific motives did not motivate or demotivate women to exercise. Women also did not perceive the different captions as more or less inspiring, or felt more or less insecure because of the captions. As the Instagram post contained both an image and a caption, the finding that only images had an effect is in line with research showing that Instagram revolves predominantly around images and captions play a less central role on this medium (Lee et al., 2015). These findings also correspond to previous studies that visual imagery of an Instagram post is a more potent contributor to body image than any accompanying text (Tiggemann et al., 2020). To gain a better understanding of how Instagram users process Instagram influencer content, future research may further explore the difference in attention for and effects of images versus captions, for example using eye tracking, and by looking at the effects of images and captions separately.

Strengths of this study are that we developed realistic materials with a real female fitfluencer (@fitgirlChris), and that we replicated our findings amongst two different samples. Although both samples consisted of women, one sample consisted of women who were invited on the body and health section of women's magazine Glamour. Based on the fact that these women visit this website, we can assume that these women are interested in body and health. In addition, these women said they exercise a lot (55% exercised at least three times a week) and more than half (62%) said they follow fit girls. In comparison, the student sample was less focused on physical exercise (18% exercised at least three times a week) and less likely to follow fit girls (43%). Interestingly, we found that image type influenced exercise intentions in both samples, showing the robustness of this effect. Moreover, the differences between the two samples could explain the inconsistent findings regarding the effect of the image type on the extent to which women felt insecure.

Despite these strengths, our studies also have some important limitations. Although the materials were created with a real influencer, we did not measure participants' parasocial relationship or interaction with this influencer, which has shown to play an important role in influencer marketing effects (e.g., Lou, 2021). Although previous research did not find a significant relationship between parasocial interaction and exercise intentions (Sokolova & Perez, 2021), future studies should further investigate the role of the

parasocial relationship in the context of fitfluencers. Furthermore, due to the limited time and space in our questionnaire, our measures capturing whether women felt inspired and insecure were limited to one item measures. Although we believe these measures still provide useful insights into the women's general perception of feeling inspired by and insecure because of the post, the items did not specify what the post inspired women to do, and what they felt insecure about. In addition, our experiment did not include a no fitspiration control group, which inhibits us to test if the appearance-related images indeed demotivate women to exercise, or if they are just less motivational than fitspiration without a picture of the fitfluencer. Finally, in line with the majority of the research in this field, we focused on the effect of content by women on women. However, fitness influencers are not always women (e.g., fit boys), and other genders also account for a part of fitspiration. Further research could investigate how this content affects broader audiences, and whether these effects differ compared to female audiences.

Regardless of these limitations and need for further research, the findings of this study have some important practical implications. To contribute to healthier lifestyles and to actually inspire women to exercise, fitfluencers are recommended to create images that do not focus on appearance. Our study suggests that images that focus on appearance by flaunting a thin and toned body have the least desirable effects in terms of motivating to exercise, even if they are accompanied by a caption emphasizing the health or mood benefits of physical exercise. Thus, fitfluencer images should not show too much of their thin and toned bodies, and fitfluencers should rather cover up their body and abs or, for instance, show their exercise environment or equipment. We already knew that appearance-focused images have negative consequences for body image (e.g., Benton & Karazsia, 2015; Prichard et al., 2018; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). Our findings contribute to this knowledge by revealing that appearance-focused fitfluencer images are the least likely to motivate women to exercise in comparison with other, less appearance-focused types of fitspiration images.

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