The Effect Of Brief Exposures To Fitspiration Images On Motivation To Exercise And Body Image Concerns In Latinx College Students

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THE EFFECT OF BRIEF EXPOSURES TO FITSPIRATION IMAGES ON MOTIVATION TO
EXERCISE AND BODY IMAGE CONCERNS IN LATINX COLLEGE STUDENTS

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DEDICATION

Dedicated to my babies, Katalina and Milo, for all the joy and happiness they give me each and every day. And to my incredible and patient wife, Brisa, for all her love and support. None of this would be possible without my little family.
THE EFFECT OF BRIEF EXPOSURES TO FITSPIRATION IMAGES ON MOTIVATION TO
EXERCISE AND BODY IMAGE CONCERNS IN LATINX COLLEGE STUDENTS

by

ROBERTO SAGARIBAY III, B.A.

THESIS

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The University of Texas at El Paso
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of the Requirements
for the Degree of

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I would also like to thank my colleagues and friends in my cohort as well as members of the Prevention and Treatment of Clinical Health lab for their encouragement, support, and constructive feedback for this project.
ABSTRACT

Social media is used by three quarters of the population; however, the literature has suggested it’s potential adverse impact on mental health. Social media behaviors are associated with body image dissatisfaction and disordered eating behaviors. Fitspiration is an extension of social media that consists of photos and messaging aimed toward motivating users to exercise. Studies have demonstrated how these posts impact body image concerns and unhealthy weight management behaviors to achieve the thin and toned body ideal. Thus, the aim of this study was to experimentally assess motivations to exercise, body image concerns, and negative mood after brief exposures to fitspiration posts. Latinx college students (483 females, 136 males) were recruited through a web-based recruitment site and after informed consent completed the study online. Participants completed a sociodemographic survey, the Body Image-Acceptance and Action Questionnaire (BI-AAQ), the positive health and appearance subscales of the Exercise Motivation Inventory-2 (EMI-2), the Body Satisfaction and Negative Mood VAS. Three groups of Instagram content (fitspiration only, partial fitspiration, and control only) were used as the stimuli. After completing the sociodemographic survey and baseline measures, participants were randomized. After viewing the images, participants completed the EMI-2 subscales and the Body Satisfaction and Negative Mood VAS again. Four 2 (time) x 2 (gender) x 3 (stimuli condition) mixed ANOVAs assessed fitspiration exposure and gender on each of the dependent variables: appearance-based exercise motivation, health-based exercise motivation, state body satisfaction, and state negative mood. Eight 2 (time) x 3 (stimuli condition) mixed ANOVAs assessed fitspiration exposure on each of the dependent variables for men and women independently. Changes in motivation to exercise were not dependent on stimuli condition for any of the models. State body satisfaction decreased and negative mood increased from pre- to post-
exposure for the fitspiration and partial fitspiration groups. There were no statistical differences between men and women for these models. For men, fitspiration exposure was not associated with body satisfaction or negative mood. For women, state body satisfaction decreased and negative mood increased from pre- to post-exposure for the fitspiration and partial fitspiration groups. Latinx college students, particularly women, at risk for body image concerns may benefit from prevention or intervention efforts focused on healthy alternatives to social media and/or social media reduction.
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1. INTRODUCTION

1.1. SOCIAL MEDIA AND MENTAL HEALTH

Social media sites are websites and applications that allow users to share and receive information. Initially used as a networking tool, social media has grown into an empire that has attracted about three quarters of the U.S. population (Clement, 2020). Social media is an effective tool for building relationships, seeking information, or advertising oneself; however, many studies have observed social media use to reach problematic levels (Boer et al., 2020; Marino et al., 2020; Raudsepp & Kais, 2019). Individuals who spend more time on social media may be at risk for developing other unhealthy behaviors, such as poorer sleep quality (Woods & Scott, 2016), increased sleep latency and daytime sleepiness (Schuur et al., 2019), and disordered eating behaviors (Sidani et al., 2016; Wilksch et al., 2019). Additionally, excess time spent on social media has consistently demonstrated associations with perceived social isolation (Primack et al., 2017), lower life satisfaction (Boer et al., 2020), depression (Lin et al., 2016; Raudsepp & Kais, 2019; Woods & Scott, 2016), and anxiety (Vannucci et al., 2017). Most of the studies have focused on adolescent and young adult samples. Studies that focus on college students, however, demonstrate conflicting findings. One study observed a positive relationship between time spent scrolling through social media and higher levels of interest loss, concentration problems, fatigue, and loneliness (e.g., symptoms of depression) (Aalbers et al., 2019). In contrast, Jasso-Medrano & Lopez-Rosales (2018) did not observe a significant relationship between excessive social media use and depression and suicidal ideation. A similar study investigated these same constructs but also included Vaguebooking (Berryman et al., 2017). Vaguebooking is a novel construct and is defined as unclear but alarming posts by an individual to receive attention. The study did not find associations with social media usage but did report Vaguebooking behaviors
as a predictor of suicidal ideation. This informs future research designs to include social media use and behaviors.

1.2. Social Media, Sedentary Behaviors, and Obesity

The more time dedicated to social media promotes sedentary lifestyles by substituting other active and healthy behaviors for screen time (Alley et al., 2017; Merelle et al., 2017). For instance, a recent study suggested a negative association between social media usage and likelihood to engage in vigorous physical activity (Shimoga et al., 2019). The students with the highest likelihood to engage in daily vigorous exercise were those who used social media once or twice a month. Given the study was correlational in nature, the temporality between social media use and daily exercise was not observable. Similarly, Zhang and colleagues (2015) explored the effects of social support from social media and intention to participate in physical activity (Zhang et al., 2015). The study suggested social support to be ineffective in increasing intentions to exercise. These studies suggest social media as a possible risk factor in deterring users from physical activity and adopting a sedentary lifestyle. This can inevitably lead to becoming overweight or obese and put the individual at risk for developing a chronic illness (Fiuza-Luces et al., 2018).

Social media is an ideal platform for advertisements to reach the most consumers. A study observed the increase advertisement of unhealthy food impacted the increased consumption of these foods in children and youths (Andreyeva et al., 2011), thus, adding to the argument that social media disrupts healthy behaviors such as physical activity and healthy eating. In fact, obesity (Jolliff et al., 2020; Tsitsika et al., 2016) and higher BMIs (Khajeheian et al., 2018) have been linked to problematic social media usage in multiple studies. For instance, Jolliff and colleagues (2020) observed a positive association between problematic social media
use and obesity. The study also suggested depression and anxiety as potential mediators for this relationship. A similar study concluded social media usage as the highest impact on BMI in high school and primary school children (Khajeheian et al., 2018). The study also assessed family socioeconomic status and children’s unhealthy food intake; however, social media usage had the highest regression coefficient over the constructs that are commonly associated with higher BMIs. Studies clearly suggest a positive relationship between social media usage and obesity; however, more studies are needed to assess this relationship temporally.

Additionally, the content that is shared on social media targeting obese individuals is abundant and highly stigmatized (Chou et al., 2014; So et al., 2016). Messaging usually leans toward obese individuals being solely responsible for their weight. So and colleagues (2016) analyzed obesity-related tweets and found the most frequently retweeted content were emotionally evocative, humorous, and stigmatized in nature. Another study in adolescents found viewing body image content that favored thinness and physical attractiveness strengthened the stigmatization toward obese individuals (Lim & An, 2018). The information shared on social media appears one sided and likely does not educate others on the environmental factors that influence obesity. Instead, it may be a platform that fosters obesity stigmatization by placing certain body shapes above others.

1.3. Social Media and Body Image Concerns

One of the main purposes of social media is to display physical appearance, social circumstances, and status, which invites feedback and comparison from others (Saunders & Eaton, 2018). Logging in and engaging in these behaviors has demonstrated deleterious effects on body image concerns (Cohen et al., 2019; Fardouly et al., 2015; Livingston et al., 2020; Mills et al., 2020; Tamplin et al., 2018). Notably, a recent meta-analysis reported a small, positive, and
significant relationship between social media use and body image concerns (Saiphoo & Vahedi, 2019). The study also reported a Q value that suggested significant heterogeneity between studies and prompted the evaluation of potential moderating variables. Moderator analysis reported appearance focused social media (i.e., Instagram) strengthened the relationship between social media use and body image concerns (Saiphoo & Vahedi, 2019). These findings are consistent with the study conducted by Marengo and colleagues (2018) that observed higher body image concerns in participants who spent more time on highly visual social media. This relationship is consistent across multiple studies that exposed participants to idealized images for brief periods of times (Cohen et al., 2019; Fardouly et al., 2015; Marengo et al., 2018; Tamplin et al., 2018).

The literature has also highlighted social media behaviors that have an impact on users’ body image. For instance, a study conducted by Meier and Gray (2014) suggested time spent engaging in Facebook photo activity, instead of time spent on Facebook, was related to body image concerns. Similarly, in a sample of both female and male college students, no statistical significance was observed with time spent on social media; however, online social behaviors, such as viewing or commenting on peers’ profiles, were significantly correlated with drive for thinness (Kim & Chock, 2015). In contrast, another study suggested a social media addiction relationship with body image concerns and disordered eating behaviors in female and male Hispanic/Latinx college students (Sagaribay et al., manuscript in preparation). No statistical significance was reported for social media behavior constructs (i.e., selfie and groupie viewing and posting). Selfies, or taking and sharing a photo of oneself, is another very popular behavior on social media that has demonstrated positive associations with body image concerns (Livingston et al., 2020; Mills et al., 2020). For instance, Mills and colleagues (2020) instructed
a sample of women to take a photo of themselves and post it on social media. Increases in anxiety, less confidence, and less physical attractiveness were reported even when participants were able to retake and retouch their selfies (Mills et al., 2020). On the other hand, a study sought to reduce body image concerns by attaching self-disclaimer captions to images that have been edited to boost aesthetics (Livingston et al., 2020). The study did not find the self-disclaimer captions to reduce body image concern as both experimental and control groups reported similar body image scores (Livingston et al., 2020). Perhaps social media literacy interventions may not be efficacious in reducing body image concerns and contribute to the argument that social media, in any form, may be detrimental to user’s mental health.

The body image literature has mainly focused on women; however, there are some studies that have found similar relationships in men. For example, a study suggested a relationship between higher frequency of social media use and increase drive for muscularity in sexual minority men (Griffiths et al., 2018). The same study suggested these associations to be stronger for image-centric social media platforms (i.e., Instagram). Similarly, Rodgers et al. (2020) reported social media use to have a direct effect on internalization of the muscular ideal in adolescent males. Further research is warranted to assess sex differences in body image as societal pressures are different across groups.

There is a dearth of literature on male and Latinx body image concerns. Moreover, the literature on male Latinx samples is almost nonexistent. Notably, one study investigated body image concerns and cultural constructs within a Hispanic male college sample (Warren & Rios, 2013). The study suggested a positive association with endorsement of Western media, social comparison tendency, and body image problems.
1.4. **Social Media and Weight Management**

In terms of weight management, social media can be a hub for seeking information to lose weight, eat healthier, or seek workout routines (Chavarria et al., 2017; Vaterlaus et al., 2015). For example, one study reported men used social media for information on physical appearance concerns, clarification, and other health needs or concerns (Chavarria et al., 2017). Social media messaging is not monitored and may display inaccurate health information, which is a public health concern.

An alarming example is that many social media outlets promote disordered eating behaviors. A study that included clinical and subclinical eating disorder participants observed both groups used social media for information and motivation to engage in certain disordered eating behaviors (Cavazos-Rehg et al., 2020). This suggests social media may be used to reinforce eating disorder symptomatology in those who are at risk and those who have an eating disorder. Many studies have demonstrated this positive relationship between social media and disordered eating behaviors (Sidani et al., 2016; Walker et al., 2015; Wilksch et al., 2019). Wilksch and colleagues (2019) suggested the use of multiple social media accounts may be associated with disordered eating behaviors. Studies in college aged women suggest social media behaviors, such as online physical comparisons and disordered eating have a stronger relationship than general social media usage (Walker et al., 2015). Similarly, in a sample of Hispanic college women, social media users demonstrated a positive relationship between upward comparisons and disordered eating behaviors (Saunders & Eaton, 2018). Again, highlighting that social media behaviors, instead of usage, may have a greater influence in these populations.
1.5. FITSPIRATION CONTENT

Fitspiration is an extension of social media content that consists of images and messaging that are designed to motivate people to exercise and pursue a healthier lifestyle (Abena, 2013). Content analyses of fitspiration posts have exposed aspects of images and text that may have negative consequences to viewers (Carrotte et al., 2017; Deighton-Smith & Bell, 2018; Simpson & Mazzeo, 2017; Tiggemann & Ziccardo, 2018). For example, fitspiration posts containing images of women only showed thin and toned body types, contained objectifying elements, and emphasized attractiveness. This has contributed to societal pressures for women to not only be thin but also toned. A recent study has demonstrated this relationship empirically and suggested social media use’s direct effect on female adolescents’ internalization of the muscular ideal (Rodgers et al., 2020). Men, on the other hand, who were the subject of the posts also had one body type, medium build with a high degree of muscularity (Tiggemann & Ziccardo, 2018). With the overrepresentation of certain body types, fitspiration posts could possibly add to the perception that fitness is based on a unilateral standard. This may lead people to engage in disordered eating behaviors or excessive physical activity to achieve these ideal figures, despite already being fit and healthy.

1.6. FITSPIRATION, MOTIVATION TO EXERCISE, AND BODY IMAGE CONCERNS

Associations between body image concerns and acute exposure to fitspiration images have been established (Fatt et al., 2019; Prichard et al., 2018; Robinson et al., 2017; Rounds & Stutts, 2020; Tiggemann & Ziccardo, 2015). However, all but one of these studies assessed this relationship in women. The sole study that included men examined fitspiration content viewing frequency and men’s body satisfaction, appearance-based exercise motivation, and health-based exercise motivation (Fatt et al., 2019). The study also assessed if muscular-ideal internalization
and/or appearance comparison tendency mediated the relationships. Findings indicated an indirect pathway such that viewing more fitspiration content was associated with greater muscular-ideal internalization and higher appearance comparison tendency, which in turn, were associated with less body satisfaction, more appearance-based exercise motivation, and less health-based exercise motivation (Fatt et al., 2019). Findings from other studies are similar in women, especially with an emphasis on appearance-based instead of health-based motivation (Prichard et al., 2018; Tiggemann & Ziccardo, 2015).

1.7. Social Comparison Theory

Social Comparison Theory (SCT; Festinger, 1954) describes how people make sense of themselves in relation to other people. Individuals may compare themselves in one of three directions: upward, lateral, and downward. Upward comparisons occur when the individual perceives themselves as doing worse than a target individual. Lateral comparisons occur when the individual perceives themselves as performing at a comparable level to a target individual. Downward comparisons occur when the individual perceives themselves as doing better than a target individual. Social media platforms have become a catalyst for individuals to compare themselves to ideal images. For instance, one study reported a positive association in Facebook social behaviors (i.e., commenting, liking, sharing content), drive for thinness, and appearance comparisons (Kim & Chock, 2015), suggesting interventions assessing these constructs can be tailored to the direction of participants’ comparisons. For instance, Peng and colleagues (2019) reported upward comparisons to fitspiration posts strengthened motivation to work out for self-improvement in men.

Fitspiration is a relatively novel social media trend that has gained the interest of body image researchers. Fitspiration, in nature, purports to act as an intervention to increase physical
activity and provide weight management strategies. However, this “intervention” poses a threat to users as the information and imagery distributed is not empirically sound. The research suggest fitspiration content is consistently associated with body image concerns and appearance-based motivation to exercise. Fitspiration targets all genders, so there is a unique opportunity to contribute to the body image literature from more than one perspective. Additionally, there is a gap in the literature that assesses these relationships in diverse samples.

1.8. Present Study

Social media and fitspiration posts have the ability to reach large audiences. Though the purpose of increasing physical activity is promising, serious implications to individual body image concerns and motivation to exercise warrant further investigation. Based primarily on the findings in men by Fatt and colleagues (2019) that suggested viewing more fitspiration content was associated with less body satisfaction, more appearance-based exercise motivation and less health-based exercise motivation, the present study includes men. Based on the Rounds and Stutts (2020) study with females, we sought to demonstrate if the impact of complete and partial fitspiration exposure would impact Latinx college students and their motivation to exercise. Given that there are few, if any, studies in Latinx groups and even fewer in males and Latinx males, we extend these studies by including a Latinx male group and stimuli that seem grounded in typical college student Instagram activity.

1.9. Study Aims and Hypotheses

The aims of the study were to assess the effects of brief exposures to fitspiration posts on viewers’ motivation to exercise, body image concerns, and mood. The study also assessed if even moderate exposure to fitspiration content had a negative impact by examining three groups of Instagram content: fitspiration only, partial fitspiration, and control only. Hypotheses include
that exposure to the fitspiration and partial fitspiration groups will in a dose response relationship (fitspiration only greater than partial fitspiration): 1) be associated with increases in appearance-based motivation to exercise; 2) report no change in health-based motivation to exercise; 3) be associated with significantly lower body satisfaction; and 4) be associated with higher negative mood relative to the control group at post-exposure.
2. METHODS

2.1. PARTICIPANTS

Six hundred and nineteen (483 females, 136 males) English-speaking Latinx undergraduate students were recruited from a large university on the U.S. border with Mexico. The inclusion criteria include being 18 years or older and Latinx. Participants who did not identify as Latinx and were younger than 18 were excluded from the study.

2.2. MEASURES

2.2.1. Sociodemographics

A demographic questionnaire assessed basic demographics such as age, sex, ethnic group, social media hours per day/week/month, height, and weight (to calculate BMI; see Appendix A).

2.2.2. Body Image-Acceptance and Action Questionnaire (BI-AAQ)

The BI-AAQ assessed participant body flexibility (Sandoz et al., 2013; see Appendix B). Body flexibility refers to the ability for one to experience thoughts openly and freely about the body without acting on them or making efforts to avoid or change them. The measure consists of 12-items scored on a 7-point Likert scale ranging from 1 (Never true) to 7 (Always true). All items are reversed scored such that higher summed scores are indicative of greater body image flexibility. The psychometric properties of the BI-AAQ have been established in previous nonclinical and clinical samples demonstrating good internal consistency and convergent validity (Linardon et al., 2019; Soulliard & Vander Wal, 2020). The BI-AAQ demonstrated high internal consistency for the current study ($\alpha = .93$).
2.2.3. Exercise Motivation Inventory-2 (EMI-2)

The Exercise Motivation Inventory-2 (EMI-2; Markland & Ingledew, 1997) assessed participant motivation to exercise. The measure consists of 51-items scored on a 6-point Likert scale ranging from 0 (Not at all true for me) to 5 (Very true to me). The EMI-2 includes fourteen subscales: stress management, revitalization, enjoyment, challenge, social recognition, affiliation, competition, health pressure, ill-health avoidance, positive health, weight management, appearance, strength and endurance, and nimbleness. These scales have demonstrated adequate internal consistency ($\alpha = .88$; Fatt et al., 2019) and have been validated for both females and males (Markland & Ingledew, 1997). The present study utilized the positive health and appearance subscales to observe if participants are intrinsically or externally motivated to exercise after brief exposures to fitspiration posts. For instance, an individual who is motivated to improve their health (i.e., intrinsic motivation) is more likely to sustain consistent vigorous physical activity over time (Inglewood & Markland, 2008). On the other hand, motivation to exercise to improve appearance (i.e., external motivation) is not effective for consistent behavior change. The two subscales are comprised of 7-items and demonstrated adequate internal consistency for pre-exposure and post-exposure scores ($\alpha = .77 - .95$; see appendix C).

2.2.4. Body Satisfaction and Negative Mood

Visual analogue scales (VAS) measured body satisfaction and mood before and after viewing the fitspiration images (see Appendix D). Items are adapted from studies that used similar pre and posttest designs (Prichard et al., 2018; Robinson et al., 2017; Rounds & Stutts, 2020; Slater et al., 2017; Tiggemann & Zaccardo, 2015). The VAS for state body satisfaction consists of three items (e.g., “I am satisfied with my weight,” “I am satisfied with my overall
appearance,” “I am satisfied with my body shape”) rated on a slider scale from 0 (not at all) to 100 (extremely). The scores across the three items were averaged to determine state body satisfaction. Cronbach’s α from previous studies range from .82 and .94 (Prichard et al., 2018; Robinson et al., 2017; Rounds & Stutts, 2020; Slater et al., 2017; Tiggemann & Zaccardo, 2015), indicating adequate to high reliability. The body satisfaction VAS demonstrated high internal consistency for pre-exposure and post-exposure scores in the current study (α = .92 & .94). The VAS for state negative mood consists of four items (e.g., “How anxious do you feel right now?” “How depressed do you feel right now?” “How confident do you feel right now?” and “How happy do you feel right now?”) on a slider scale of 0 (not at all) to 100 (extremely). Positive mood items were reverse coded and the scores across the four items were averaged to determine state negative mood. Cronbach’s α from previous studies range from .70 and .93 (Rounds & Stutts, 2020; Slater et al., 2017; Tiggemann & Zaccardo, 2015) indicating adequate to high reliability. The negative mood VAS demonstrated adequate internal consistency for pre-exposure and post-exposure scores in the current study (α = .80 & .76).

The VAS can be completed quickly, are difficult to recall, and sensitive to small changes (Tiggemann & Zaccardo, 2015). Heinberg and Thompson (1995) also demonstrated correlations between VAS and more complex measures of mood and body image disturbance.

### 2.2.5. Fitspiration-related Questionnaire

After viewing the images and completing the post-exposure measures, participants were asked how much the images represented their ideal body type, how inspired did they feel after viewing the images to improve their fitness, and how frequently they view fitspiration posts while on social media.
2.3. STIMULI

Three sets of stimulus materials were constructed for the experiment: only fitspiration; partial fitspiration; control only. All images were sourced from public Instagram profiles. Fitspiration images that met the following criteria from Instagram were selected: images that pulled up when using #fitspiration or #fitspo, contained an individual in workout clothes either posing or working out, and contained individuals of toned or thin body type. Selection criteria for the images are similar to previous studies (Rounds & Stutts, 2020; Tiggemann & Zaccardo, 2015) and based on content analyses from Carrotte et al. (2017), Deighton-Smith & Bell (2018), Simpson & Mazzeo (2017), and Tiggemann & Zaccardo (2018). Forty (20 male; 20 female) fitspiration images were selected for the study (see Appendix E). The images were also edited to not show the person’s face to control for the effects of the individual’s attractiveness.

In terms of the control images, it was important to include images without people as even brief exposures to body types may influence body satisfaction of the viewer (Cohen et al., 2019; Fardouly et al., 2015; Marengo et al., 2018; Tamplin et al., 2018). Additionally, the images should resemble content typically shared in college students’ social media feed. Therefore, searching the most used hashtags for college students was an ideal strategy to find images that students are most likely exposed to already. However, no published data are available that suggest the most used hashtags in college students. Therefore, a google search prompted websites that provided lists of most used hashtags for individuals who want to know the current trends on Instagram (Gotter, 2020; Influencer Marketer, 2021). After searching the contents of each popular hashtag on Instagram, #NoFilter was deemed the most appropriate as there were more than 281 million public posts, and most of the images included scenic views with no people. Therefore, the following was the selection criteria for the control images: images that
pulled up when using #NoFilter and did not include a person in the image. Twenty images were selected for the study (see Appendix E).

The partial fitspiration condition used the same images from the other conditions. For example, those who identify as male will be displayed ten images from the set of male fitspiration and ten images from the set of control images (see Appendix E.4). Female participants will see ten female fitspiration images and the same 10 control images as the male participants (see Appendix E.5). The ten images from each set of stimuli were selected randomly using a random number generator.

The fitspiration and control images were pilot tested on content and exposure duration by graduate and undergraduate research assistants from the PATCH lab. The feedback confirmed the fitspiration images contained models with the appropriate body shapes engaging in physical activity and the #NoFilter images were an adequate control. The research assistants also indicated that 10 seconds per image would be an appropriate duration to ensure that the images are being absorbed by the participants without causing too much strain or boredom.

2.4. PROCEDURE

Approval was obtained by the university’s institutional review board prior to study implementation. Participants were recruited via Sona-System, a secure web-based recruitment website. The website was programmed to only accept participants who are above 18 and Latinx to proceed with the study. Participants completed the informed consent process online via Qualtrics. Once consent was obtained, participants completed sociodemographics and the BI-AAQ. Next, the EMI-2 positive health and appearance subscales, Body Dissatisfaction, and Negative Mood VAS was counterbalanced and completed by the participants to reduce the potential impact of an order effect on responding. After baseline measures were submitted, the
stimuli was displayed. Only those individuals who identify as cisgender man or transgender man were presented with images of men, only those individuals who identify as cisgender women or transgender women were presented with images of women, and only those individuals who identify as gender binary or other gender minority were presented with images of men and women. Participants were placed in the appropriate groups through the Qualtrics software. Participants were also randomized to condition (i.e., fitspiration only, partial fitspiration, control only). The pictures were randomized and presented in the same order for each participant in that group. The images were programmed to display on the screen for 10 seconds and participants were not able to advance to the next picture until the 10 seconds had passed. Once all pictures were presented, the EMI-2 subscales and Body Dissatisfaction and Negative Mood VAS were counterbalanced again and completed by participants. Then, participants answered questions related to their typical fitspiration exposure experience. Finally, participants saw a screen thanking them for their time and debriefing information, such as UTEP’s Counseling Center for those who may have body image, mood, or other concerns. Participants also received 0.5 SONA course credit for completing the study.

2.5. APPROACH TO ANALYSES

Descriptive analyses were conducted to generate participant characteristics of the sample. BMI for each participant was calculated (weight/height² x 703). Three between-subjects ANOVAs were conducted for all participants, men, and women independently to determine if there are any differences between groups (fitspiration only, partial fitspiration, and control only) post randomization in age, BMI, body flexibility, exercise motivation, and body satisfaction. Four 2 (pre, post) x 2 (men, women) x 3 (fitspiration, partial fitspiration, control only) mixed ANOVAs were conducted for each of the four dependent variables: the EMI-2 subscales
(positive health and appearance), state body satisfaction, and state negative mood. Given that previous studies have largely focused on either men or women (Fatt et al., 2019; Robinson et al., 2017) and the differences in fitspiration images by gender (i.e., men, medium builds with a high degree of muscularity; women, thin and toned bodies), statistical tests for each gender were conducted independently. This resulted in eight additional 2 (pre, post) x 3 (fitspiration, partial fitspiration, control) mixed ANOVAs.
3. RESULTS

3.1. PARTICIPANT CHARACTERISTICS

Six hundred and nineteen (483 females, 136 males) English-speaking Latinx undergraduate students were recruited from a large university on the U.S. border with Mexico. The inclusion criteria include being 18 years or older and Latinx. Participants who did not identify as Latinx and were younger than 18 were excluded from the study.

3.2. APPEARANCE-BASED EXERCISE MOTIVATION

For the model assessing appearance-based exercise motivation, there was a statistically significant main effect of time, \( F(1, 599) = 5.566, p = .019, \eta^2_p = .009 \), such that scores pre-exposure (\( M = 18.945, SD = .214 \)) were higher than post-exposure scores (\( M = 18.700, SD = .224 \)). The time x group (\( p = .919 \)), time x gender (\( p = .455 \)), and time x gender x group (\( p = .705 \)) interactions were not statistically significant (see Figures 1 & 2). For the model that only included men (see Figure 3), there was a statistically significant main effect of time, \( F(1, 133) = 4.632, p = .033, \eta^2_p = .034 \), such that scores pre-exposure (\( M = 19.162, SD = .361 \)) were higher than post-exposure scores (\( M = 18.839, SD = .386 \)). The interaction between time and group, however, was not statistically significant (\( p = .942 \)). The model that included only women was not statistically significant (\( p = .459 \); see Figure 4).

3.3. HEALTH-BASED EXERCISE MOTIVATION

The model assessing health-based exercise motivation revealed a statistically significant interaction between time and gender, \( F(1, 601) = 5.615, p = .018, \eta^2_p = .009 \). Post hoc simple effects analyses indicated that health-based motivation to exercise statistically increased from pre-exposure (\( M = 15.157, SD = .153 \)) to post-exposure (\( M = 15.364, SD = .150 \)) in women (\( p = .006 \)). The time x group (\( p = .984 \)) and time x gender x group (\( p = .984 \)) interactions were not
statistically significant (see Figures 5 & 6). For the model that only included men (see Figure 7), there was not a statistically significant main effect of time ($p = .076$) nor interaction between time and group ($p = 1.00$). For women, the main effect of time was significant, $F(1, 470) = 6.536, p = .011, \eta^2_p = .014$, such that participants reported higher scores at post-exposure ($M = 15.368, SD = .155$) than pre-exposure ($M = 15.161, SD = .158$). The time x group interaction was not statistically significant ($p = .938$; see Figure 8).

3.4. Body Satisfaction

The model assessing state body satisfaction suggested a main effect of time, $F(1, 516) = 26.233, p < .001, \eta^2_p = .048$, such that higher body satisfaction scores were reported at pre-exposure ($M = 56.252, SD = 1.391$) than post-exposure ($M = 53.499, SD = 1.480$). The interaction between time and group was also statistically significant, $F(2, 516) = 10.282, p < .001, \eta^2_p = .038$. Post hoc simple effects analyses revealed that state body satisfaction statistically decreased from pre-exposure ($M = 55.574, SD = 2.408$) to post-exposure ($M = 52.285, SD = 2.546$) in the fitspiration only group, $p < .001$, and from pre-exposure ($M = 58.51, SD = 2.346$) to post-exposure ($M = 53.151, SD = 2.498$) in the partial exposure group, $p < .001$. The time x gender ($p = .527$) and time x gender x group ($p = .755$) interactions were not statistically significant (see Figures 9 & 10). For the model that included only men, there was a main effect of time, $F(1, 120) = 7.173, p = .008, \eta^2_p = .056$, such that higher body satisfaction scores were reported at pre-exposure ($M = 60.906, SD = 2.363$) than post-exposure ($M = 58.494, SD = 2.485$). The interaction between time and group was not statistically significant, $p = .082$ (see Figure 11). For women (see Figure 12), there was a statistically significant main effect of time, $F(1, 397) = 33.602, p < .01, \eta^2_p = .078$, such that higher body satisfaction scores were reported at pre-exposure ($M = 51.617, SD = 1.359$) than post-exposure ($M = 48.557, SD = 1.451$). There
was also a significant time x group interaction, $F(2, 397) = 14.206, p < .01, \eta^2_p = .067$. Post hoc simple effects analyses revealed that state body satisfaction statistically decreased from pre-exposure ($M = 51.774, SD = 2.373$) to post-exposure ($M = 47.985, SD = 2.534$) in the fitspiration group, $p < .01$, and from pre-exposure ($M = 52.408, SD = 2.304$) to post-exposure ($M = 46.326, SD = 2.460$) for the partial exposure group, $p < .01$.

### 3.5. Negative Mood

For the model assessing state negative mood, there was a significant main effect of time, $F(1, 372) = 9.963, p = .002, \eta^2_p = .026$, such that higher state negative mood was observed pre-exposure ($M = 44.486, SD = 1.211$) than post-exposure ($M = 42.571, SD = 1.197$). There was a statistically significant interaction between group and time, $F(2, 372) = 14.539, p < .001, \eta^2_p = .072$. Post hoc simple effects analyses revealed that state negative mood statistically decreased from pre-exposure ($M = 47.772, SD = 2.130$) to post-exposure ($M = 41.197, SD = 2.107$) in the control group, $p < .001$. There was also a statistically significant interaction between gender and time, $F(1, 372) = 6.796, p = .010, \eta^2_p = .018$. Post hoc simple effects analyses revealed elevated negative mood for women ($M = 45.897, SD = 1.125$) compared to men ($M = 39.245, SD = 2.114$) post-exposure, $p = .006$. The time x gender x group ($p = .853$) interaction was not statistically significant (see Figures 13 & 14). For the model that only included men (see Figure 15), there was a significant main effect of time, $F(1, 81) = 8.424, p = .005, \eta^2_p = .094$, such that the men reported higher state negative mood pre-exposure ($M = 42.743, SD = 2.213$) than post-exposure ($M = 39.245, SD = 2.114$). There was also a statistically significant interaction, $F(2, 81) = 3.937, p = .023, \eta^2_p = .089$. Post hoc simple effects analyses revealed that state negative mood statistically decreased from pre-exposure ($M = 49.991, SD = 3.882$) to post- ($M = 41.722, SD = 3.709$) exposure in the control group, $p < .001$. For women (see Figure 16), there was a
significant time x group interaction, $F(2, 290) = 16.659, p < .01, \eta^2_p = .103$. Post hoc simple effects analyses revealed that state negative mood statistically increased from pre-exposure ($M = 47.658, SD = 1.947$) to post-exposure ($M = 49.612, SD = 1.946$) in the fitspiration group, $p = .041$, and from pre-exposure ($M = 45.706, SD = 1.908$) to post-exposure ($M = 47.635, SD = 1.907$) for the partial exposure group, $p = .039$. However, state negative mood statistically decreased from pre-exposure ($M = 45.554, SD = 1.999$) to post-exposure ($M = 40.672, SD = 1.997$) for the control group, $p < .001$. 
4. DISCUSSION

Motivation to exercise was not dependent on group assignment (i.e., viewing fitspiration only vs partial fitspiration vs control). State body satisfaction, on the other hand, decreased from pre-exposure to post-exposure only for those in the fitspiration and partial exposure groups. However, no statistically significant differences between men and women emerged for any of the models assessing the entire sample. Patterns of findings however were distinct when analyzing men and women separately.

Many methodological factors may have contributed to null findings for exercise motivation. For instance, fitspiration content may come across user’s social media occasionally, and those who seek out accounts that are dedicated to fitspiration are exposed to those images more often and may be more invested. Since the current sample reported viewing fitspiration content occasionally, perhaps they were not interested in the exercise domain of social media, resulting in little impact on their exercise motivation. Future studies should assess exercise motivation for those who follow fitspiration accounts and interact with the content (i.e., like, comment, and share). The sample was also primarily young college students, so exercising for health benefits (i.e., lower cholesterol, increase cardiovascular health) may not be as critical for this demographic as individuals who are middle-aged. Future studies should assess if the other subscales of the EMI-2 that were not utilized in this study may be more related to Latinx college student exercise motivation. Additionally, a recent diet and exercise intervention conducted within Latinx college student indicated that most of the individuals reported sufficient weekly exercise behaviors at baseline (Blow et al., 2022). Given that exercise motivation was high pre-exposure, perhaps there was a ceiling effect for motivation that was not influenced by fitspiration.
Alternatively, perhaps fitspiration does not have the same impact for Latinx college students. For instance, the models typically included in fitspiration posts may not be congruent with Latinx body ideals. It has been acknowledged that different cultures value different body shapes such as African Americans valuing a more curvaceous body shape, depicting the thin ideal in media images as less desirable than White women (Hunter et al., 2021), and Latinx individuals favoring a thin but curvy body ideal, perceiving the Western ideas of thinness as too thin (Romo et al., 2016; Smith et al., 2020). Fitspiration favors thin and toned body types which may be perceived as too thin for Latinx individuals, especially Latinas. Alternatively, acculturation may be playing a critical role. A recent study suggested racial identity weakened the association between pressure for thinness and greater body dissatisfaction (Rakhkovskaya & Warren, 2016), while another study suggested acculturation to western ideals was associated with greater physical activity (Jurkowski et al., 2010). Given that the sample is from a border community, future studies should assess levels of acculturation, use measures to quantify how much of the Western ideal the person has adopted, and assess if level of acculturation moderates the relationship between fitspiration exposure and exercise motivation.

Second, there may be a disconnect, in terms of social comparison, between Latinx and the fitspiration models. Perhaps Latinx individuals may be more inspired by fitspiration models that come from a similar cultural experience, especially as it relates to physical activity. For instance, studies have suggested that common barriers to exercise in Latinx individuals are lack of enjoyment (Spector et al., 2013) and not having a sense of community or belonging in exercise environments (i.e., parks and gyms; Joseph et al., 2018). Since fitspiration mainly shows individuals at the gym, perhaps images showing the models engaged in more culturally relevant exercises (i.e., dancing, family activities) may be more influential to Latinx individuals.
Additionally, being exposed to Latinx models may foster a sense of belonging and the ability to perceive themselves as someone who can maintain a regular exercise routine. Future studies may want to use fitspiration models who are Latinx, as participants may relate to the models, believe they come from similar backgrounds, and feel competent that they can exercise as well.

4.1. Fitspiration Effect on Men

For the models that only included men, fitspiration did not impact any of the dependent variables. The men reported viewing fitspiration images occasionally when they are on social media. They also reported that the fitspiration images slightly mirrored their ideal body image. Descriptive analyses suggest that Latino state body satisfaction was moderate, and the model suggested a decrease from pre-exposure to post-exposure. However, since this was not dependent on group assignment, it cannot be concluded that this was attributed to the fitspiration images. State negative mood did decrease from pre-exposure to post-exposure but only for the group that was not exposed to the fitspiration images.

That changes in appearance-based and health-based motivation to exercise was not dependent on stimuli condition is consistent with past research that suggested exposure to images that promote the muscular ideal has no effect on men’s intention to exercise or muscle-building behavior (Nagata et al., 2021; Sumter et al., 2021). One of these previous studies however noted the efficacy for weight-related self-monitoring phone applications for men (Nagata et al., 2021). Perhaps interventions that take advantage of the interactive utility of smartphones may be more efficacious for Latinos rather than media campaigns that emulate fitspiration. Conversely, some studies have indicated viewing fitspiration sites predicted motivation to increase strength and musculature (Fatt et al., 2019; Halliwell et al., 2007; Seekis et al., 2021). This effect was only observed in one of the studies for men who are frequent gym users relative to non-exercisers.
(Halliwell et al., 2007). Perhaps men who are comfortable going to the gym may also feel competent enough to achieve the muscular ideal. Alternatively, men who do not exercise may be discouraged to exercise by the perceived unrealistic body shape featured in the images, thus, affecting their motivation to exercise. The average rating for men was low on how the images represented their ideal body image, but there was no measure of current exercise behaviors for the current study, so assessing differences between non-exercisers and gym users was not possible. Future studies should assess baseline exercise behavior in men to identify differences in muscular internalization, particularly Latinos, and there appear to be no studies to have done so.

That fitspiration did not statistically impact body satisfaction in Latinos is inconsistent with past research that demonstrated viewing fitspiration content decreased state body satisfaction and increased appearance comparison tendency (Fatt et al., 2019; Sumter et al., 2021). Alternatively, one study did not find an effect of image exposure on muscular dissatisfaction and fat dissatisfaction (Casale et al., 2021). None of these studies, however, were conducted with Latinos. In fact, there are limited studies that have assessed the effects of fitspiration content on body image concerns in Latinos. There are however many studies that have suggested appearance comparison tendencies and body dissatisfaction (Reina et al., 2019; Rozzell et al., 2020; Souliard et al., 2022; Warren & Rios, 2013; White et al., 2019); however, most of the studies focus on sexual minority men. Compared to other ethnocultural groups, Latinos reported more muscle dysmorphia, body checking, and drive for muscularity than African American and European American men (White et al., 2019). However, there are limited studies that assess the role of culture and body image concerns for Latinos. Warren and Rios (2013) suggest acculturative stress as a significant predictor for body image problems. Another study assessed the relationship between two types of machismo (traditional and caballerismo)
and musculature in sexual minority men (Brady et al., 2019). Traditional machismo encompasses aggression, antisocial behavior, alexithymia, sexism, chauvinism, and hypermasculinity and caballerismo encompasses the characteristics of social affiliation, ethnic identity, nurturing, family-centered orientation, and chivalry. The findings suggest that traditional machismo was positively associated with greater muscular-ideal, such that greater muscular-ideal may counteract assumptions about femininity and sexual orientation. Additionally, favoring muscul arity reinforces the idea of being physically aggressive and intimidating. Caballerismo, on the other hand, was negatively associated with the muscular-ideal (Brady et al., 2019). Cultural constructs, such as machismo, impact Latino social media and health behaviors; future studies should assess the role of machismo and other cultural constructs and online social media appearance comparisons and weight management behaviors.

That only men in the control condition decreased negative mood over time suggests that fitspiration may not have an impact on men’s mood as hypothesized. This is inconsistent with one study that demonstrated greater body-focused negative affect after exposure to fitspiration for non-exercising men and less body-focused negative affect for gym users (Halliwell et al., 2007). Similar to exercise motivation, identifying which participants are active gym users may contribute meaningfully to future studies.

4.2. Fitspiration Effect on Women

For the models that only included women, exercise motivation was not associated with fitspiration exposure. Average daily social media use was almost an hour more than men. The women reported viewing fitspiration images occasionally when they are on social media. They also reported that the fitspiration images slightly mirrored their ideal body image. As hypothesized, state body satisfaction and state negative mood decreased over time for those
groups who were exposed to fitspiration images. Descriptive analyses suggest that Latina state body satisfaction was moderate before pre-exposure to fitspiration images.

That changes in appearance-based and health-based motivation to exercise were not associated with stimuli condition suggests fitspiration may not have an impact on improving exercise motivation in Latina college students. This is consistent with past research that demonstrated no difference in exercise behavior between groups who were exposed to fitspiration and control images (Prichard et al., 2018; Robinson et al., 2017). Notably, Prichard et al. (2018) also suggested that participants who exercised following exposure were more likely to report higher exertion ratings. Given the dearth of literature in Latinx individuals, little is known of these relationships with Latinas. One study demonstrated that Latinas were more likely than Caucasian and African American women to report lack of enjoyment, knowledge, feeling self-conscious, and discouragement as exercise barriers (Spector et al., 2013). Perhaps fitspiration may not reach Latinas as their motivation is diminished due to these and other perceived barriers.

As expected, women in the groups exposed to fitspiration images, even when combined with control images, significantly decreased their body satisfaction and increased their negative mood. This is consistent with past research that suggested associations between body image concerns and acute exposure to fitspiration images (Prichard et al., 2018; Robinson et al., 2017; Rounds & Stutts, 2020; Tiggemann & Ziccardo, 2015). That this association was present even when participants were partially exposed to fitspiration images further highlights the impact of this content on Latina body image concerns. Findings support SCT which posits upward comparisons often threatens the individuals’ sense of self-worth and often produces anxiety, frustration, or other negative feelings (Festinger, 1954). SCT also suggests that these negative feelings either serve as inspiration or promote negative self-evaluation. This may explain how
fitspiration did not influence motivation to exercise in Latinas yet did decrease their body satisfaction and increase negative mood. Findings are consistent with recent studies that suggest passive social media use is related to upward comparisons (Spritzer et al., 2022; Yue et al., 2022). One study also demonstrated a positive relationship with suicidal ideations and reported this relationship was strongest for Instagram users (Spritzer et al., 2022).

Notably, data were collected during the time of Facebook’s whistleblower testimonial. During the testimonial, it was revealed that internal research demonstrated that teen girls’ body image diminished, disordered eating worsened, and suicidal ideations became more frequent after starting Instagram (Allyn, 2021). Though Facebook executives knew the implications of their product, Instagram popularity continued to grow and profit was prioritized over users’ wellness. That similar body image disturbances are occurring for Latinx college women in this study suggests a reduction in social media may protect this group from further psychological distress.

Interestingly, fitspiration images impacted body satisfaction for Latinas but did not translate into exercise motivation. Social media is a catalyst for delivering mainstream beauty to users and often favors western ideals (i.e., thinness; Santarossa & Woodruff, 2017). Perhaps Latinas favor their cultural body image but know that it is not desirable online; thus, they may be conflicted with wanting to abide by cultural standards in the real world yet also wanting to look attractive online. This may explain how the women in this study feel dissatisfied when looking at the fitspiration posts (which are meant to look like real Instagram posts) yet are not motivated to exercise and achieve that body shape. Since Latinx individuals are traditionally underrepresented in research, no studies have investigated this possibility empirically. Given that past studies in the border region have suggested Latinx college students spend approximately 19 hours on social
media (e.g., Lerma et al., 2021), measuring cultural standards for body image and satisfaction online and in person seems warranted.

### 4.3. Strengths and Limitations

Five limitations are noteworthy. First, this experiment was conducted online and not in a controlled environment. Given the expected duration the sample would spend on the study was short, there were also no attention checks. Thus, participants may have been distracted when exposed to the images and there were no means to control for those who were distracted. Instead, participants were instructed to pay close attention as they were going to be tested on the details of the images to minimize distraction. Second, the stimuli were not created by the researchers to control for extraneous variables (e.g., backgrounds, clothing, exercise position), resulting in some images possibly having more of an impact on participants’ exercise motivation, body satisfaction, or negative mood than others. While this poses a threat to internal validity, this study replicates the real-world experience of social media behavior by exposing participants to real images they could encounter while scrolling through Instagram, increasing external validity. Third, the reliance on self-reported measures may reduce accurate reporting. Fourth, some variables that may be pertinent to observed relationships or null findings were not measured (e.g., acculturation). Fifth, the study used a convenient sample, so the results cannot generalize to other groups.

The study also had many strengths, such as solid external validity as the online study closely mimicked real world social media experience. The study utilized real examples of fitspiration and control images from Instagram, briefly exposed the images to participants to simulate typical social media behavior and allowed participants to take the survey and be exposed to the images in their own environment. The inclusion of a partial fitspiration group also
mimicked typical social media use as fitspiration is likely combined with other social media content. Combining fitspiration and control images also reduced demand characteristics among participants by making the goals of the study less clear. Second, data collection occurred during a global pandemic. Many individuals spent an extended amount of time in isolation, which may have limited daily exercise routines and increased social media usage, as this was one of the only forms of communicating with others. Now that more places are reopening, including exercise facilities, and people are feeling more comfortable in these spaces, research on the relationships between prolonged social media usage and physical and mental health are warranted. Third, this study attended meaningfully to inclusivity. Tailoring the images to gender instead of sex provided the opportunity for those who don’t necessarily identify as male, female, cisgender man, or woman to also participate in this study. Though few participants in this study identified as gender non-binary or other gender minorities, future studies should adopt a similar model, as research within these groups remains underrepresented. Lastly, the study was designed to assess Latinx experiences which are traditionally underrepresented in the health literature.

4.4. CLINICAL IMPLICATIONS

The present study briefly exposed social media to participants and findings still highlighted the negative and potentially harmful effects on body image concerns and mood. Clinical implications, especially when treating women, include psychoeducation for clients in media literacy, consumer awareness, and becoming a critical reviewer of social media content. Social media use has reached problematic levels. In the current study, self-reported daily social media usage accounted for a quarter of a person’s typical waking hours. Individuals struggling with their social media consumption may benefit from Cognitive Behavioral Therapy (CBT; Rothbaum et al., 2000) techniques such as behavior modification and cognitive restructuring.
Behavior modification may be useful to help excessive social media users control their compulsive internet use and reduce their time on social media. This includes helping guide them toward being able to use their phones and internet without logging into social media for an excess amount of time. Additionally, motivating clients to supplement their time away from social media to engage in other healthy domains that may be neglected (i.e., sleep hygiene, exercise, healthy eating, other pleasurable activities, in-person socialization) may be fitting. Cognitive restructuring may help identify, challenge, and adjust cognitive disruptions and negative beliefs, such as feelings of loneliness or fear of missing out, that promote a compulsive usage of social media. It may be beneficial to also supplement CBT with Motivational Interviewing (MI; Miller, 1992), as MI is often used in the treatment of addiction and disordered eating. MI is designed to facilitate readiness to change by augmenting the client’s autonomy and sense of responsibility for their health. MI is ideal for problematic social media use as it emphasizes the therapeutic alliance, which is ideal for social media reduction, as many clients may be depending on social media for their social interactions. Clinical considerations for Latinx include discussing how their ethnic identity is related to perceived body ideals and barriers to exercise commonly reported by Latinx, such as lack of time, family obligations, environmental factors, and lack of enjoyment. Treatment for excessive social media use should also take into account the reliance of social media to communicate with family in other countries.

4.5. Conclusions and Future Directions

The study is one of the first to investigate the link between fitspiration images, exercise motivation, body satisfaction, and negative mood in Latinx college students. The study also contributes to the dearth of literature focusing on men and Latinos. Future studies that expand on the interaction of culture, social media, and body image concerns are warranted. For instance,
studies are strongly encouraged to include cultural constructs, such as level of acculturation, how invested Latinx individuals are in Western body ideals, machismo, and caballerismo to assess direct and indirect effects with mainstream social media content and body image concerns. Future studies may also want to replicate the present study with Latinx fitspiration models as there may have been perceived incongruity with models may have impacted the findings. Lastly, how Latinx individuals conform to body ideals may be dependent on their environment. Perhaps in their community, Latinx cultural standards of beauty are the norms relative to social media where they are in the minority. Thus, future studies may want to assess the difference between online and offline Latinx appearance comparison tendencies, especially for Latinas.

The study is also one of the few that assesses the relationship between exercise motivation and fitspiration exposure. Future studies may want to include other subscales of the EMI-2 that are relevant to college students, such as exercising for challenge, social recognition, and competition. A measure of baseline exercise routines is also warranted to assess if the relationship between fitspiration exposure and exercise motivation is related to already established exercise habits (i.e., frequent gym users vs non-exercisers). Future messaging efforts may want to focus on more diverse models (i.e., different body types, level of muscularity and fitness levels), as this study, as well as others, suggested a unilateral idea of a healthy body may not bolster exercise motivation.

Lastly, future studies may also want to investigate if these effects differ between social media users who are actively or passively interacting with fitspiration content. Studies that assessed active and passive social media behavior and psychological distress have demonstrated mixed findings. Houge and Mills (2019) demonstrated that actively engaging, or liking and commenting, on attractive peers’ Instagram posts increased body image concerns. In contrast,
Thorisdottir and colleagues (2019) suggested that passive social media use, or scrolling through posts without direct exchanges, was associated with anxiety and depressed mood. Future studies on the effect of active versus passive fitspiration engagement are warranted.

In conclusion, brief exposure to fitspiration had no effect on motivation to exercise yet adversely impacted body image concerns and negative mood, especially for Latina college students. Fitspiration, while immensely popular presently, may trend less in the future. However, social media platforms continue to evolve and likely will result in other potentially deleterious trends. Virtual reality, for example, is providing individuals the opportunity to socialize with others on a virtual platform (e.g., Facebook’s Metaverse). Not only can people visit their friends without leaving their couch, but they are able to create an avatar to look however they want and speak with others using a manufactured appearance. While there may be social benefits to such a platform, challenges to online and offline mental health and safety seem likely. This study bolsters awareness of the importance of the scientific and mental health communities to assess, prevent, and/or reduce the impact of rapidly evolving social media.
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Table 2: Participant Characteristics

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<td>18.36 - 54</td>
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<td>Percent of those hours on Instagram</td>
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<td></td>
<td></td>
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<tr>
<td>Rating of inspiration after viewing images</td>
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Table 3: Summary of Between Group Differences Pre-Exposure for All Participants

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<th>Control Only</th>
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<tr>
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<td>( M )</td>
<td>( SD )</td>
<td>( M )</td>
<td>( SD )</td>
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*Note.* The model indicated no group differences before exposure to images.
Table 4: Summary of Between Group Differences Pre-Exposure for Men

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<tr>
<td></td>
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<tr>
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</table>

*Note. The model indicated no group differences before exposure to images.*
Table 5: Summary of Between Group Differences Pre-Exposure for Women

<table>
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<tr>
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<th>Fitspiration Only</th>
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<th>Control Only</th>
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<tr>
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*Note.* The model indicated no group differences before exposure to images.
Figure 1: Estimated Marginal Means of Appearance-based Exercise Motivation Pre-Exposure
Figure 2: Estimated Marginal Means of Appearance-based Exercise Motivation Post-Exposure
Figure 3: Estimated Marginal Means of Appearance-based Exercise Motivation for Men
Figure 4: Estimated Marginal Means of Appearance-based Exercise Motivation for Women
Figure 5: Estimated Marginal Means of Health-based Exercise Motivation Pre-Exposure
Figure 6: Estimated Marginal Means of Health-based Exercise Motivation Post-Exposure
Figure 7: Estimated Marginal Means of Health-based Exercise Motivation for Men
Figure 8: Estimated Marginal Means of Health-based Exercise Motivation for Women
Figure 9: Estimated Marginal Means of State Body Satisfaction Pre-Exposure
Figure 10: Estimated Marginal Means of State Body Satisfaction Post-Exposure
Figure 11: Estimated Marginal Means of State Body Satisfaction for Men
Figure 12: Estimated Marginal Means of State Body Satisfaction for Women
Figure 13: Estimated Marginal Means of State Negative Mood Pre-Exposure
Figure 14: Estimated Marginal Means of State Negative Mood Post-Exposure
Figure 15: Estimated Marginal Means of State Negative Mood for Men
Figure 16: Estimated Marginal Means of State Negative Mood for Women
APPENDIX

Appendix A: Sociodemographic

1. What is your biological sex?
   - Male
   - Female
   - Intersex

2. What is your gender?
   - Man
   - Woman
   - Transgender Man
   - Transgender Woman
   - Gender Fluid
   - Non-Binary
   - Other (please specify):

3. What is your age?

4. What is your height (in inches)? (e.g., 5ft = 60 inches)

5. How much do you currently weigh in pounds (lbs)?

6. What is your race/ethnicity?
   - Asian or Pacific Islander
   - White
   - Black/African American
   - American Indian or Alaskan Native
   - Other (please specify):

7. What is your household income?
   - Less than $10,000
   - $10,000 - $19,999
   - $20,000 - $29,999
   - $30,000 - $39,999
   - $40,000 - $49,999
   - $50,000 - $59,999
   - $60,000 - $69,999
   - $70,000 - $79,999
   - $80,000 - $89,999
   - $90,000 - $99,999
8. How many people live in your current household? ___

9. Do you still live at home with your parent(s) or legal guardian(s)?
   o Yes
   o No

10. What is the highest level of education obtained by your father?
    o Less than high school
    o High School Diploma
    o Some College
    o 2 Year College
    o 4 Year College
    o Graduate School

11. What is the highest level of education obtained by your mother?
    o Less than high school
    o High School
    o Some College
    o 2 Year College
    o 4 Year College
    o Graduate School

12. What is the primary language spoken at home?
    o English
    o Spanish
    o Other, please specify

13. Are you a veteran or have you ever been in military active duty?
    o Yes
    o No

14. What is your sexual orientation?
    o Heterosexual
    o Bisexual
    o Gay
    o Lesbian
    o Asexual
Pansexual

15. How often did you use social media (e.g., Facebook, Twitter, Instagram, snapchat, etc.) during the last month?
   o Not at all.
   o About once a month.
   o Two to three times a month.
   o Once or twice a week.
   o Three to four times a week.
   o Nearly every day.
   o Once a day or more.

16. Typically in a day, how many hours do you spend on social media sites?
   __ Hours __ Minutes

17. Typically in a week, how many hours do you spend on social media sites?
   __ Hours __ Minutes

18. Typically in a month, how many hours do you spend on social media sites?
   __ Hours __ Minutes

19. Thinking of how many hours, you typically spend on social media in a day (total must sum to 100. What percentage of those hours would you say you spend on:
   (19a) Facebook daily?
   (19b) Instagram daily?
   (19c) Twitter daily?
   (19d) Snapchat daily?
   (19e) A dating app (e.g., Tinder, Bumble, etc.) daily?
   (19f) Tik Tok daily?
   (19g) Other (please specify)?
   (19h) I do not use social media (enter 100 here)?

20. Have you ever been diagnosed with COVID-19?
   o No
   o Yes

21. Are you presently diagnosed with COVID-19?
   o No
   o Yes

22. Have you suspected that you might have COVID-19?
   o No
23. Have you or your loved ones been diagnosed with COVID-19 or suspected they have it?
   o No
   o Yes

24. Do you know of anyone in the city you reside in who has been confirmed to have COVID-19?
   o No
   o Yes

25. What best describes the impact that the COVID-19 pandemic has had on your eating habits?
   o Extremely positive
   o Moderately positive
   o Slightly positive
   o Neither positive nor negative
   o Slightly negative
   o Moderately negative
   o Extremely negative

26. What best describes the impact that the COVID-19 pandemic has had on your exercise routine?
   o Extremely positive
   o Moderately positive
   o Slightly positive
   o Neither positive nor negative
   o Slightly negative
   o Moderately negative
   o Extremely negative

27. What best describes the impact that the COVID-19 pandemic has had on your weight?
   o Extremely positive
   o Moderately positive
   o Slightly positive
   o Neither positive nor negative
   o Slightly negative
   o Moderately negative
   o Extremely negative
Appendix B: Body Image Acceptance and Action Questionnaire

Below you will find a list of statements. Please rate the truth of each statement as it applies to you. Use the following rating scale to make your choices. For instance, if you believe a statement is ‘Always True,’ you would select 7 for that statement.

1. Worrying about my weight makes it difficult for me to live a life that I value.
2. I care too much about my weight and body shape.
3. I shut down when I feel bad about my body shape or weight.
4. My thoughts and feelings about my body weight and shape must change before I can take important steps in my life.
5. Worrying about my body takes up too much of my time.
6. If I start to feel fat, I try to think about something else.
7. Before I can make any serious plans, I have to feel better about my body.
8. I will have better control over my life if I can control my negative thoughts about my body.
9. To control my life, I need to control my weight.
11. When I start thinking about the size and shape of my body, it’s hard to do anything else.

My relationship would be better if my body weight and/or shape did not bother me.
Appendix C: Exercise Motivation Inventory

Each item is scored on a 6-point Likert scale ranging from 0 (Not at all true for me) to 5 (Very true to me). Higher scores indicate greater motivation to exercise.

Personally, I exercise (or might exercise) …

Subscale 1: Health-based motivation
1. To have a healthy body
2. Because I want to maintain good health
3. To feel more healthy

Subscale 2: Appearance-based motivation
1. To help me look younger
2. To have a good body
3. To improve my appearance
4. To look more attractive
Appendix D: Body dissatisfaction and Negative Mood

C.1 Body Dissatisfaction VAS

Each item is rated on a scale of 1 (Not at all) to 100 (Extremely). Items are averaged and lower scores indicate greater body dissatisfaction.

1. I am satisfied with my weight.
2. I am satisfied with my overall appearance.
3. I am satisfied with my body shape.

C.2 Negative Mood VAS

Each item is rated on a scale of 1 (Not at all) to 100 (Extremely). Positive mood items are reversed coded. Items are averaged and higher scores indicate greater negative mood.

1. How anxious do you feel right now?
2. How depressed do you feel right now?
3. How confident do you feel right now?
4. How happy do you feel right now?
Appendix E: Stimuli

E.1 Men Fitspiration Content
E.2 Women Fitspiration Content
E.3 Control Content
E.4 Partial Fitspiration Content for Men
E.5 Partial Fitspiration Content for Women
VITA

Roberto Sagaribay III was born in El Paso, Texas. He earned his Bachelor of Arts Degree in Psychology from Our Lady of the Lake University in 2017. He was accepted into the Health Psychology Doctoral program at UTEP in 2018 where he worked under the supervision of Theodore V. Cooper. While pursuing his master’s degree, Mr. Sagaribay has published his research in Appetite and Obesity Research and Clinical Practice journals. He also worked for the Psychology department as a Teaching Assistant and for Paso del Norte’s Empower Change program as a Graduate Research Assistant. Additionally, in 2022, he worked as an intern for Family Service of El Paso delivering mental health services to individuals and families. He received his master’s degree in Psychology in 2022.