

Fitspiration Photos and Quotes: Effects on Body Image in University Women

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Abstract

Fitspiration refers to a type of social media that aims to inspire people to exercise using photos and/or quotes. However, while evidence suggests it can lead to increased exercise motivation, it has also been shown to have a negative effect on body image and mood. The purpose of this study was to investigate which component of Fitspiration messages (photos and/or quotes) causes a negative effect on body image and mood and to investigate if this content has an inspiring effect on related health behaviours. A total of 145 women aged 18-29 years were randomly assigned to view one of four Instagram accounts: Fitspiration photos, Fitspiration quotes, a combination of photos and quotes, or travel images (control condition). They completed pre and post-measures of body image and mood (i.e., body satisfaction, self-objectification, body appreciation and negative mood) as well as a measure of inspiration to exercise, eat healthy, and travel after viewing the account. Results of a series of ANCOVAs showed that women in the image-only condition reported lower body appreciation and higher negative mood compared to women in the travel condition. Further, women in the combination condition reported higher self-objectification and lower body satisfaction compared to those in the control condition. Women in the image group also reported greater inspiration to exercise than those in the travel group and greater inspiration to eat healthy than those in both the travel and quote groups. These results suggest that, in general, viewing Fitspiration images (either alone or with a quote) is associated with poorer body image and mood in young adult women, although it did lead to greater inspiration to engage in health behaviours. Given that social media, and Fitspiration in particular, is growing in popularity, it is important to develop protective measures, such as social media literacy programs, to reduce their negative impact.

Keywords: Fitspiration; social media; Instagram; body image; body appreciation; body satisfaction; self-objectification

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Chapter 1: Review of Literature

A growing body of literature demonstrates the significant correlation between social networking site use and body image in young women (Holland & Tiggemann, 2016; Mabe, Forney, & Keel, 2014; Pepin & Endresz, 2015; Tiggemann & Miller, 2010; Tiggemann & Slater, 2014; Vandebosch & Eggermont, 2012). Specifically, interest in Fitspiration, which is designed to inspire people to get more involved in fitness and healthy eating (Neporent, 2012), has grown in the body image literature. While Fitspiration is designed to have a positive effect on these behaviours, recent evidence suggests it may negatively impact body image. The concern is that the women in these images often exhibit a specific body type: relatively thin and toned (Schaefer et al., 2015). In general, acute exposure to this content leads to negative body image and mood outcomes including: higher body dissatisfaction (Prichard et al., 2017; Robinson et al., 2017; Tiggemann & Zaccardo, 2015), lower state appearance self-esteem (Tiggemann & Zaccardo, 2015), increased negative mood (Prichard et al., 2017), and lower self-compassion (Slater et al., 2017). Although researchers have looked at the effect this content has on body image, no one has compared the impact the different components of this content (the images, the quotes or a combination of images and quotes) has on body image and mood.

1.1 Body Image

Body image has been defined as a picture of the body that is formed in one's mind and how a person's body appears to him/herself (Pruzinsky & Cash, 1990). However, it is more than just the perception of the appearance of the body; it is a multifaceted construct including perceptions, thoughts, feelings and behaviours about the body's appearance and functioning (Cash, 2012). It involves two broad dimensions. The first is self-perceptions, the accuracy of

body shape and size judgements. In addition, there is also the attitudinal dimension, the thoughts, feelings, behaviours and beliefs about the body, including both its appearance and function (Cash, 2004). Further, body image can be experienced both negatively and positively. Recent research suggests that positive and negative body image are distinct constructs from each other, not merely opposite ends of the same continuum (Tylka & Kroon Van Diest, 2013; Tylka & Wood-Barcalow, 2015b).

1.1.1. Negative body image. Negative body image is the negative thoughts and feelings about one's own body. Body dissatisfaction, one facet of negative body image, is most often thought to involve a person experiencing a discrepancy between the ideal body and his/her actual perception of it (Niide et al., 2011). Negative body image is an extremely common concern among young women, with estimates that 11-72% of women exhibit body dissatisfaction (Fiske, Fallon, Blissmer, & Redding, 2014). This is problematic as body dissatisfaction is a contributing factor to women's physical and mental health problems (Grogan, 2017).

For women and girls, negative body image most often involves dissatisfaction with their body size and weight, as they wish to reach society's idealized body (Cash & Smolak, 2011). For women, this ideal is associated with being thin and more recently also being toned (Grogan, 2017), and women are expected to alter their shape and weight to fit in with current societal preferences (Grogan, 2017). The ideal is difficult to avoid as it is pervasive in media, leading to an increased pressure among women to meet it (Harper & Tiggemann, 2008). In addition, women living in western culture are taught that physical beauty is one of their most important features (Harter, 1999) and that being slim leads to happiness, success, and social acceptability (Harper & Tiggemann, 2008).

1.1.2 Positive body image. Positive body image refers to having love and respect for one's body (Tiggemann & Wood-Barcalow, 2015a). People with a positive body image appreciate that their body is unique, valuing its functionality (i.e., what their body can do) and accepting their body even if it is not consistent with the societal ideal. People with positive body image experience acceptance and unconditional love from others, there is an inner positivity that comes through in their outer self, they have a broad conceptualization of beauty, they are media literate, and they surround themselves with others who also have a positive perspective of their own body (Tiggemann & Wood-Barcalow, 2015a). Positive body image allows individuals to interpret information about their body in a body protective manner (Tylka, 2012).

One aspect of positive body image that has received recent investigation in the literature is body appreciation. Body appreciation refers to appreciating the features, functionality and health of the body (Avalos, Tylka, & Wood-Barcalow, 2005). Regardless of one's actual appearance, body appreciation involves having favourable opinions of the body, attending to the body's needs and engaging in health behaviours (e.g., physical activity; Tylka & Wood-Barcalow, 2015a) and self-care activities (e.g., yoga; Daubenmier, 2005; Prichard & Tiggemann, 2008; Mahlo & Tiggemann, 2016).

1.1.3 Consequences of body image. Negative body image is associated with negative physical health, mental health and behavioural outcomes. The primary physical health outcome linked to negative body image is obesity (Grabe, Hyde, & Lindberg, 2007; Johnson & Wardle, 2005; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Paxton, Neumark-Sztainer, Hannan & Eisenberg, 2006; Tiggemann, 2005). Mental health consequences include low self-esteem, depression, lower life satisfaction, lower self-compassion, decreased optimism, insecure attachment, maladaptive coping, poorer quality of life, and social phobia (Cash, Thériault, &

Annis, 2004; Ganem, Heer, & Morera, 2009; Grabe et al., 2007; Ivezaj, Saules, Hoodin, Alschuler, Angelella, Collings, & Wiedemann, 2010; Johnson & Wardle, 2005; Neumark-Sztainer et al., 2006; Paxton et al., 2006; Tiggemann, 2005; Tylka & Subich, 2004).

Additionally, comparison to the ideal is correlated with negative evaluations of the self (Jones, 2001). Negative health-related behaviours associated with negative body image include: decreased physical activity (Ransdell, Wells, Manore, Swan, & Corbin, 1998), unhealthy dieting and disordered eating (Hudson, Hiripi, Pope, & Kessler, 2007; Smolak & Thompson, 2002; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), excessive exercise (Davis & Fox, 1993), and cosmetic surgery (Henderson-King & Henderson-King, 2005).

On the other hand, positive body image has been associated with several benefits (Homan & Tylka, 2015), specifically improved mental health and positive health behaviours. In regards to mental health, people with a positive body image generally report higher levels of self-compassion, optimism (Andrew, Tiggemann, & Clark, 2016b; Williams, Cash & Santos, 2004), and self-esteem (Andrew et al., 2016b; Gillen, 2015; Williams et al., 2004), fewer depressive symptoms, lower drive for muscularity, greater intention to protect skin from UV damage (Gillen, 2015), positive coping strategies via positive rational acceptance and lower levels of self-presentational perfectionism and coping through avoidance and appearance fixing (Williams et al., 2004). Women with a positive body image report lower internalization of media influences, are more likely to engage in skin care behaviours with respect to the sun (e.g. wearing sunscreen) and have a higher engagement in physical activity (Andrew et al., 2016b; Williams et al., 2004). Thus, there are health-related outcomes associated with both negative and positive body image.

1.2 Media and Body Image

Sociocultural approaches suggest that media is an important influence on body image, as the thin ideal body is strongly emphasized in media and the negative impact it has on women's body image is well-documented (Grabe, Ward, & Hyde, 2008; Groesz, Levine, & Murnen, 2002; Holmstrom, 2004). Movies, magazines, and television programs frequently show extremely thin women, making it difficult to avoid these images; viewing these media depictions is associated with negative body image outcomes (Engeln-Maddox, 2006). Further, the amount of time women spend viewing appearance-focused media images is positively correlated with internalization of the thin ideal, drive for thinness and body dissatisfaction (Borzekowski, Robinson, & Killen, 2000; Harrison, 2003; Tiggemann, 2005; Tiggemann & Pickering, 1996).

Groesz et al. (2002) conducted a meta-analysis, including 25 experimental studies, investigating the effects of media exposure on women's body image. Overall, the authors concluded there was a small negative effect of media exposure on body image in women ($d = .31$) across all the studies. They concluded that women felt worse after being exposed to thin images compared to neutral images. In Holmstrom's (2004) meta-analysis, 34 studies were examined and there was a smaller effect size ($d = .16$), with a small negative influence of media exposure on women's body image. More recently, Grabe et al. (2008) conducted a meta-analysis on 77 experimental and correlational studies, focusing on the association between media exposure and women's body dissatisfaction, internalization of the thin ideal and eating behaviours. Results showed small to moderate effect sizes for all outcomes ($ds = -.28, -.39, \text{ and } -.30$) respectively. The analysis supported the contention that exposure to mass media emphasising the thin-ideal body was related to disturbances in women's body image (i.e., higher

body dissatisfaction, increased investment in appearance, and increased risk of having an eating disorder).

1.2.1 Social media. Investigation of the media's effects on body image have generally focused on traditional media. However, since these meta-analyses were conducted, new forms of media, in particular social media, have grown rapidly in popularity. Today, social media is more popular among young women compared to traditional media formats such as television and magazines (Bair, Kelly, Serdar, & Mazzeo, 2012). According to Smith and Anderson (2018), 88% of 18 to 29-year-olds use social media. Social media networking sites, such as Facebook and Instagram, allow users to create profiles to share, view, comment and 'like' content that is frequently peer-generated (Perloff, 2014). These sites differ from traditional forms of media, as they contain interactive features, rather than being just passively viewed. Users of these sites pose for, select, and edit photos themselves before posting them online where they can also receive evaluation from their peers (Chae, 2017; Fox & Vendemia, 2016; Haferkamp & Kramer, 2011).

1.2.2 Instagram. Instagram, launched in October 2010, allows users to share photos and manipulate them with the use of filters and editing tools to create images that look 'perfect' (Sullivan, 2014). Instagram is the most popular photo sharing/viewing site (Hu, Manikonda, & Kambhampati, 2014) and has more than 1 billion users, of which 52% are female. To date, over 50 billion photos have been uploaded to Instagram, over 100 million photos and videos per day, and 500 million users actively use the social networking site daily. Approximately 63% of Instagram users are between the ages of 18 to 34 (Aslam, 2019).

1.2.3 Social media and body image. A growing body of literature demonstrates the significant correlation between social networking site use and body image in young women.

Social media usage has been associated with thin-ideal internalization, self-objectification, low body self-esteem, body dissatisfaction, and eating disorders in adolescents (Holland & Tiggemann, 2016; Mabe, Forney, & Keel, 2014; Pepin & Endresz, 2015; Tiggemann & Miller, 2010; Tiggemann & Slater, 2014; Vandenbosch & Eggermont, 2012) and undergraduate women (Cohen & Blaszczynski, 2015; Fardouly & Vartanian, 2015; Fardouly, Diedrichs, Vartanian, & Halliwell, 2015; Mabe et al., 2014). Importantly, research has demonstrated that body dissatisfaction is not a predictor of overall social media usage; rather, social media negatively affects body image (Fardouly & Vartanian, 2016).

Fardouly, Willburger, and Vartanian (2018) examined the relationship between Instagram use and body image concerns among women aged 18-25. They concluded that higher Instagram usage was associated with greater self-objectification, mediated by internalization of the ideal and appearance comparisons to celebrities. Thus, Instagram usage may negatively affect appearance-related concerns in women. Cohen, Newton-John, and Slater (2017) examined both Facebook and Instagram appearance-focused activities and body image concerns in women aged 18-29, finding that appearance-related usage, rather than overall social media use, was related to body image concerns. Those who were more engaged in photo activities on Facebook (i.e., posting and viewing photographs) had higher thin-ideal internalisation, body surveillance and drive for thinness. Similarly, following appearance-focused accounts on Instagram was also associated with thin-ideal internalisation, body surveillance and drive for thinness, while following appearance-neutral accounts was not correlated with any body image outcomes. These studies have documented that Instagram use is related to body image concerns. More recently, a specific type of Instagram account, known as Thinspiration, the blending of the terms 'thinness' and 'inspiration', has emerged (Ghaznav & Taylor, 2015).

1.2.4 Thinspiration and body image. Thinspiration images and messages emphasize idealized images of thin women (Borzekowski, Schenk, Wilson, & Peebles, 2010). Thinspiration strongly advocates for extreme weight loss, idealizing thinness and rejecting large bodies via images and text posts (Borzekowski et al., 2010; Lapinski, 2009; Rouleau & Von Ranson, 2011). Across social media sites, Thinspiration content promotes a thin ideal that is segmented, extremely thin and sexually suggestive (Graznavi & Taylor, 2015) and often involves pro-eating disorder content, promoting anorexic behaviours as a way to lose weight (Lapinski, 2009). Thinspiration content often depicts models, celebrities, real people and/or athletes (e.g., Borzekowski et al., 2010; Lapinski, 2009; Norris, Boydell, Pinhas, & Katzman, 2006). This potentially harmful content involves graphic images of emaciated models and encourages pro-eating disorder behaviour through tips and tricks (Lewis & Arbuthnott, 2012). Thinspiration often includes quotes, song lyrics or poetry to encourage disordered eating behaviours (Lapinski, 2009; Norris et al., 2006). Thinspiration images have been linked to various detrimental health-related outcomes for young adult women, such as extreme weight control, eating-disorder pathology and body dissatisfaction (Bardone-Cone & Cass, 2007; Custers & van Den Bulck, 2009; Jett, Laporte, & Wanchisn, 2010; Peebles, Wilson, Litt, Hardy, Lock, & Mann, 2012). Additionally, Thinspiration content has been shown to have similar effects as exposure to thin-ideal media, such as internalization of the thin ideal (Hargreaves & Tiggemann, 2003; Levine & Murnen, 2009), body-related self-discrepancies and increasing engagement in eating disorders (Harrison, 2001; Harrison, Taylor, & Marske, 2006; Levine & Murnen, 2009). In response to these Thinspiration messages and the negative consequences associated with them (Boepple & Thompson, 2016), a new type of social media, termed Fitspiration, has emerged.

1.3 Fitspiration

Fitspiration (combining the terms fitness and inspiration), a relatively new trend on social media, originally emerged to counteract Thinspiration and promote engagement in positive health behaviours, particularly exercise (Neporent, 2012). While Fitspiration is designed to have a positive effect on behaviours, recent evidence suggests it may negatively impact body image. The concern is that the women in these images often exhibit a specific body type, relatively thin and toned (Schaefer et al., 2015). Many Fitspiration messages suggest that women should be thin and also fit with noticeable muscle definition (Simpson & Mazzeo 2016). Adding tone and strength to the thin ideal may cause women to experience additional ways to feel inadequate (Tiggemann & Zaccardo, 2015). While the intention of Fitspiration was to counteract the negative effects of Thinspiration sites, 80% of Fitspiration sites contain one or more of the following: guilt-inducing messages focusing on weight or the body, fat/weight stigmatization, objectifying phrases and dieting/restraint messages (Boepple & Thompson, 2016). Many of the Fitspiration models are very thin and look very similar to the Thinspiration images, and these photos involve bodies that are just as unachievable (Boepple & Thompson, 2016). Furthermore, the Fitspiration content shows almost all white middle-class or higher women (Prichard, McLachlan, Lavis, & Tiggemann, 2017; Robinson et al., 2017; Slater, Varsani, Diedrichs, 2017; Tiggemann & Zaccardo, 2015).

Several content/thematic analyses of Fitspiration sites have been conducted. In general, Fitspiration content (text and images) has a strong appearance and exercise focus. The majority of women shown on these sites are thin and toned; for example, Deighton-Smith and Bell (2017) concluded that Fitspiration sites show unrealistic body ideals that are not achievable for most women, a conclusion supported in other content analyses (Boepple & Thompson, 2014, 2016; Ghaznavi & Taylor, 2015). Further, these images and the accompanying text are often

objectifying and sexually suggestive (Boepple & Thompson, 2016; Simpson & Mazzeo, 2016), even while they depict women who are either engaging in exercise or in an exercise-related environment (Tiggemann & Zaccardo, 2016).

Further, appearance and physical attractiveness are shown as the key motives to exercise on Fitspiration (Willis & Knobloch-Westerwick, 2014). A content analysis of Fitspiration sites by Simpson and Mazzeo (2016) analysed 1050 images. The authors found that the most common motivation for exercise depicted was for appearance, followed by exercising to lose weight and to improve shape. They also reported that 42% of the Fitspiration pages promoted weight loss. Further, appearance-related comments associated with body image concerns are common (Slater & Tiggemann, 2015; Tiggemann & Boundy, 2008).

Negative body image consequences have been associated with viewing and posting Fitspiration content. Holland and Tiggemann (2017) investigated exercise and disordered eating in women who regularly post Fitspiration images, compared to those who post travel images, on Instagram. Results showed that women posting Fitspiration (versus travel) images scored higher on drive for thinness, bulimia, drive for muscularity and compulsive exercise. Compared to 17.5% of women in the Fitspiration group who were classified as being at risk for diagnosis of an eating disorder, only 4.3% in the travel group were considered at risk. Lastly, compulsive exercise was correlated with disordered eating in both groups, but this relationship was stronger for women who posted Fitspiration images.

1.3.1 Effects of Fitspiration on body image. In general, experimental studies examining the effects of viewing Fitspiration content on body image shows negative effects (Prichard et al., 2017; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). Although there has been limited

research on Fitspiration and its effect on body image, there have been four experimental studies, all using between-subject designs.

Tiggemann and Zaccardo (2015) first investigated the impact of acute exposure to Fitspiration content on women's body image. A total of 130 female undergraduate students were recruited for a study on "recreational Instagram use" and were randomly assigned to one of two groups, travel (control) or Fitspiration (experimental). Photos were found using the "travel" and "Fitspiration" hashtags, respectively. Each group viewed 18 images from public Instagram accounts. The Fitspiration group contained 16 photos involving women posing in fitness clothing or engaging in exercise, along with the addition of two travel images to uphold the cover story. The travel image group involved 18 photos of different travel destinations, including landscapes, monuments and buildings, with 11 of these photos including people. Each image set included inspirational quotes on four of the images. Participants viewed each image for 20 seconds on an iPad via a slideshow they were told was from an Instagram profile. Participants were then asked to rate the quality of the photos to ensure they attended to the images and to support the cover story. The participants completed measures of negative mood, body dissatisfaction and inspiration goals before and after viewing the images. The results showed that women viewing Fitspiration images reported greater inspiration to exercise, as well as higher state body dissatisfaction, lower state appearance self-esteem, but no difference in performance self-esteem or social self-esteem, than women viewing travel images. In regard to negative mood and body dissatisfaction, those in the Fitspiration group showed an increase and those in the travel group showed a decrease in both variables. State appearance comparison was higher in the Fitspiration group compared to the travel group.

Robinson et al. (2017) investigated the impact of viewing athletic and muscular fitness-idealised images compared to traditional thin ideal images on body image and exercise behaviour. Participants were recruited for a study about weight, exercise behaviours and attitudes, and social media images. A total of 106 female undergraduate students were randomly assigned to view either thin, athletic, or muscular ideal images. Each condition consisted of 15 images (each displayed for 15 seconds) found on Google Images and Instagram. Participants completed state body image measures, then viewed images and rated each one based on its visual quality to ensure attention was paid. After completing follow-up state measures of body dissatisfaction, they exercised on a treadmill for 10 minutes at a self-selected pace, then completed measures of state appearance comparison and fitness inspiration. The results showed that exposure to both the athletic and thin ideals produced greater body dissatisfaction, relative to viewing muscular ideal images, which did not yield a change in body dissatisfaction. State appearance comparisons predicted increased body dissatisfaction across all conditions. Trait appearance comparisons did not explain significant variance in body dissatisfaction. Lastly, the fitness-idealised images did not motivate participants to engage in higher amounts of exercise compared to the thin-ideal images, leading to the suggestion that this type of fitness inspiration may not increase exercise behaviour as intended. The study concluded that viewing athletic idealized images may be more damaging to a women's body image compared to the thin ideal images, as they lead to higher body dissatisfaction than the thin ideal images, which led to higher dissatisfaction than the muscular ideal images, which had no effect on body dissatisfaction.

Prichard et al. (2017) investigated the impact of different forms of inspirational fitness images on women's body image, mood and self-objectification. Participants, who were told that the study examined online fitness and exercise motivation, were 152 Australian women, aged 17-

30 years old, who were randomly assigned to view Fitspiration media which represented the body in a functional (i.e., performing exercise) or a non-functional (i.e., passively posed) way, and either with or without accompanying appearance-focused text. There were two sets of 14 images (one for functional and one for non-functional poses) selected from social media sites. Participants completed state measures of body satisfaction, mood and self-objectification prior to and following viewing images. To ensure attention to the images, the participants were asked to look at each image and rate how inspirational they found the image. The results showed that there were no main effects of image type or text for body satisfaction, mood or state self-objectification; all groups reported less body satisfaction and greater negative mood after viewing the images. Functional images were rated as more inspirational and achievable than non-functional images. Text did not affect inspiration or achievability. Trait self-objectification moderated the impact of text and image type such that women with higher levels of self-objectification experienced relatively lower body satisfaction when viewing functional images paired with appearance-focused texts. The authors noted that a true “control” group (i.e., a condition in which photos contained no images of people) should be included in future research to ensure the negative effects were not due to completion of pre-manipulation measures.

Slater et al. (2017) focused on the impact of exposure to Fitspiration images and self-compassion quotes viewed through Instagram on women’s body satisfaction, self-compassion, body appreciation and negative mood. Self-compassion is comprised of three interconnected components: self-kindness, common humanity and mindfulness (Neff, 2003) and is associated with positive mind states such as optimism, gratitude and life satisfaction and acts as a buffer against body dissatisfaction (Webb & Forman, 2013). Participants were 160 female undergraduate students, with sample quite ethnically diverse (50% of the sample non-

Caucasian). Participants were told they were participating in a study on Instagram, memory and personality. They were randomly assigned to one of the following groups: Fitspiration images only, self-compassion quotes only, both Fitspiration images and self-compassion quotes or appearance neutral images (interior design, no people featured). The Fitspiration group images were found using the hashtag 'Fitspiration' or 'Fitspo' and involved images of women with lean and toned bodies wearing form-fitting workout clothing. Half of the images involved women engaging in physical activity, and the other half showed women passively posing. The self-compassion quotes were found from Instagram using 'self-compassion', 'self-love', or 'positive body image' in the name and the quotes were required to involve basic self-compassion principles. Each Instagram account consisted of 20 images taken from public Instagram accounts. Participants were asked to view the images for 5 minutes via an iPad and were able to move back and forth between the images at their own pace, to more closely resemble how they might actually view social media. Prior to exposure to the images, participants completed measures of social networking usage and state measures of body satisfaction, self-compassion, body appreciation, and negative mood. To ensure attention was paid to the images and to aid the cover story, participants were asked to recall a number of the features of the Instagram account (e.g., characteristics of the images, words seen, hashtags used) and had to recall at least 5 hashtags consistent and accurate to their condition. Following exposure to the images they completed the same state body image measures, as well as an assessment of trait appearance comparison and internalisation of the thin ideal. Unexpectedly, there were no differences in body satisfaction, body appreciation, or negative mood between the Fitspiration and control groups. However, the Fitspiration group reported lower self-compassion. By contrast, the self-compassion group experienced higher body satisfaction, body appreciation, self-compassion and

a lower negative mood than the control group. These results were moderated by thin-ideal internalisation; women with lower internalisation of the ideal reported significantly greater self-compassion when viewing the self-compassion images compared to those viewing the control images. The combination group experienced higher body satisfaction, appreciation, self-compassion and a lower negative mood compared to the Fitspiration and the control groups. Thus, a combination of the Fitspiration images and self-compassion quotes led to primarily positive outcomes, compared to just viewing the Fitspiration images independently, suggesting that self-compassion quotes mitigated the impact of Fitspiration on self-compassion. However, it is important to note there was no negative effect of Fitspiration on body image, contrary to previous studies; the authors noted further investigation is needed.

1.4 Summary

Negative body image is common in young adult women, with 11-72% of women reporting body dissatisfaction (Fiske et al., 2014). Media is a particularly influential contributor to negative body image, with traditional forms of media (e.g., television, magazines) consistently showing a negative impact on body image (Grabe et al., 2008; Groesz et al., 2002; Holmstrom, 2004). However, more recently social media has also been linked to negative body image in young women (Cohen & Blaszczynski, 2015; Fardouly & Vartanian, 2015; Fardouly et al., 2015; Mabe et al., 2014). One form of social media that is gaining popularity is Fitspiration. While Fitspiration is designed to have a positive effect on health, specifically by motivating people to exercise, early research suggests it may have a negative impact on body image as much of this content is appearance-focused and it depicts not just the thin ideal, but also fit and toned bodies, which is impossible for most women to achieve (Simpson et al., 2016). Given that social media is more popular with young adults than traditional forms of media (Bair et al., 2012), it is important to investigate its effects. There have been four experimental studies examining the

effects of Fitspiration on body image to date, with three of the studies concluding that acute exposure to this content leads to poorer body image, including higher body dissatisfaction (Prichard et al., 2017; Robinson et al., 2017; Tiggemann & Zaccardo, 2015), and lower state appearance self-esteem (Tiggemann & Zaccardo, 2015), as well as increased negative mood (Prichard et al., 2017) and poorer self-compassion (Slater et al., 2017). In addition, Slater et al. (2017) showed that self-compassion quotes could potentially mitigate the effects of Fitspiration and improve body image. However, no studies have specifically looked at what specific component of Fitspiration (i.e., images or quotes) lead to negative effects on body image.

Chapter 2: Rationale, Purpose, and Hypotheses

2.1 Rationale

Body image is a multidimensional construct, involving thoughts, feelings and perceptions about the body's appearance and function, which can be experienced negatively and positively (Cash, 2004). Research has generally focused on negative body image, defined as negative thoughts and feelings about one's own body (Cash, 2004). Negative body image is associated with poor physical health outcomes (e.g., obesity), poor mental health outcomes (e.g., low self-esteem, depression) and negative health behaviours (e.g., eating disorders, unhealthy dieting, excessive exercise, cosmetic surgery; Cash & Pruzinsky, 2002; Fairburn & Harrison, 2003; Grabe et al., 2007; Johnson & Wardle, 2005; Neumark-Sztainer et al., 2006; Paxton et al., 2006; Stice, 2001, 2002; Tiggemann, 2005). A majority of young women report negative body image (Grogan, 2017), with estimates that 11-72% of women experience body dissatisfaction (Fiske et al., 2014)

Positive body image is having love and respect for one's body (Tylka, 2012). People with a positive body image appreciate that their body is unique, valuing its functionality (i.e., what their body can do) and accepting their body even if it is not consistent with the societal ideal. In addition, people with positive body image experience acceptance and unconditional love from others, have an inner positivity and a broad conceptualization of beauty, are media literate, and surround themselves by others with a positive perspective of their own bodies (Tylka & Wood-Barcalow, 2015a). Positive body image allows individuals to interpret information about their bodies in a body protective manner, taking in positive information and rejecting or reframing negative information (Tylka, 2012). Positive body image can impact multiple aspects of health and well-being, including positive mental health (e.g., higher levels of self-compassion,

optimism, self-esteem; Andrew, Tiggemann, & Clark, 2016a; Gillen, 2015, Williams et al., 2004), and health behaviours (e.g., skin care with respect to the sun, lower internalization of media influences, higher engagement in physical activity; Andrew et al., 2016a, Williams et al., 2004). Importantly, positive body image accounts for variance in these outcomes over and above that accounted for by negative body image (Tylka & Wood-Barcalow, 2015a). Given the positive outcomes of positive body image, researchers have noted that it is important to not solely focus on understanding negative body image but additionally to understand positive body image (Tylka & Wood-Barcalow, 2015a).

Media is a major contributor to negative body image in young women (Borzekowski, Robinson, & Killen, 2000; Botta, 2000; Harrison, 2003; Homan, McHugh, Wells, Watson, & King, 2012; Rodin et al., 1984; Tiggemann, 2005; Tiggemann & Pickering, 1996, Thompson & Slice, 2001). Media generally focuses on extremely skewed images of women's bodies (i.e., the thin ideal) to the extent that women believe the thin ideal is normative, expected and central to attractiveness (Levine & Harrison., 2004). Recently, this ideal is associated with being thin and also with being toned (Grogan, 2017). These impossible to achieve ideals are internalized by women and can cause them to feel the need to continue to achieve the perfect body at any cost, when in fact the perfect body does not exist (Grogan, 2017). A large body of literature has shown that exposure to the thin ideal and appearance-focused media images leads to numerous negative outcomes such as body dissatisfaction, increased investment in appearance, internalization of the thin ideal and increased risk of eating disorders (Borzekowski et al., 2000; Botta, 2000; Groesz et al., 2002, Harrison, 2003; Tiggemann, 2005; Tiggemann & Pickering, 1996).

One limitation to this literature is that these studies have typically investigated only traditional media (e.g., television, magazines). Recently, social media has become more popular

than traditional forms of media with young women (Bair et al., 2012). Social media often depicts the ideal; however, some authors have suggested that social media may have even more negative impacts on body image than traditional media, because social media often features users themselves or their friends and peers (rather than models and celebrities). These users often present idealized versions of themselves via social media, involving uploading only the most attractive photos of themselves and using editing features and/or enhancements (Manago, Graham, Greenfield, & Salimkhan, 2008; Zhao, Grasmuck, & Martin, 2008). These features allow for appearance enhancements (rather than just passive viewing) to match thin-ideal norms before posting content online, as well as allowing people to comment on the images (Chae, 2017; Chua & Chang, 2016; Fox & Vendemia, 2016; Haferkamp & Kramer, 2011). Additionally, because social media is a source of peer interaction, it may foster appearance comparisons, negatively influencing body image (Hew, 2011; Carey, Donaghue & Broderick, 2014). Supporting this contention, several studies have shown that time spent on social media is associated with negative body image in young adults and adolescents (e.g., thin-ideal internalization, self-objectification, low body self-esteem, body dissatisfaction, eating disorders; Cohen & Blaszczynski, 2015; Fardouly & Vartanian, 2015; Fardouly et al., 2015; Mabe et al., 2014). Further, research has demonstrated that body dissatisfaction does not predict social media usage, but rather social media usage predicts body dissatisfaction (Fardouly & Vartanian, 2016).

Fitspiration has recently become popular on social media platforms such as Instagram. It was designed to counteract Thinspiration sites, which emphasize extreme thinness and weight loss (Boepple & Thompson, 2015). Fitspiration is intended to encourage individuals to be more involved in a healthy lifestyle, through engaging in physical activity and healthy eating. It generally depicts images and quotes promoting the thin, fit and toned ideal. It often advocates

exercise, and even extreme behaviours, to improve the body (especially to lose weight and gain muscle tone), with a strong emphasis on appearance. Evidence suggests that Fitspiration may have a negative impact on body image. In support of this contention, there have been four experimental studies examining the impact of Fitspiration on body image in university women (Prichard et al., 2017; Robinson et al., 2017; Slater et al., 2017; Tiggemann & Zaccardo, 2015). In general, acute exposure to this content leads to negative body image and mood outcomes including: higher body dissatisfaction (Prichard et al., 2017; Robinson et al., 2017; Tiggemann & Zaccardo, 2015), lower state appearance self-esteem (Tiggemann & Zaccardo, 2015), increased negative mood (Prichard et al., 2017), and lower self-compassion (Slater et al., 2017). However, not all research has shown a negative impact of Fitspiration on body image. For example, a study looking at the effects of self-compassion quotes and Fitspiration photos found that the Fitspiration images alone had no impact on body appreciation or body satisfaction, although they did lead to significantly lower self-compassion compared to control images (Slater et al., 2017). Fitspiration often includes images and slogans promoting a thin, toned and fit ideal, but it is unclear which aspect of Fitspiration (i.e., images or text) leads to a negative body image. For example, in Slater et al.'s (2017) study described above, self-compassion quotes increased participants' levels of body satisfaction, demonstrating that quotes alone can affect body image. They also showed that these quotes could reduce the negative impact of images on women's self-compassion, indicating potentially differing effects of images and text. By contrast, Robinson (2017) found that adding text to Fitspiration images did not increase the negative impact on body image. These findings suggest Fitspiration-related images and quotes can impact body image and related constructs, but there is a need to individually investigate the impact of specific components of Fitspiration messages on body image.

2.2 Purpose

The purpose of this study was to investigate which component of Fitspiration messages (images or quote) affects body image and mood in university women and to investigate if this content has an inspiring effect on related health behaviours. Specifically, it examined which of the following impacts body image and inspiration in university women: Fitspiration quotes without images, Fitspiration images without quotes, a combination of Fitspiration and images, or travel images (control).

2.3 Hypothesis

It was hypothesized that:

1. The three experimental conditions would negatively impact body image and mood (i.e., decreases in body appreciation and body satisfaction and increases in negative mood and self-objectification). This is based on the majority of previous studies that have reported negative body image and related outcomes after viewing Fitspiration social media in young women (Prichard et al., 2017; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). It was further hypothesized that the combination of quotes and photos would lead to the greatest negative impact on body image and mood, as Slater et al. (2017) found that effects of Fitspiration images were lowered by the addition on self-compassion quotes suggesting quotes can be impactful and may have independent effects from images. Given conflicting findings of the effects of quotes versus images alone (Slater et al., 2017), a hypothesis about which condition would more significantly impact body image was not made.
2. Secondly, it was hypothesized that inspiration to exercise and eat healthier would be higher in the three experimental groups than the control condition, with the highest inspiration in the combination group. This hypothesis is based on previous research showing that Fitspiration

does lead to higher inspiration to get more involved in fitness and healthy eating (Prichard et al., 2017; Tiggemann & Zaccardo, 2015).

Chapter 3: Methodology

3.1 Participants

A total of 145 female university students (aged 18-29) were recruited for the study. Two participants' data were not able to be used for the study based on not meeting the inclusion criteria ($n = 1$) or not completing all the questionnaires ($n = 1$). Thus, the final sample size was 143 participants. The sample size was considered adequate, based on a sample size estimation. Tiggemann and Zaccardo's (2015) experimental study examining the effects of Fitspiration on negative mood, body dissatisfaction, and state appearance self-esteem yielded moderate to large effect sizes for body dissatisfaction, negative mood and inspiration. Being conservative, a medium effect size with $\alpha = .05$ and power = .80, indicated a total sample size of 136 was required (Cohen, 1992).

Participants were recruited via a) posters on bulletin boards located around campus; and b) through announcements in undergraduate classes for a study investigating the effects of wellness-related social media on health motivation. After they completed the study they were told the true purpose, and informed why deception was used. The inclusion criteria were as follows: participants must attend Brock University, must be females between the ages of 18-29 and must be able to read and write English fluently. Exclusion criteria included women who had a history of an eating disorder and/or varsity athletes, because individuals in these groups have a body image significantly different than typical university females (Hausenblas & Symons Downs, 2001; Cash & Deagle, 1997).

Demographic information by condition is shown in Table 1. The mean age of the sample was 21 years ($SD = 1.71$) and the majority of the women were between first and fourth year (1st year [14%], 2nd year [25%], 3rd year [26%] and 4th year [32%]) at Brock University. They came

from a variety of programs at the university (59% were from Kinesiology/Physical Education, the other 41% were from a variety of programs). In regards to ethnicity, 66% were Caucasian, 15% were European, 5% were Black and the rest of the sample were from a variety of other ethnicities). Based on self-reported weekly frequency of exercise, the sample was very active. Body mass index (BMI) for the sample placed them in the normal weight classification.

In regards to social media usage, 15% used it for an hour or less per day, 29% for 1-2 hours a day, 32% for 2-4 hours a day, 20% for 6 hours or more, and 4% were on it almost all day. Approximately 96% of the participants had an Instagram account; 40% used Instagram for an hour or less per day, 29% for 1-2 hours per day, 17% for 2-4 hours per day and 3% for 6 hours or more per day. In regard to activities on Instagram, 68% posted photos, 86% looked at photos of people they followed, 73.5% looked at the explore page, 47% commented on photos and 83% liked photos. Lastly, the participants followed: friends (89%), family (78%), celebrities (70%), fitness accounts (66%) and meme accounts (58%).

Table 1:

Demographics Characteristics by Condition

	Travel (<i>n</i> = 32)	Quotes (<i>n</i> = 34)	Image (<i>n</i> = 39)	Combo (<i>n</i> = 38)
Variable	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age (years)	20.45 (2.01)	20.88 (1.51)	20.72 (1.78)	20.97 (1.57)
BMI	23.26 (4.51)	22.80 (5.44)	24.7 (5.09)	22.79 (2.92)
PA (MET min/week)	2137.42 (1921.52)	2257.14 (1973.86)	2012.65 (1472.66)	2388.82 (2319.84)
Year in school	2.53 (1.08)	3.03 (1.14)	2.66 (1.19)	2.83 (1.44)

Note. PA = physical activity.

3.2 Design

The study was a between-subjects pre-post experimental design, with participants randomly assigned to one of four groups without their knowledge: Fitspiration images with no quotes, Fitspiration quotes with no images, a combination of Fitspiration images and Fitspiration

quotes, or travel images (control group; see Appendix A for examples of each condition). Condition (image, quote, combination images and quotes, and control) was the independent variable, with state body appreciation, body satisfaction, negative mood, and self-objectification as the dependent variables, all measured pre- and post-experimental manipulation. Inspiration was a dependent measure but was assessed post-manipulation only. A trait body image measure (appearance comparison) was assessed as a potential covariate.

3.3 Experimental Materials

Four Instagram accounts were created, with 20 images in each. In the three experimental conditions, two control images (i.e., travel) were included to help uphold the cover story. Images and quotes for the experimental groups were found using the search terms “Fitspiration” or “Fitspo”. The Fitspiration images and quotes had to emphasize or refer to both appearance and exercise. The photos had to show a female body (at least ½ of the body must have been visible) representing the thin and toned ideal, who was wearing exercise clothing, and in an exercise setting and/or with exercise equipment. The quotes had to refer to exercise or fitness or working out, with an emphasis on appearance, but contain no images other than the words. The combination group combined the quotes from the quote group and photos from the photo group; they were matched by the author and her supervisor based on a fit between the two. For the control condition the search term “travel” was used to select the images. None of these images included people or quotes but depicted a variety of types of travel destinations (e.g., beach, city, mountains).

The 20 images in each condition were chosen from a pool of images generated from initial internet searches. From the initial pool the best fit for each group was selected based on how well they met the criteria of being appearance-focused and exercise-focused by the author and her

supervisor. A panel of graduate students, also studying body image, were asked to rate all the images on the extent to which these images matched the Fitspiration definition and the above criteria. They were also asked to sort the images into the four conditions. Then the highest scored 18 images and quotes and 20 travel images were chosen, and the quotes and images were paired for the combination group to ensure they matched.

3.4 Measures

Participants completed a series of questionnaires; copies of all questionnaires can be found in Appendix B.

3.4.1 State Body Image and Mood Measures. The following state measures (i.e., how a participant was feeling in that particular moment) were assessed using Visual Analog Scales (VAS). The VAS format consisted of a 10cm line that was anchored by two contrasting responses (e.g., strongly disagree on one side and strongly agree on the opposite side). The participant was asked to place a mark on the line indicating how she felt in that moment. Scores were calculated by measuring the mark to the nearest millimetre, with scores ranging from 0 to 10. Participants were instructed to ensure their mark on the scale was a straight vertical line to allow consistency in measurement and for scores to be calculated appropriately. VAS scales are very quick to complete, allowing for immediate responses to brief manipulations. They are also reliable, able to detect small changes in body image, and are hard to recall (Heinberg & Thompson, 1995). VAS scales are commonly used in studies involving pre-post measures of body image with brief exposure to experimental images (Prichard et al., 2017; Robinson et al., 2017; Slater et al., 2017; Tiggemann & Zaccardo, 2015) and are also easy to use (Murray, 2002; Price, Bush, Long, & Harkins, 1994; van Laehoven, van der Zaag-Loonen & Derkx, 2004; Wewers & Lowe, 1990). It is important to note that this type of scale does have some limitations;

it can be difficult to understand for some users and requires significant time and commitment for instruction and administration (Grunberg, Groshen, Steingass, Zaretsky & Meverowitz, 1996; Joyce, Zutshi, Hrubes & Mason, 1975; Wewers & Lowe, 1990). They may also be less specific and have worse precision than the Likert scale (Vickers, 1999). However, given the significant advantages, and the fact that all other studies examining the impact of Fitspiration on body image have used VAS scales, they were chosen for the present study.

3.4.1.1 State body appreciation. The State Body Appreciation-2 Scale (Slater et al., 2017; Tylka & Wood-Barcalow, 2015b) was used to assess the extent to which participants have favourable opinions of their body, attend to their bodies' needs, and engage in health behaviours and self-care methods. This measure involved three items from the trait Body Appreciation Scale-2 Scale (Tylka & Wood-Barcalow, 2015b). A sample item is: "Despite my flaws, I accept my body for what it is". The items were anchored by *strongly disagree* and *strongly agree*. The values from the three items were summed and an average was calculated, with higher scores indicating higher body appreciation. The internal reliability of this measure has been found to be high ($\alpha = .90 - .92$; Slater et al., 2017) in a sample of undergraduate women. In the present study, Cronbach's alpha was calculated for both time points and values were adequate (pre-appreciation: $\alpha = .77$; post-appreciation: $\alpha = .82$).

3.4.1.2 State body satisfaction and mood. This measure (Heinberg & Thompson, 1995; Tiggemann & Slater, 2004) consisted of nine items, with each anchored by *not at all* to *very much*. For body satisfaction the negatively worded items were reverse scored; thus, a higher score indicated a higher body satisfaction. For mood, the positively worded items were reverse scored; thus, a higher score indicated a higher negative mood. Following Prichard and Tiggemann (2012), four items (fat, physically attractive, satisfied with body size, satisfied with

body shape) were averaged to represent satisfaction with shape and size and five items (anxious, depressed, happy, angry, confident) were averaged to represent state mood. Prichard et al. (2017) used this measure with a sample of undergraduate women. In the present study, Cronbach's alpha was calculated for both subscales at both time points and all values were adequate (pre-satisfaction: $\alpha = .80$; post-satisfaction: $\alpha = .80$; pre-mood: $\alpha = .73$; post-mood: $\alpha = .82$).

3.4.1.3 State self-objectification. The 10-item state self-objectification VAS (Noll & Fredrickson, 1998; Prichard & Tiggemann, 2012) was used. Using VAS scales anchored by *not at all important* and *very important*, participants indicated how they currently rated the importance of 10 characteristics. Five items examined appearance-based attributes (weight, sex appeal, physical attractiveness, firm sculpted muscles and measurements), and five examine competence-based attributes (physical coordination, health, energy levels, physical fitness, strength). Scores were calculated by finding the difference between the total of the appearance and competence-based subscales divided by 5 to give a value from -10 to +10. Higher scores indicated greater state self-objectification. Prichard et al. (2017) utilized this measure in a study examining undergraduate women viewing Fitspiration content. In the present study, Cronbach's alpha for both subscales at both time points were adequate (pre-competence: $\alpha = .78$; post-competence: $\alpha = .80$; pre-appearance: $\alpha = .65$; post-appearance: $\alpha = .77$).

3.4.2 Inspiration. Four inspiration questions from Tiggemann and Zaccardo (2015) were asked after the experimental manipulation exposure to determine how inspired participants were in general, to exercise, eat healthy and travel after viewing the content. Participants used a 5-point Likert scale to rate how inspired they felt in general and to engage in each behaviour, ranging from 1 = *not at all inspired* to 5 = *very inspired*. The travel question was used to uphold the cover story.

3.4.3 Cover story. The Motivation for Health Behaviours Questionnaire was created for the study to uphold the cover story. Data from this questionnaire was not analyzed. Questions asked participants how motivated they were to 1) exercise 3 to 4 times a week, 2) eat 4-5 servings of fruit and vegetables per day, 3) drink an adequate amount of water per day, 4) participate in activities they find relaxing, 5) participate in mindful activities, 6) go for regular checkups at the doctors, 7) get 7-8 hours of sleep per night, and 8) let themselves properly recover from an injury.

3.4.4 Manipulation check. To ensure the participants paid attention to the experimental materials, participants were asked to describe the account they viewed and to recall examples of specific content from the account (e.g., the type of profile viewed, hashtags that a profile like this would involve). They also reported at least three hashtags what would fit the account they viewed.

3.4.5 Demographics. The demographics questionnaire was used to gather information about participant characteristics. Participants self-reported age, gender, race/ethnicity, year in school, program of study, height and weight and sexual orientation.

3.4.6 Physical activity. The International Physical Activity Questionnaire – Short Form (IPAQ-SF; Craig et al., 2003) is a ‘last 7-day’ self-report measure of physical activity for adults aged 15-69 years. Frequency and duration of physical activity for three different intensities (vigorous, moderate, walking) are assessed. Total moderate-vigorous physical activity (MVPA) was calculated using the following formula: $(4.0\text{METs} \times \text{days per week} \times \text{average number of minutes per day moderate physical activity}) + (8.0\text{ METs} \times \text{days per week} \times \text{average number of minutes per day vigorous physical activity})$. The test-retest reliability has indicated good stability and the IPAQ-SF has shown high reliability ($\alpha = .80$).

3.4.7 Social media usage. Social media usage was assessed with a set of questions about a participant's social media usage. It examined the social media platforms used, how much time was spent using each per day and the types of interactions participants had with these platforms (e.g., commenting, liking and/or sharing photos and types of photos shared, frequency of photo sharing and photo manipulation). There was additionally a set of questions asked specifically about the participants' Instagram usage.

3.4.8 Trait appearance comparisons. This measure was used to examine participants' typical day-to-day body image. The Physical Appearance Comparison Scale (PACS; Thompson, Heinberg, & Tantleff, 1991) is a 5-item scale to assess the participants' general tendency to compare their appearance to the appearance of others. Each item was rated on a 5-point scale (1 = *Never* to 5 = *Always*). The measure was chosen based on literature showing responses to Fitspiration images may depend on trait levels of appearance comparisons (Robinson et al., 2017; Slater et al., 2017; Tiggemann & Zaccardo, 2015). Mean scores were calculated, with higher scores indicating a greater tendency for making appearance comparisons. Thompson et al. (1991) reported adequate internal consistency reliability ($\alpha = .78$) and test-retest reliability ($r = .72$) in a sample of female undergraduate students. In the present study, Cronbach's alpha was adequate value ($\alpha = .94$).

3.5 Procedures

Clearance was obtained from the University Research Ethics Board before data collection began (see Appendix C). Women were recruited for a study looking at the effectiveness of Instagram on motivating health behaviours to hide the true purpose of the study. Interested students contacted the research team. They were sent a consent form with eligibility criteria highlighted. If they were eligible and still interested, a mutually convenient time was arranged

for participation. They were then randomized to one of the four conditions without their knowledge. Data collection took place individually in a private lab on campus.

At the lab, after providing informed consent, participants first completed pre-exposure state body image and mood questionnaires (described above). Then, the participants viewed an Instagram profile for their assigned condition (see above for description of experimental conditions) via an Apple iPad. They were asked to spend a minimum of 5 minutes viewing the account, but they were given as much time as they wish. They were asked to view every image with the ability to view the photos in any order they chose and as many times as they wanted.

After exposure to the profile, participants answered the same state body image and mood measures (post-exposure) and answered the inspiration questions. Then they completed the manipulation check questions, and then the following measures: demographics, physical activity, social media usage, and motivation for health behaviours which were randomized. Lastly, the trait appearance comparison measure was completed. Finally, women were debriefed, told the true purpose of the study, then were given the option of a research participation credit or to be entered into a draw for a \$50 gift card as compensation for their time.

3.6 Data Analysis Approach

After data was screened and assumptions were tested, descriptive and correlations were calculated. The main analysis for Hypothesis 1 was a series of four ANCOVAs, each investigating one of the four dependent variables post score: body appreciation, self objectification, body satisfaction and Mood. Pre-scores for each were used as a covariate. Other potential covariates (body mass index, physical activity, appearance comparison) were also investigated and used where appropriate. In addition, four ANOVAs, one for each inspiration question, were conducted to examine Hypothesis 2.

Chapter 4: Results

4.1 Data Screening

Missing and implausible values. To screen data, frequencies were run to identify missing and implausible data. Less than 5% of values were missing. These values were replaced with the series mean.

Outliers. The data was screened for any potential univariate outliers using z-scores. A number of outliers were identified ($z > |3.29|$) and were winsorized with the next highest mean score (Field, 2013). The final data set did not contain any outliers.

4.2 Assumptions

Normality. Skewness and kurtosis values were less than three for all dependent variables; thus, the assumption of normality was met (Field, 2013).

Homogeneity of variance. To assess whether the variance between groups was approximately equal for each dependent variable, Levine's statistics were calculated. All tests were non-significant ($ps > .05$). Thus, this assumption was met.

Equal cell sizes. Participants were randomly assigned to one of the four conditions; therefore groups were approximately equal: travel ($n = 32$), quote ($n = 34$), image ($n = 39$), and combination ($n = 38$).

Independence of covariate effects. A series of one-way ANOVAs were performed to assess if the covariates were independent of experimental effects. All F -values were non-significant ($ps > .05$), thus this assumption was met.

Homogeneity of regression slopes. This assumption was used to examine the relationship between the dependent variable and the covariate. Main effects of the IV and covariate were examined, and the interactions were not significant ($p > .05$); therefore, this assumption was met.

4.3 Randomization Check

A series of one-way ANOVAs (for continuous variables) and chi squared tests (for categorical data) were conducted for demographic variables, trait appearance comparison and pre-manipulation state body image and mood scores. There were no significant differences between conditions on any variable, thus randomization was considered effective.

4.4 Descriptive Statistics

Means and standard deviations were calculated for each variable pre- and post-exercise in each condition (see Table 2)

Table 2

State Body Image and Mood Means and Standard Deviations (Pre- and Post-Manipulation by condition)

	T1 (n = 32)	T2 (n = 32)	Q1 (n = 34)	Q2 (n = 34)	I1 (n = 39)	I2 (n = 39)	C1 (n = 38)	C2 (n = 38)
Variable	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
BA	6.90 (2.15)	7.03 (2.29)	7.26 (2.04)	6.81 (2.19)	6.77 (1.69)	5.91 (1.92)	7.64 (1.72)	7.05 (2.15)
SO	-.34 (.29)	-.44 (.30)	-.38 (.36)	-.35 (.37)	-.34 (.35)	-.30 (.32)	-.44 (.33)	-.42 (.35)
BS	6.12 (2.20)	6.22 (2.10)	6.58 (2.01)	6.15 (2.47)	5.85 (1.85)	5.08 (2.07)	6.99 (1.85)	6.13 (2.32)
NM	1.83 (.99)	1.57 (1.25)	2.09 (1.09)	2.39 (1.61)	1.87 (1.33)	2.69 (1.80)	2.11 (1.68)	2.23 (1.66)

Note. T1 = pre-manipulation travel condition, T2 = post-manipulation travel condition, Q1 = pre-manipulation quote condition, Q2 = post-manipulation quote condition, I1 = pre-manipulation image condition, I2 = post-manipulation image condition, C1 = pre-manipulation combination condition, C2 = post-manipulation combination condition. BA = body appreciation, ranged from 1-10, with a higher score representing more body appreciation. SO = self-objectification, ranged from -10 to +10, with a higher score representing greater self-objectification. BS = body satisfaction, ranged from 1-10, with a higher score representing more body satisfaction. NM = negative mood, ranged from 1-10, with a higher score representing a higher negative mood.

4.5 Correlations

Correlations between all potential covariates (BMI and trait appearance comparisons) and post-manipulation body image and mood measures were conducted. Physical appearance comparison was moderately correlated to all dependent variables (see Table 3). BMI was correlated with body satisfaction (moderate) and appreciation (small). Age was not related to any of the body image or mood measures (see Table 3). Based on these correlations, PAC was entered into the analyses as a covariate for all dependent variables and BMI was a covariate for body satisfaction and body appreciation.

Table 3

Pearson Bivariate Correlations between PAC, BMI, Age and Post Manipulation

Variable	PAC	BMI	Age
Body Appreciation	-.50**	-.23**	.12
Body Objectification	.45**	.09	-.09
Body Satisfaction	-.54**	-.35**	.07
Negative Mood	.39**	.07	-.07

Note. PAC= physical appearance comparisons, BMI= body mass index.

** $p < 0.01$

4.6 Manipulation Check

To ensure the participants attended to the Instagram accounts, the number of correct descriptions and hashtags were calculated for each participant. All participants were able to accurately describe the content they viewed, and all were able to correctly identify hashtags that were appropriate for the account they viewed.

4.7 Hypothesis Testing

Hypothesis 1: Effects of Fitspiration on State Body Image and Mood

Four one-way ANCOVAs were conducted, one for each dependent variable, where post-body image or mood score was the dependent variable with the corresponding pre-score as a covariate. The independent variable was the condition. Physical appearance comparison (in all ANCOVAs) and BMI (body satisfaction and body appreciation) were also covariates based on the correlation analyses.

Body appreciation. There was a significant effect of condition for body appreciation, $F(3,136) = 3.56, p = <.016, \eta_p^2 = .073$. Post-hoc pairwise comparisons showed that women in the travel condition reported significantly higher body appreciation than those in the image only condition (see Table 5 for estimated marginal means). In addition, pre-body appreciation, $F(1,136) = 187.40, p = <.001, \eta_p^2 = .589$, and PAC, $F(1,136) = 4.45, p = <.037, \eta_p^2 = .032$ were significant covariates while BMI was not ($p > .05$).

Self-objectification. There was a significant effect of condition for objectification, $F(3,137) = 3.44, p <.019, \eta_p^2 = .070$. Post-hoc pairwise comparisons showed that women in the travel condition reported significantly lower self-objectification than women in the combination condition (see Table 5). In addition, pre-objectification, $F(1,137) = 238.75, p <.001, \eta_p^2 = .635$, and PAC, $F(1,137) = 12.51, p <.001, \eta_p^2 = .084$ were significant covariates.

Satisfaction. There was a significant effect of condition for body satisfaction, $F(3,136) = 3.30, p = <.022, \eta_p^2 = .068$. Post-hoc pairwise comparisons showed that women in the travel condition reported significantly higher satisfaction than those in the combination condition (see Table 5). In addition, pre-satisfaction, $F(1,136) = 128.32, p = <.001, \eta_p^2 = .485$, BMI, $F(1,136) = 8.60, p <.027, \eta_p^2 = .036$, and PAC, $F(1,136) = 4.43, p = <.037, \eta_p^2 = .032$ were significant covariates.

Negative Mood. There was a significant effect of condition for negative mood, $F(3,137) = 7.44, p < .001, \eta_p^2 = .140$. Post-hoc pairwise comparisons showed that women in the travel condition reported significantly higher negative mood than women in the image only condition (see Table 5). In addition, pre-mood, $F(1,137) = 264.00, p < .001, \eta_p^2 = .658$, and PAC $F(1,137) = 8.11, p < 0.005, \eta_p^2 = .056$ were significant covariates.

Table 5

Estimated Marginal Means (EMM) for Post Scores

	Travel ($n = 32$)	Quote ($n = 34$)	Image ($n = 39$)	Combo ($n = 38$)
Variable	EMM (SE)	EMM (SE)	EMM (SE)	EMM (SE)
Body appreciation	7.24 (.21) _a	6.73 (.21)	6.34 (.19) _b	6.50 (.20)
Body objectification	-.47 (.04) _a	-.35 (.03)	-.36 (.03)	-.33 (.03) _b
Body satisfaction	6.42 (.23) _a	5.97 (.23)	5.69 (.21)	5.47 (.22) _b
Negative mood	1.72 (.16) _a	2.25 (.15)	2.72 (.14) _b	2.23 (.15)

Note. Significant differences between conditions are shown by different subscripts within each row.

Hypothesis 2: Inspiration

Means for the four inspiration questions are found in Table 6. A series of one-way ANOVAs showed significant differences on inspiration to exercise, $F(3,139) = 3.05, p < .05$, to eat healthy, $F(3,139) = 4.10, p < .01$, and to travel $F(3,139) = 14.52, p < .001$, but no difference on their overall feelings of inspiration ($p > .05$). Post-hoc follow-ups showed women in the image-only condition were more inspired to exercise than those in the travel condition. Women in the image-only condition were also more inspired to eat healthy than those in the travel and quote-only conditions. Women in the travel condition were more inspired to travel than those in the other three conditions (all $ps < .05$).

Table 6

Inspirational Effects Means and Standard Deviation

	Travel	Quotes	Image	Combination
1. Inspired	3.4 (.87)	3.1 (1.13)	3.2 (1.23)	3.0 (1.03)
2. To exercise	2.9 (1.01) _a	3.3 (1.12)	3.7 (1.05) _b	3.3 (1.17)
3. To eat healthy	3.2 (1.08) _a	3.2 (1.03) _a	3.9 (.98) _b	3.4 (1.20)
4. To travel	4.7 (.68) _a	2.9 (1.29) _b	3.3 (1.28) _b	3.1 (1.52) _b

Note. All items ranged from 1-5, 1 = not inspired, 3 = somewhat inspired and 5 = very inspired. Significant differences between conditions are shown with different subscripts within each row.

Chapter 5: Discussion

The primary purpose of this study was to investigate which component of Fitspiration (images or quotes) has the most negative impact on body image and mood in university women. Specifically, three Fitspiration conditions were created: Fitspiration quotes without images, Fitspiration images without quotes and a combination of Fitspiration quotes and images. They were compared to the control condition (travel images). It was hypothesized that the experimental conditions would lead to lower body appreciation and body satisfaction and higher negative mood and self-objectification compared to the control condition. It was also hypothesized that the combination condition would lead to the most negative outcomes. Secondly, it was hypothesized that the Fitspiration conditions would lead to higher inspiration to exercise and eat healthy than the control condition, with the highest inspiration in the combination condition. Generally, the hypotheses were supported, with Fitspiration conditions which contained images (i.e., combination or image-only) having a negative impact on body image and mood measures, but a positive effect on inspiration to exercise and eat healthy.

5.1 Fitspiration and Body Image and Mood Measures

The findings of this study support previous research that has shown Fitspiration content does have a negative impact on body image and mood (Prichard et al., 2017; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). In the current study, the image-only condition led to lower body satisfaction and higher body objectification and the combination condition of images and quotes led to lower body appreciation and higher negative mood compared to the control condition. These findings suggest that, despite one previous study showing Fitspiration content may not have a negative impact on body image (Slater et al., 2017), Fitspiration does harm body

image and mood outcomes. However, it extends the current literature as it identifies which aspect of Fitspiration (images or quotes) is most impactful.

5.2 Body Appreciation

Body appreciation was lower in the image-only condition compared to the travel condition. Body appreciation refers to having favourable opinions of the body, attending to the body's needs and engaging in health behaviours (e.g., physical activity; Tylka & Wood-Barcalow, 2015a) and self-care activities (e.g., yoga; Daubenmier, 2005; Prichard & Tiggemann, 2008; Mahlo & Tiggemann, 2016). It involves appreciating that one's body is unique, valuing its functionality (i.e., what their body can do) and health, and accepting the body even if it is not consistent with the societal ideal body (Avalos et al., 2005, Tiggemann & Wood-Barcalow, 2015a). The Fitspiration images in the present study were extremely appearance-focused, demonstrating the thin and toned "ideal" body type. Thus, rather than representing the wide range of bodies that exist (but may not meet the ideal), these images reinforced the narrow conceptualization of the thin and toned ideal body. In addition, the models in these photos were often posed and passive, rather than being active, thereby de-emphasizing function of the body, typical of Fitspiration imagery (Boepple & Thompson, 2014, 2016; Ghaznavi & Taylor, 2015). These images highlighted appearance and physical attractiveness as the key motive for exercise, rather than health or functionality, contrary to the construct of body appreciation (Willis & Knobloch-Westerwick, 2014). As a result, viewing these images may have made it difficult for women to have favourable opinions and appreciate their own bodies, but rather reinforced that they did not meet the ideal.

The findings of this study are in direct contrast with the only other Fitspiration study examining the impact of Fitspiration on body appreciation, which did not find differences after

viewing this content compared to a control condition (Slater et al., 2017). However, it is important to note that Slater and colleagues (2017) did not find any effect of Fitspiration on any body image construct, contrary to all other studies (Prichard et al., 2017; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). One reason for this difference may be because their sample was ethnically diverse (50% of the sample non-Caucasian). In non-Caucasian ethnicities, women tend to report differences in body image. For example, black women typically adopt a larger ideal body size, are more accepting of overweight bodies, experience less social pressures about weight (Streigel-Moore, Schreiber, Pike, Wilfley, & Rodin, 1995) and tend to deemphasize external beauty and focus on internal characteristics such as personality traits (Grabe & Hyde, 2006) compared to Caucasian women. Thus, having differing body ideals could have protected women in their sample from decreases in body appreciation, particularly when viewing images that are mainly Caucasian women, as these images portray an ideal that other ethnicities may not wish to achieve (e.g., Ackard, Croll, & Kearney-Cooke, 2002; Barry & Grilo, 2002; Duncan, Anton, Newton, & Perri, 2003; Siegel, 2002).

5.3 Body Satisfaction

Body satisfaction was lower in the combination condition (image and quote) than the travel condition. This finding is consistent with one previous study (Prichard et al., 2017) that has shown lower body satisfaction associated with viewing both functional and non-functional Fitspiration images, and images with and without text (Prichard et al., 2017). Slater et al. (2017) found no difference in body satisfaction when viewing Fitspiration images, but this study is the only one that showed no impact and conclusions should be made with caution.

Body satisfaction in the present study was related to not feeling fat, feeling physically attractive, and feeling satisfied with body size and body shape, all very appearance-focused aspects of body image. Given that images had a strong emphasis on the ideal body type that was

very thin, low in fat, and toned, which is unrealistic for most women, it is likely that women viewing these images compared themselves to these ideals. As a meta-analytic review has shown, social comparisons, particularly to the ideal, lead to lower body satisfaction (Myers & Crowther, 2009). It is possible in the present study that viewing these ideal images led to social comparisons which in turn decreased body satisfaction. Further, the quotes in this study had a very strong emphasis on being attractive (defined as the thin ideal) and repeatedly emphasised the importance of not being fat, potentially affecting satisfaction with the body and the impact of the images.

5.4 Self-Objectification

Self-objectification was higher in the combination condition compared to the travel condition, inconsistent with Prichard et al. (2017) who found no increase in state self-objectification after viewing Fitspiration images. Self-objectification is the internalization of an observer's perspective on one's own body and involves treating oneself as an object to be viewed and evaluated based on appearance (Fredrickson & Roberts, 1997). According to objectification theory, self-objectification results from sexual objectification (i.e., treating women as sexual objects, equivalent to their bodies, rather than as individuals). The Fitspiration images and quotes in the present study were extremely objectifying with a strong appearance-focus, as women's bodies (and thus appearance) were the main focus in both the images and quotes. For example, quotes referred to women working out to attract men (e.g., "Don't cry over boys, do some squats and make them cry wishing they still had that ass") and used language that separated the individual from her body (e.g., "I go to the gym because I think my great personality can use a banging body"). Images emphasized physical appearance and included models wearing tight and revealing clothing (often considered sexually objectifying). Further, images and quotes in this study, consistent with the typical Fitspiration content (Boepple & Thompson, 2016), often

contained shame and guilt-inducing messages focusing on weight or the body, fat/weight stigmatization, objectifying phrases and dieting/restraint messages. Thus, the addition of quotes in this condition may have been more detrimental to this specific component of body image (i.e., self-objectification) than images independently. Although the findings of this study are in direct contrast with the only other Fitspiration study examining the impact of Fitspiration content on self-objectification (Prichard et al., 2017), it is possible that in the time since that study was published, Fitspiration images available on Instagram today are even more extreme and thus they may be more impactful. With the prevalence and popularity of Fitspiration content increasing, the importance of obtaining this ideal (i.e., thin and toned) may have also increased (Schaefer, Burke, Thompson, Dedrick, Heinberg, Calogero, & Swami, 2015).

5.5 Negative Mood

Negative mood, which involved feelings of anxiety, depression, happiness, anger and low confidence, was higher in the image than the travel condition, consistent with previous studies (Prichard et al., 2017; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). It is possible that viewing the images led to upward social appearance comparisons leading to more negative mood (e.g., Gibbons & Gerard, 1989; Wheeler & Miyake, 1992). Garvin and Damson (2008) reported an increase of negative mood while viewing fitness magazines that promoted the athletic ideal as it allows women to easily compare themselves to this content leading to this feeling of discontent.

5.6 Fitspiration Images versus Quotes

For all four variables, the conditions including an image (image-only or the combination condition) led to negative effects of body image and mood. By contrast, the quote-only condition did not negatively impact body image or mood. As there has been limited research on the effect of quotes in Fitspiration, looking at the effect of other forms of visual and verbal media on body

image and mood may be informative. For example, Bell, Lawton, and Dittmar (2007) found a decrease in body satisfaction when viewing appearance-focused music videos compared to listening to lyrics alone, emphasising the stronger impact of visual images of the ideal compared to word-based media.

Images are faster to process compared to reading text (McBride & Doshier, 2002), where a person has to create her own images in her mind. Given the relatively short nature of the manipulation, it is possible that this faster processing time led to a bigger immediate impact of images on body image. Pictures are coded and retrieved more easily than words, they are more concrete than words (which are more abstract), they are more distinct than words, and they assess meaning more directly (McBride & Doshier, 2002). Because words are more abstract, women reading the quotes would have to create their own images from the words, which may not have been consistent with the societal ideal, and therefore less likely to negatively impact body image and mood on their own.

Further, the images generally visually emphasised appearance and the ideal body type; exercise was often intimated through clothing, equipment or the environment (rather than actual performance of exercise itself). By contrast, quotes often referred to exercise in terms of doing exercise (i.e., more active), which could have increased the focus on functionality of the body, rather than just appearance, relative to the images, thereby lessening the negative impact.

It should be noted that the combination of images and quotes was more impactful on both self-objectification and satisfaction. One potential reason for this finding is that these two specific outcomes are both highly related to physical appearance and the ideal, compared to body appreciation and negative mood which reflect broader concerns than appearance. Both the

images and quotes had a strong emphasis on the appearance ideal specifically. For example, both the images and quotes were extremely objectifying (focused on the appearance of the female body and treating the body as an object). Images were often highly sexualized, focused on body parts, did not include the faces of the women; quotes similarly reinforced body parts, referred to women only in reference to men, and emphasized the ideal. Thus, the combination of both images and quotes may have reinforced the aspects of body image related to appearance. When paired together, the quotes and images provided the participant with a visual interpretation of the quote which was a representation of the ideal.

5.7 Inspiration

Fitspiration is specifically designed to inspire individuals to get involved in fitness and healthy eating (Neporent, 2012). Participants' general inspiration did not differ across conditions. However, the results showed that those in the image-only condition felt more inspired to exercise compared to the travel condition and reported a higher inspiration to eat healthy compared to the travel and quote conditions. By contrast, participants in the travel condition were more inspired to travel than in other conditions. Thus, Fitspiration images do have an inspiring effect in getting people interested in fitness and healthy eating as it intended. This was consistent with previous studies that reported that Fitspiration does have an inspiring effect (Prichard et al., 2017; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). This may be because attaining this fit and toned body is strongly emphasized as important in westernized society (Pritchard & Cramblitt, 2014), potentially causing females to become inspired to get involved in exercise and eating healthy to attain this ideal body type.

5.8 Extensions to Current Literature

The findings of the current study support contentions that Fitspiration (and particularly images associated with Fitspiration) does in fact inspire women to exercise and eat healthy; however, it also has an unintended negative impact on body image and mood. This study helps fill an important gap in the Fitspiration and body image literature. It was the first study to compare the specific components of Fitspiration content (images and quotes), and how they may differentially impact body image. The image component was the most detrimental to body image and mood as only in the conditions that included images (not quotes-only) had a negative impact. Additionally, it was the second study to examine both positive (body appreciation) and negative aspects of body image and the first study to find that Fitspiration has a negative impact on a measure of positive body image. While one previous study (Prichard et al., 2017) found an impact of Fitspiration on body satisfaction, it is important to note that as measured in both studies, body satisfaction is not consistent with the construct of positive body image as it is currently conceptualized (Tylka & Wood-Barcalow, 2015a), as it has a strong appearance and ideal focus (neglecting function of the body), an emphasis on weight and attractiveness and ranges on a continuum from dissatisfaction to satisfaction (rather than as distinct constructs). Body appreciation, by contrast, is an important facet of positive body image (Avalos et al., 2005) and measures have been developed to be consistent with positive body image.

This study was also the first to find a significant impact of Fitspiration content (specifically images and quotes) on self-objectification. The prevalence of sexual objectification (which leads to self-objectification) of women is well documented; for example, a recent ecological momentary assessment study found young women reported experiencing a sexually objectifying event once every 2 days and witnessing others' sexual objectification 1.35 times per day on average (Vaes et al., 2017). Further, these authors found that 64% of witnessed sexual

objectification occurred in the media. Thus, identifying the role of specific types of media on self-objectification is critical. Furthermore, given that one study failed to find a negative impact of Fitspiration on body image (Slater et al., 2017), this study helps provide clarity to these conflicting studies.

5.9 Limitations

This study was not without limitations that should be identified. The study examined the effect of Fitspiration on body image and mood in female university students. This sample is consistent with previous studies, but these results are only generalizable to young female university students. Further, the sample was mainly Caucasian (67%), heterosexual (86%), kinesiology or physical education majors (59%) students, generally physically active and had a healthy BMI; thus results are generalized to this group only.

Secondly, the study took place in a laboratory setting. Although the images were from real Instagram accounts, and they were viewed on an Instagram account, it was likely different than how the participants would typically view and interact with these accounts. Thus, ecological validity is compromised as participants were not given the ability to interact with the images as they would normally, such as commenting and liking (Perloff, 2014). Additionally, dependent variables were assessed via self-report which always is susceptible to social desirability.

5.10 Future Directions

Future researchers should continue to explore the effects of Fitspiration on body image and mood. It would be beneficial to explore this content with different populations, since a majority of body image research tends to explore young Caucasian females in university samples. Populations such as younger adolescent females, males or from different ethnicities may respond differently. Younger adolescent females would be particularly beneficial to

investigate as they are high consumers of social networking sites (Aslam, 2019), and attempting to prevent the effect these images have at a younger age would be extremely beneficial.

Additionally, as the current sample was generally an active sample and had a healthy BMI, it would be beneficial to investigate a population that is sedentary and/or overweight who may be further away from this ideal of regular exercisers. The impact of Fitspiration on this population is unclear, but they may be more susceptible to the negative effects of ideal images seen through Fitspiration.

Additionally, it would also be interesting to investigate different types of Fitspiration accounts and their effects on body image and mood. For example, some Fitspiration accounts focus more on progression (such as fitness progress photos highlighting improvements in fitness and performance or videos demonstrating different workouts). It is possible that accounts that focus more on exercise itself rather than the outcomes of exercise related to weight and body shape may not impact body image to the same extent. Lastly, a longitudinal study would also be beneficial, to help determine if the effect of these accounts is cumulative.

5.11 Implications

The findings of this study add to the literature showing that Fitspiration content via social media is harmful for body image and mood in young women. While this content is intended to have positive effects in terms of motivating people to be active it may actually be doing more harm than good (Schaefer et al., 2015). It is important to note that this unintended nature of the effect on body image and mood is based on individuals, who may truly have good intentions, posting this content. Contrastingly, some Fitspiration content is produced by corporations who are trying to sell their products, such as fitness equipment or weight loss programs. In these instances, their intentions may actually be intended to harm body image to increase sales. Women should be warned against viewing Fitspiration models as targets that are deemed

aspirational for social comparisons (Tiggemann & Zaccardo, 2015), or they can be educated about the harmful effects this content can yield, specifically in regard to body image. For example, social media literacy interventions/programs may be important to help counteract the negative effects of social media and to provide education as a protective factor towards social networking site users body image (McLean, Wertheim, Masters, & Paxton, 2017).

5.12 Conclusion

In conclusion, this study aimed to explore the relationship between components of Fitspiration content and its effect on measures of body image and mood. While women in Fitspiration groups reported greater inspiration to exercise and eat healthy, those viewing the images or images and quotes combined reported poorer body image and higher negative mood compared to a control group viewing travel images. Body appreciation was lower and negative mood was higher in the image condition, and in the combination condition self-objectification was higher and body satisfaction was lower compared to the travel condition. Given that social media and Fitspiration in particular is growing in popularity, and with Instagram being the most popular photo sharing and viewing site (Hu et al., 2014), it is important to further investigate its impact to allow preventative and protective measures towards body image to be further developed.

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Appendix A: Sample Images for Experimental Conditions

1: Fitspiration photos with no quote:



2: Fitspiration quotes with no photo:



3: Fitspiration photo with a Fitspiration quote:



4: Travel images (control group):

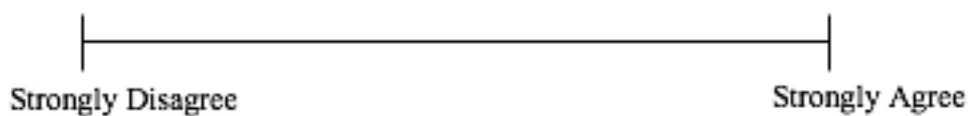


ID: _____

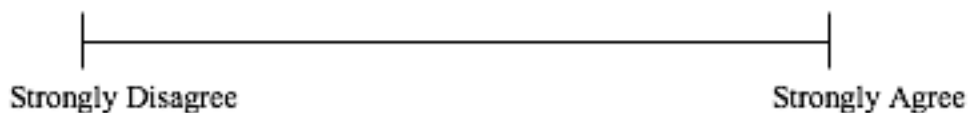
Appendix B: Measures**SBAS-2**

For each of the items below, place a mark along the line to best represent how you feel RIGHT NOW, AT THIS VERY MOMENT from “strongly disagree” to “strongly agree”

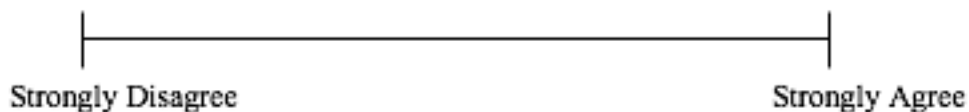
1. Despite my flaws, I accept my body for what it is



2. My feelings towards my body are positive for the most part



3. My self-worth is independent of my body shape or weight



SBSM

For each of the items below, place a mark on the line to best represent how you are feeling RIGHT NOW, AT THIS VERY MOMENT from “none” to “very much”

1. Anxious

None |-----| Very Much

2. Depressed

None |-----| Very Much

3. Angry

None |-----| Very Much

4. Happy

None |-----| Very Much

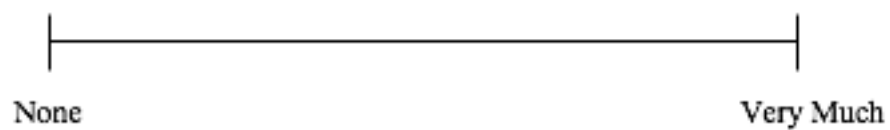
5. Confident

None |-----| Very Much

6. Fat

None |-----| Very Much

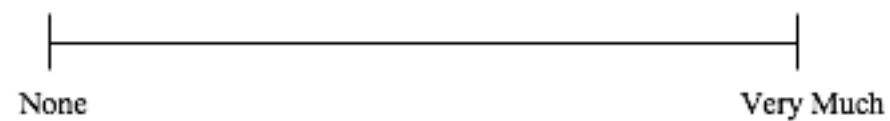
7. Physically Attractive



None

Very Much

8. Satisfied with my body size and shape



None

Very Much

ID: _____

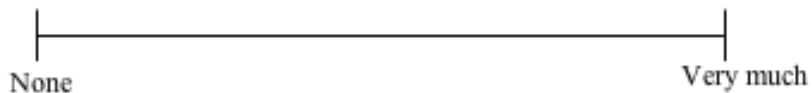
SO

For each of the items below, place a mark along the line to best represent how important each item is to you **RIGHT NOW, AT THIS VERY MOMENT** from “none” to “very much”

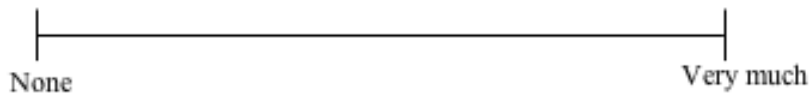
1. Physical Coordination



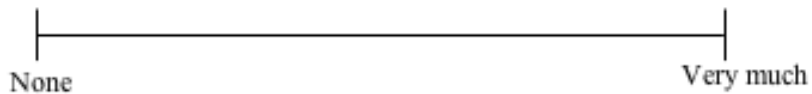
2. Health



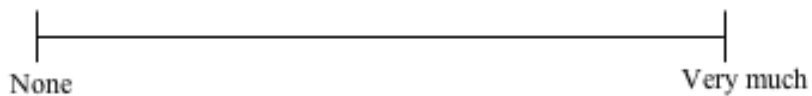
3. Weight

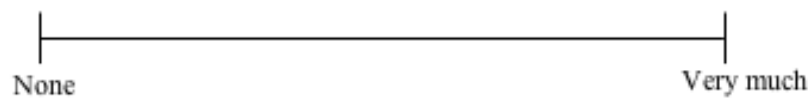
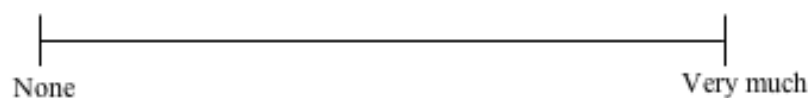


4. Strength



5. Sex Appeal



6. Physical Attractiveness**7. Energy Level****8. Firm/Sculpted Muscles****9. Physical Fitness****10. Measurements (e.g., chest, waist, hips)**

n

ID: _____

Inspiration Questions

Please indicate how inspired you felt by the Instagram site you viewed to do each of the following by placing a mark in the appropriate box.

Not Inspired		Somewhat Inspired		Very Inspired
1	2	3	4	5

Question	1	2	3	4	5
1) How inspired do you feel after viewing the Instagram profile?	1	2	3	4	5
2) How inspired do you feel to exercise after viewing the profile?	1	2	3	4	5
3) How inspired do you feel to eat healthy?	1	2	3	4	5
4) How inspired do you feel to Travel?	1	2	3	4	5

ID: _____

Motivation for Health Behaviours

The purpose of this study is to examine health care behaviours among young females. Below please indicate how motivated you are to be involved in the following health behaviours in general.

1	2	3	4	5
Not at all Motivated		Somewhat Motivated		Extremely Motivated

How motivated are you to...

Health Behaviours	1	2	3	4	5
1) Exercise 3 to 4 times a week	1	2	3	4	5
2) Eat 4-5 servings of fruit and vegetables per day	1	2	3	4	5
3) Drink an adequate amount of water per day (around 2 liters)	1	2	3	4	5
4) Participate in activities you find relaxing (i.e., reading, going for walks, yoga)	1	2	3	4	5
5) Participate in mindful activities (i.e., meditation)	1	2	3	4	5
6) Going for regular checkups at the Doctors	1	2	3	4	5
7) Getting 7-8 hours of sleep per night	1	2	3	4	5
8) Letting yourself properly recover after an injury	1	2	3	4	5

ID: _____

Instagram Questions (Manipulation Check)

1) Please describe the content on the Instagram profile you viewed. Please be as specific as possible.

2) What type of Hashtags would a profile like this have?

ID: _____

Demographic Information

Please complete the following information:

Age: _____

Gender: _____

Height: _____

Weight: _____

Race/Ethnicity: _____

Year in school at Brock: _____

Major: _____

Sexual Orientation: _____

ID: _____

International Physical Activity Questionnaire

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the **last 7 days**. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport. Think about all the **vigorous** activities that you did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

1. During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

_____ **days per week**

No vigorous physical activities? *Skip to question 3*

2. How much time did you usually spend doing **vigorous** physical activities on **ONE OF THOSE DAYS?**

_____ **hours per day**

_____ **minutes per day**

_____ Don't know/Not sure

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

3. During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

_____ **days per week**

No moderate physical activities? *Skip to question 5*

4. How much time did you usually spend doing **moderate** physical activities on **ONE OF THOSE DAYS?**

_____ **hours per day**

_____ **minutes per day**

_____ Don't know/Not sure

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?
_____ **days per week**

No walking? *Skip to question 7*

How much time did you usually spend **walking** on **ONE OF THOSE DAYS?**

_____ **hours per day**

_____ **minutes per day**

_____ Don't know/Not sure

ID: _____

Social Media Usage Questionnaire

- 1) On average, how much time do you spend using social media per day? (circle one response)
 - a) Less than 10 minutes
 - b) 10 - 30 minutes
 - c) 30 minutes-1 hour
 - d) 1-2 hours
 - e) 2-4hours
 - f) 4-6 hours
 - g) 6+
 - h) I am on it almost all day

- 2) Which social media sites from the list below do you use? (circle as many that apply)
 - a) Facebook
 - b) Instagram
 - c) Pinterest
 - d) Twitter
 - e) YouTube
 - f) Tumblr
 - g) Snapchat
 - h) Other (please identify): _____

- 3) When you use social media, do you like, comment, and share photos (circle all that apply).
 - a) Like
 - b) Comment
 - c) Share

- 4) If you share photos on your social media accounts, how often do you do this? (Circle one response)
 - a) I don't share photos
 - b) Daily
 - c) A few times a week
 - d) A few times a month
 - e) Less than once per week

- 5) What do you post photos of? (Circle all that apply)
 - a) Yourself
 - b) Friends/Family
 - c) Scenic photos with people

- d) Scenic photos without people
 - e) Quotes
 - f) Other (please specify): _____
- 6) When you post photos, do you manipulate them prior to posting (e.g., use enhancements such as filters, edits and/or editing programs).
- a) No
 - b) Yes (please circle all of the following that you use):
 - c) Filters
 - d) Editing tools provided on social media
 - e) Editing programs
 - f) Other (please specify): _____
- 7) Approximately how many of your photos do you manipulate?
- a) All photos
 - b) Most photos
 - c) A few photos
 - d) No photos are edited

The following questions refer specifically to Instagram:

- 8) Do you have an Instagram account?
- a) Yes
 - b) No (if no, you may move to the next questionnaire)
- 9) If yes, how often do you use Instagram per day?
- a) Less than 10 minutes
 - b) 10 - 30 minutes
 - c) 30 minutes-1 hour
 - d) 1-2 hours
 - e) 2-4hours
 - f) 4-6 hours
 - g) 6+
 - h) I am on it almost all day
- 10) What do you do on Instagram? (circle all that apply)
- a) Post photos
 - b) Look at photos of people I follow
 - c) Look at the explore page
 - d) Comment on photos
 - e) Like photos

f) Other

11) Why do you use Instagram?

- a) To find out what other people are up to
- b) For social interaction
- c) Everyone else uses it
- d) To gather information
- e) Other (please specify): _____

12) What type of profiles do you follow/visit?

- a) Friends
- b) Family
- c) Celebrities
- d) Fitness accounts
- e) Meme accounts
- f) Other (please specify): _____

ID: _____

PACS-R

Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement.

People sometimes compare their physical appearance to the physical appearance of others. This can be a comparison of their weight, body size, body shape, body fat or overall appearance.

Thinking about how you generally compare yourself to others, please use the following scale to rate how often you make these kinds of comparisons.

Never	Seldom	Sometimes	Often	Always
0	1	2	3	4

Question	Never	Seldom	Sometimes	Often	Always
1) When I'm out in public, I compare my physical appearance to the appearance of others	1	2	3	4	5
2) When I meet a new person (same sex), I compare my body size to his/her body size	1	2	3	4	5
3) When I'm at work or school, I compare my body shape to the body shape of others	1	2	3	4	5
4) When I go out in public, I compare my body fat to the body fat of others	1	2	3	4	5
5) When I'm shopping for clothes, I compare my weight to the weight of others	1	2	3	4	5
6) When I'm at a party, I compare my body	1	2	3	4	5

shape to the body shape of others					
7) When I'm out with a group of friends, I compare my weight to the weight of others	1	2	3	4	5
8) When I'm out in public, I compare my body size to the body size of others	1	2	3	4	5
9) When I'm with a group of friends, I compare my body size to the body size of others	1	2	3	4	5
10) When I'm out eating in a restaurant, I compare my body fat to the fat of others	1	2	3	4	5
11) When I'm at the gym, I compare my physical appearance to the appearance of others	1	2	3	4	5

Appendix C: Ethics Clearance Letter



Brock University
 Research Ethics Office
 Tel: 905-688-5550 ext. 3035
 Email: reb@brocku.ca

Social Science Research Ethics Board

Certificate of Ethics Clearance for Human Participant Research

DATE: 10/22/2018

PRINCIPAL INVESTIGATOR: GAMMAGE, Kimberley - Kinesiology

FILE: 18-079 - GAMMAGE

TYPE: Masters Thesis/Project STUDENT: Deanna Buchmayer
 SUPERVISOR: Kimberley Gammage

TITLE: Effects of wellness-related social media on health motivation

ETHICS CLEARANCE GRANTED

Type of Clearance: NEW Expiry Date: 10/1/2019

The Brock University Social Science Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement. Clearance granted from 10/22/2018 to 10/1/2019.

The Tri-Council Policy Statement requires that ongoing research be monitored by, at a minimum, an annual report. Should your project extend beyond the expiry date, you are required to submit a Renewal form before 10/1/2019. Continued clearance is contingent on timely submission of reports.

To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics web page at <http://www.brocku.ca/research/policies-and-forms/research-forms>.

In addition, throughout your research, you must report promptly to the REB:

- a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants;
- c) New information that may adversely affect the safety of the participants or the conduct of the study;
- d) Any changes in your source of funding or new funding to a previously unfunded project.

We wish you success with your research.

Approved:

Lynn Dempsey, Chair
 Social Science Research Ethics Board

Robert Steinbauer, Chair
 Social Science Research Ethics Board

Note: Brock University is accountable for the research carried out in its own jurisdiction or under its auspices and may refuse certain research even though the REB has found it ethically acceptable.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of research at that site.

Appendix D: Consent Forms

Informed Consent

Date: September 2018

Project Title: Effects of wellness-related social media on health motivation

Principal Investigator:

Kimberley L. Gammage, Associate Professor
Department of Kinesiology, Brock University
905-688-5550 (x3772)
kgammage@brocku.ca

Principal Student Investigator:

Deanna Buchmayer
Faculty of Applied Health Sciences, Brock University
db11ud@brocku.ca

INVITATION

You are invited to participate in a study that explores how Instagram can impact young women's health motivation and attitudes.

WHAT'S INVOLVED

As a participant, you will meet with a member of the research team to review and sign a consent form, complete a questionnaire package, and view an Instagram profile. Participation should take between 30-45 minutes approximately.

POTENTIAL BENEFITS AND RISKS

Your participation will help understand how Instagram may influence young women's health related behaviours and attitudes. If you experience some discomfort due to the nature of the questions being asked, contact information for Dr. Gammage (see above), Brock University student health services (<https://brocku.ca/health-services>) and the Niagara Region Mental Health organization (1-800-263-7215 or www.niagararegion.ca/living/health_wellness/mentalhealth/) is provided.

CONFIDENTIALITY/ANONYMITY

Please do not place your name or any other identifying information on your questionnaire package. The data in this study is anonymous. Informed consent forms will be kept separate from data collected. Any information that arises from participants will be treated with confidentiality. Your name will not be included, or in any other way associated, with the data collected in the study.

Data collected during this study, consent forms, and contact information for the draw will be stored in a locked filing cabinet/password protected computer. Consent forms and hard-copy

questionnaires will be destroyed 5 years following the publication of the study. Names and contact info for the draw will be destroyed immediately after the draw is finished. We will retain anonymous electronic data indefinitely and may make it accessible to other researchers for verification purposes only where required by journals. In this case, the data will be located on a secure online repository if required by journals. If you do not wish us to keep your data and make it available to other researchers for this purpose, please do not sign this consent form.

We would also like to retain your anonymous electronic data indefinitely for our own future studies about health-related behaviours and attitudes that are not covered in the purpose of this study (e.g., questionnaire evaluation, social media). If you will allow us to retain the data for this purpose, please provide your consent below. If you do not provide this consent, we will only keep the data for the current study and for verification purposes.

COMPENSATION

You will have the choice to receive a research credit (1 hour) or you can be entered into a draw to win a \$50 gift card for Starbucks each semester to compensate you for your time.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. If you wish to withdraw, we will ask you if you want to have your questionnaires destroyed or if we can retain the data provided. If you withdraw from the study, you will still be eligible for course credit or to have your name entered in a draw. The decision to participate or withdraw will not impact your academic standing at Brock University. After you leave the lab, you will be not able to withdraw as your data is not identifiable.

PUBLICATION OF RESULTS

Results of this study may be published in professional journals and presented at conferences; these results will involve group findings only. Feedback about this study will be available. At your request you may receive a summary of results (either by mail in hard copy or electronically by email) by contacting Dr. Gammage. A summary of the results of the study will be available starting in September 2019. This summary will be posted on our website (www.exerciseandbodyimagelab.com).

CONTACT INFORMATION AND ETHICS CLEARANCE

If you have any questions about this study or require further information, please contact the Investigators using the contact information provided above. This study has been reviewed and received ethics clearance through the Brock University Research Ethics Boards (file #18-079). If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at 905-688-5550 ext. 3035, reb@brocku.ca. Thank you for your assistance in this project. Please keep a copy of this form for your records.

CONSENT FORM

I agree to participate in this study described above (REB #18-079). I have made this decision based on the information I have read in the Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time, until I submit my completed

questionnaires. I also understand that my data will be kept indefinitely and may be provided to other researchers for analysis outside the purpose of this study.

Name: _____ (please print)

Signature: _____

Date: _____

I agree to have my anonymous data kept indefinitely and to be used in future health related behaviour and attitude studies outside the original purpose of this study.

Name: _____ (please print)

Signature: _____

Date: _____

Informed Consent
(Real Consent Form: To be used during debriefing)

Date: September 2018

Project Title: Effects of wellness-related social media on health motivation

Principal Investigator:

Kimberley L. Gammage, Associate Professor
Department of Kinesiology, Brock University
905-688-5550 (x3772)
kgammage@brocku.ca

Principal Student Investigator:

Deanna Buchmayer
Faculty of Applied Health Sciences, Brock University
db11ud@brocku.ca

INVITATION

You participated in a study that we stated was to explore how social media can impact young women's health motivation and attitudes. The true purpose of the study was to look at the effect of Fitspiration (a relatively new trend on social media (combining the terms fitness and inspiration), originally developed to counteract Thinspiration and promote engagement in positive health behaviours, particularly exercise on body image. Specifically, we were interested in understanding how the images and text used in Fitspiration social media could impact both positive and negative body image. We misrepresented the true purpose of the study (by not telling you we were interested in the impact of Fitspiration on body image) to not influence your response. Deception was used because knowing the true purpose of the study could have influenced the way you looked at the images as well as your responses to them.

WHAT'S INVOLVED

As a participant, you met with a member of the research team, reviewed and signed a consent form, completed a questionnaire package, and viewed an Instagram profile which took between 30-45 minutes approximately.

POTENTIAL BENEFITS AND RISKS

Your participation will help understand how different aspects of Fitspiration may influence young women's body image; this may ultimately allow researchers in the future to develop ways of combatting potential negative effects. If you experienced some discomfort due to the nature of the questions being asked, contact information for Dr. Gammage (see above), Brock University student health services (<https://brocku.ca/health-services>) and the Niagara Region Mental Health organization (1-800-263-7215 or www.niagararegion.ca/living/health_wellness/mentalhealth/) is provided. Information regarding body image concerns can be found at the following official websites: www.nedic.ca and www.womenshealth.gov/.

CONFIDENTIALITY/ANONYMITY

We asked that you not place your name or any other identifying information on your questionnaire package so that the data in this study are anonymous. Informed consent forms and

contact information for the draw will be kept separate from data collected. Any information that arises from participants will be treated with confidentiality. Your name will not be included on, or in any other way associated with, the data collected in the study.

Data collected during this study, consent forms, and contact information for the draw will be stored in a locked filing cabinet/password protected computer. Consent forms and hard-copy questionnaires will be destroyed 5 years following the publication of the study. Names and contact info for the draw will be destroyed immediately after the draw is finished. We will retain anonymous electronic data indefinitely and may make it accessible to other researchers for verification purposes only where required by journals. In this case, the data will be located on a secure online repository if required by the journals. If you do not wish us to keep your data and make it available to other researchers for this purpose, please do not sign this consent form.

We would also like to retain your anonymous electronic data indefinitely for our own future studies about body image that are not covered in the purpose of this study (e.g., review studies, evaluations of questionnaires, social media and body image). If you allow us to retain the data for this purpose, please provide your additional consent below. If you do not provide this consent, we will only keep the data for the current study and for verification purposes.

COMPENSATION

Participants will receive a course research credit (1hr) or can be entered into a draw to win a \$50 gift card for Starbucks to compensate for their time.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. If you wish to withdraw, we will ask you if you want to have your questionnaires destroyed or if we can retain the data provided. If you withdraw from the study, you will still be eligible for course credit or to have your name entered in the draw. The decision to participate or withdraw will not impact your academic standing at Brock University. After you leave the lab, you will be not able to withdraw as your data is not identifiable.

PUBLICATION OF RESULTS

Results of this study may be published in professional journals and presented at conferences; only group findings will be reported. Feedback about this study will be available. At your request you may receive a summary of results (either by mail in hard copy or electronically by email) by contacting Dr. Gammage. A summary of the results of the study will be available starting in September 2019. This summary will also be posted on our website (www.exerciseandbodyimagelab.com).

CONTACT INFORMATION AND ETHICS CLEARANCE

If you have any questions about this study or require further information, please contact the Investigators using the contact information provided above. This study has been reviewed and received ethics clearance through the Brock University Research Ethics Boards (file #18-079). If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at 905-688-5550 ext. 3035, reb@brocku.ca. Thank you for your assistance in this project. Please keep a copy of this form for your records.

CONSENT FORM

I agree to participate in this study described above (REB # 18-079). I have made this decision based on the information I have read in this final Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time, until I submit my completed questionnaires. I also understand that my data will be kept indefinitely and may be provided to other researchers (by placing it in a secure online repository) for verification purposes only where required by journals. If you do not wish to have your data retained and uploaded, please do not sign this form. Please note: this is the true informed consent form and will replace the version you signed at the beginning of the session as you are now fully informed about the study.

Name: _____ (please print)

Signature: _____

Date: _____

I agree to have my anonymous data kept indefinitely and to be used in future body image-related studies for our own secondary analysis (e.g., review studies, questionnaire evaluation, body image and social media) outside the original purpose of this study.

Name: _____ (please print)

Signature: _____

Date: _____