DO YOU EVEN LIFT? AN EXPERIMENTAL STUDY OF #FITSPIRATION MESSAGES AND THEIR EFFECTS ON CORRELATES OF EXERCISE BEHAVIOR PER SOCIAL COGNITIVE THEORY

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ABSTRACT

Fitspiration (also known as fitspo) is a popular online trend particularly on Instagram and is often credited for the rapid growth of contemporary fitness culture and the fitness industry in general. This dissertation evaluates the central thesis that fitspiration messages may have utility in health promotion by influencing muscle-strengthening exercise behavior among viewers and that this influence can be explained, in part, through the application of social cognitive theory's (SCT) framework for health behaviors. These potential effects were examined among a population of emerging adults (i.e., 18 – 25 years of age) in the context of (1) encouraging the adoption of muscle-strengthening exercise behavior among individuals who have never performed such exercises before and (2) increasing and/or sustaining adherence among those who have but may not be doing so regularly.

Using a 2 x 2 between-subjects experiment involving 315 undergraduate students at Purdue University, this study was guided by two research aims. Research Aim 1 was to further understand the mechanisms through which fitspiration messages could influence exercise behavior by examining the structural paths of influence between core constructs within the SCT framework. Research Aim 2 sought to examine the effects of specific fitspiration message features on the SCT determinants of exercise behavior.

This study extends SCT in several ways. First, this study provides support for conceptualizing self-efficacy as a multidimensional construct and that different types of self-efficacy influence exercise behavior differently. Second, the findings in this study assessed the mediational pathways within the SCT framework when conceptualizing self-efficacy and outcome expectations multidimensionally.

Although the manipulations in this study did not produce significant findings in terms of the effects of fitspiration message features, the findings do suggest that these effects occur in subtle ways that warrant further examination in future studies.

CHAPTER 1. INTRODUCTION

Muscle-strengthening exercises, also called strength or weight or resistance training, are an important yet often overlooked component of general health and wellness. Muscle-strengthening exercises are defined as exercises that involve "the voluntary activation of specific skeletal muscles against some form of external resistance, which is provided by body mass, free weights (barbells and dumbbells), or a variety of modalities (machines, springs, elastic bands, manual resistance, etc.)" (Winett & Carpinelli, 2001, p. 503). While this class of exercises was commonly associated with bodybuilders and athletes focused on increasing muscle mass for either aesthetics or athletic performance, there is a growing body of evidence that suggests such exercises are beneficial for the typical person as well (Westcott, 2012).

Among the many benefits of muscle-strengthening exercises beyond increasing muscle strength and size include the reduction of abdominal fat, improved cardiovascular health, improvements in blood sugar regulation, reduced risk of cancer, reduced risk of injury especially among the elderly, improved flexibility and mobility, reduced likelihood of osteoporosis by increasing bone density, delaying of age-related cognitive decline, and improving symptoms of depression and anxiety (Fetters, 2018). The importance of such exercises is further evidenced by physical activity guidelines published by the U.S. Department of Health and Human Services (2018) recommending that adults perform "muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups on 2 or more days a week…" (p. 8).

Research on the merits of muscle-strengthening exercises continues to be published by scientists and their findings disseminated by popular media sources, bloggers, as well as health and fitness influencers on a variety of Internet platforms. Despite the wide availability and ease of access to this information, adherence to the aforementioned recommendations remains low. A

study of 1.7 million U.S. adults using pooled data from 2011 to 2017 showed that less than 10% of adults adhered to muscle-strengthening exercise recommendations (Bennie et al., 2020). Taken together, this suggests that low rates of adherence are due to a lack of motivation rather than lack of awareness (Kamerow, 2015).

As someone who is convinced about the importance of muscle-strengthening exercises and performs them regularly, I have been interested in the question of "How can people be influenced to lift weights?" for years. This interest perhaps originated from my short stint moonlighting as a personal trainer at a commercial gym over a decade ago where I was tasked with convincing clients that they needed to incorporate and practice resistance training in addition to more commonly accepted forms of exercise like running or cycling.

Circa 2015, I noticed an emerging genre of content on the image-sharing online social networking app Instagram that focused on showcasing the results of users who were in the process of transforming their physiques by emphasizing regular muscle-strengthening exercises. Admittedly, I was browsing these posts searching for inspiration to pursue my own fitness goals. While scrolling through the comments on these posts, I observed a significant amount of anecdotal evidence suggesting that these posts were a source of inspiration, motivation, and information to followers. This emerging genre of content came to be known as fitspiration (or fitspo). Today, fitspiration has become a bona fide Internet fitness phenomenon, albeit an intensely contested one, with over 72 million posts on Instagram using the hashtag "#fitspo" (from an Instagram search at the time of writing).

This introductory chapter provides an overview of fitspiration by first defining the term followed by a brief overview of social cognitive theory and its relevance to this project. A preview

of the current study is then provided by detailing its main aims. This chapter is then concluded with a brief overview of the subsequent chapters in this dissertation.

Fitspiration

Fitspiration, a combination of the words 'fitness' and 'inspiration,' refers to both an Internet trend prevalent on social networking apps, particularly on Instagram, that shows images and short videos of individuals engaging in fitness-related behaviors with the presumed intent of encouraging others to adopt a fit and active lifestyle (Abena, 2013; Hausenblas, 2015; Tiggemann & Zaccardo, 2018). The emphasis of fitspiration content is the pursuit of fitness and physique-related goals through a combination of muscle-strengthening exercises and dietary practices (e.g., calorie tracking, intermittent fasting, keto-diet).

Fitspiration started as an Internet trend but has propelled the fitness industry into a booming $100 billion-dollar global industry enabling personal trainers, health and fitness influences, and amateur bodybuilders alike to connect with clients, customers, fans, and fitness enthusiasts from around the world (Leskin, 2019). For example, fitness influencers Michelle Lewin, Jen Selter, and Kayla Itsines each boast over 12 million followers on Instagram and promote their own paid fitness programs which followers can subscribe to (e.g., Kayla Itsines' Bikini Body Guide).

Fitspiration posts appear in the form of images, mostly featuring just one person, of both men and women who have low levels of adiposity and high levels of muscularity either posing for the camera (e.g., flexing biceps, showing abdominal muscles, posing in a sexy manner by arching the back to accentuate the glutes) or engaging in some form of exercise (Tiggemann & Zaccardo, 2018). Although, lately there does seem to be a proliferation of short fitspiration videos as well. These posts also include captions below the images that usually fall within one of the following themes: inspirational captions (fitness-related and non-fitness-related); captions that can be

construed as encouraging excessive attitudes toward body, diet, or exercise; and others such as jokes, commentaries of exercises, and promotional messages (Tiggemann & Zaccardo, 2018).

Research on fitspiration is still in its early stages with studies specifically examining the phenomenon only appearing in press since 2015. However, this body of research has been rapidly developing since the conception of this dissertation. By and large, the available research has approached fitspiration from a critical perspective, focusing on the trend's unintended consequences such as its impacts on body image, body satisfaction, self-esteem, eating disorders, compulsive exercising, self-objectification, and sexual attitudes, with studies focusing almost exclusively on women (e.g., Bell et al., 2019; Chansiri et al., 2020; Holland & Tiggemann, 2017; Rothwell & Desmond, 2018; Tiggemann & Zaccardo, 2015).

The focus on fitspiration's unintended consequences is not unfounded. As a media trend, it has been closely associated with a preceding trend found on mass media sources such as magazines called thinspiration (also known as "pro-ana") which promoted thin ideals among women and advocated for unhealthy and sometimes extreme weight-loss practices (Borzekowski et al., 2010). The negative effects of thinspiration on eating disorders and psychopathology are indeed concerning and have been well documented (e.g., Bardone-Cone & Cass, 2007; Griffiths et al., 2018; Jett et al., 2010). However, content analysis on fitspiration posts have suggested that while fitspiration content may share some similarities with thinspiration in terms of message features (e.g., advocating low levels of adiposity), they also are different; fitspiration does appear to have the potential to motivate viewers to engage in fitness-related pursuits (Tiggemann & Zaccardo, 2015).

In light of this evidence, the current study aims to offer a complimentary perspective to the growing body of research on fitspiration by examining its effects from a health behavior promotion

perspective. This dissertation examines the potential utility of fitspiration messages in promoting physical activity/exercise among emerging adults (i.e., 18 – 25 years of age). This population was selected for three reasons: (1) exercise behavior tends to decline during young adulthood (Caspersen et al., 2000), hence justifying the focus of exercise promotion efforts on this population, (2) emerging adults are the main consumers of Instagram content (Sehl, 2021), and (3) available studies on fitspiration mainly examine its effects on college-aged individuals (e.g., Chansiri et al., 2020; Davies et al., 2020; Prichard et al., 2020; Robinson et al., 2017; Tiggemann & Zaccardo, 2015).

More specifically, this dissertation explores the utility of fitspiration (globally and in terms of its specific message features) both in terms of (a) encouraging the adoption of muscle-strengthening exercise behavior among emerging adults who have never performed such exercises before and (b) motivating increased/sustained adherence among those who have in the past but may not be doing so regularly.

Social Cognitive Theory

Being situated at the intersections of health communication, media effects studies, and exercise psychology, this study called for a theoretical framework with broad applicability that could guide a comprehensive examination of fitspiration content and its potential to promote health behaviors (i.e., muscle-strengthening exercise). To that end, Bandura's (1986) social cognitive theory (SCT) was selected due to it being one of the most popular and influential theories used in exercise psychology, media effects studies, and web-delivered health behavior change interventions (Beauchamp et al., 2019; Biddle & Fuchs, 2009; Lustria et al., 2013; Pajares et al., 2009).

Briefly, Bandura (1986) explained that human thought and behavior are products of the reciprocal relationships between the behavior itself, personal factors (e.g., cognitions, emotions), and environmental factors (e.g., media exposure, social influence), a concept he refers to as triadic reciprocal causation (Bandura, 1989). SCT also describes several processes and constructs that are highly relevant to this study including social modeling, perceived self-efficacy, outcome expectations, and goals (Bandura, 2003, 2004).

As a process, social modeling refers to a form of observational learning where a subject learns from the examples of others in their observable environment (Bandura, 2016). Self-efficacy, explained as a person's belief in their capabilities to perform given behaviors, is positioned as the focal determinant of behavior within the SCT framework (Bandura, 2004). It has also been consistently shown to be a reliable predictor of physical activity/exercise (Bauman et al., 2012; Young et al., 2014). Outcome expectations about the expected costs and benefits of the behavior, and goals of the individual to perform the behavior also are cited as core determinants of behavior (Bandura, 2004).

Studies using the SCT framework in the physical activity/exercise domain have often focused on self-efficacy as the focal predictor of behavior, with some concurrently taking into account the roles of outcome expectations and goals as well (Beauchamp et al., 2019; Young et al., 2014). From the lenses of SCT, it can then be surmised that any potential effect of fitspiration content as an environmental stimulus on behavior would generally occur through the process of social modeling (i.e., observing the behaviors of others on Instagram), wherein fitspiration message features (e.g., action portrayed by model, caption type) would influence viewers' perceived self-efficacy, outcome expectations, and goals, thus resulting in the adoption of muscle-strengthening exercise behavior.

Overview of the Current Study

The overarching goal of this dissertation is to examine the mechanism/s through which fitspiration potentially influences muscle-strengthening exercise behavior from the perspective of SCT. To this end, this study is driven by two main research aims.

First, this study aims to examine how self-efficacy, outcome expectations, and goals interrelate to influence muscle-strengthening exercise behavior. Understanding these interrelations is integral considering that the current study positions them as potential targets of fitspiration's influence. Furthermore, this follows recommendations from scholars in the physical activity/exercise domain to consider other SCT constructs as theorized by Bandura (2004) concurrently with self-efficacy with the goal of further refining the theory's principles and its overall applicability (Beauchamp et al., 2019; McAuley & Blissmer, 2000; Young et al., 2014;).

Second, this study aims to examine the specific ways fitspiration message features could potentially influence SCT targets. In particular, the effects of the portrayed action in the image and type of caption included with the post on self-efficacy and outcome expectations. Without discounting the documented negative effects of exposure to fitspiration content, the reality is that there are over 422 million Instagram posts using the hashtag "#fitness" (as of November 11, 2020, 16:54 EST) with millions of users following accounts solely dedicated to fitspiration content. Two questions then arise: (1) What is it specifically about fitspiration posts that motivates or inspires viewers to pursue fitness-related goals? (2) Under what conditions would fitspiration have positive effects on viewers as opposed to negative? This second research aim seeks to provide some empirical answers to these questions with the larger goal of developing a line of inquiry that investigates the utility of such content in physical activity/exercise promotion.

Overview of Subsequent Chapters

The following chapters in this dissertation discuss the rationale and framework of this study with more depth, the methods used to achieve the research aims, and the results of the study. Chapter 2 presents a literature review of research on fitspiration, the SCT framework and its core determinants in the physical activity/exercise context, as well as lays out an argument for using this theoretical framework to guide this study and to develop hypotheses. Chapter 3 describes the research design, procedures, and measures used in the study. Chapter 4 describes the analyses conducted and presents the results of the study. Chapter 5 discusses the patterns emerging from the results and their implications, limitations of the study, and directions for future research based on the findings of this project.

CHAPTER 2. REVIEW OF LITERATURE

This chapter presents a review of the literature as they relate to this dissertation. Specifically, research on fitspiration is reviewed before presenting the literature on social cognitive theory. The chapter concludes by stating the objective, research aims, hypotheses and research questions of this dissertation.

Fitspiration

Origin and Definition

As an online social media trend, the origin of fitspiration (abbreviated as "fitspo") is rather obscure. As a term, however, fitspiration began to appear in online spaces as early as 2011. One of its earliest mentions on the Web was as an entry tagged as being a "top definition" in the crowdsourced online dictionary Urban Dictionary which defined fitspo as "Images of active, strong, and fit women that promote proper exercise and diet" (omg-theykilledrory.tumblr, 2011).

Online discourse on fitspiration started appearing circa 2012 with several mainstream online media sources and independent bloggers publishing articles and blog entries about the phenomenon. Most of these outlets catered primarily to women and provided content related to health and fitness. In an article on Glamour.com, the Founding Director of the UNC Center of Excellence for Eating Disorders, Dr. Cynthia Bulik (as cited in Barnes, 2012), was quoted saying that "Fitspo refers to images and words that women post with the purpose of inspiring themselves and others to live a fit, active life" (para. 1). Similarly, an article on Health.com described fitspiration as social media content that "depicts women pumping iron, sprinting up staircases, and boot-camping their way to ripped shoulder muscles, shredded quads, and six pack abs" (Neporent,

2012, para. 8). These early definitions of fitspiration share a common theme: they conceptualize fitspiration as online content that promotes a fit and active lifestyle among women.

As the trend evolved, so did its definition, albeit slightly. For example, an article in LiberoMagazine.com reads "Fitspiration is any message (usually in the form of an image with a quote included) that encourages one to 'persevere' or 'push', or even 'suffer' through exercise for the sake of achieving change in one's physical appearance" (Bersaglio, 2012, para. 2). Dahl (2013) in an article on Today.com described fitspiration as "images and slogans meant to inspire people to meet their fitness goals…" (Dahl, 2013, para. 2). Additionally, one of the earliest academic definitions of fitspiration was "media that aim(s) to inspire people to live healthy and fit lifestyles through motivating images and text related to exercise and diet" (Boepple, et al. 2016). As it can be seen here, although fitspiration may have initially been observed to be a trend only among women, it soon became apparent that this conclusion was premature.

Studies of fitspiration are beginning to find that while many of these images were indeed of women, there was significant male representation in these messages as well (Carrotte et al., 2017; Deighton-Smith & Bell, 2018; Santarossa et al., 2019; Tiggemann & Zaccardo, 2018). As more about fitspiration is becoming known, scholars have comprehensively defined the term as content on online social networking sites, particularly Instagram, that "promotes health and well-being through the promotion of healthy eating, exercise, and self-care, and the overall philosophy is one which emphasizes strength and empowerment. In particular, fitspiration promotes health and fitness, rather than thinness and weight loss" (Tiggemann & Zaccardo, 2018, p. 1004).

Drawing from these definitions, the current project then conceptually defines fitspiration as an online social media phenomenon characterized by the dissemination of user-generated messages on social networking apps, particularly image-sharing apps like Instagram, consisting of

both images and texts that emphasize the pursuit of fitness goals primarily through muscle-strengthening exercises and dietary practices.

Message Forms and Features

Several themes can be observed from the aforementioned definitions in attempting to infer the typical features of fitspiration messages in online spaces. First, they are most commonly found on online social networking apps such as Instagram, although to a lesser extent, such content can also be found on websites such as blogs and commercial websites (e.g., online magazines). Second, fitspiration messages typically consist of both visual and textual elements. Third, they promote high intensity physical activity with an emphasis on strength and muscle development. Fourth, another emphasis of fitspiration content, albeit a secondary one, is dieting practices. Fifth, it seems to be the case that fitspiration positions aesthetics as an important goal. Sixth, there also seems to be an emphasis on strength and empowerment in these messages.

A review of 10 content analysis studies specifically examining fitspiration messages provides empirical evidence to validate and clarify the themes inferred above. First, most studies show that fitspiration content is indeed most prevalent on image-based social networking sites especially on Instagram but also including Pinterest, Facebook, Tumblr, and Twitter (Alberga et al., 2018; Carrotte et al., 2017; Deighton-Smith & Bell, 2018; Murashka et al., 2020; Santarossa et al., 2019; Simpson & Mazzeo, 2017; Talbot et al., 2017; Tiggemann & Zaccardo, 2018). Additionally, some studies have found that they appear elsewhere on the Web as well such as on blogs, commercial websites (e.g., online magazines), and YouTube (Boepple et al., 2016; Jong & Drummond, 2016).

Second, it is clear that fitspiration messages prototypically contain both visual (i.e., images) and textual (i.e., caption/quotation) components as evidenced by the fact that almost all of the

content analyses reviewed here analyzed both the images and the captions in fitspiration messages. On the visual component of fitspiration messages, findings from these studies show that the majority of images were of people and that they were mostly of young adult White women who had thin and athletic/toned physiques, although there was a significant proportion of males in these images as well (Alberga et al., 2018; Boepple et al., 2016; Carrotte et al., 2017; Deighton-Smith & Bell, 2018; Santarossa et al., 2019; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018). Most of the images would be of just one person (Tiggemann & Zaccardo, 2018). In these images, the individual (i.e., model) would typically be posing (e.g., posing in sexually suggestive ways like arching the lower back to accentuate the buttocks, revealing and flexing body parts such as biceps or abdominal muscles) or engaging in some form of exercise (Carrotte et al., 2017; Deighton-Smith & Bell, 2018; Santarossa et al., 2019; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018;). Either way, most of the images were fitness related (Tiggemann & Zaccardo, 2018).

Models in fitspiration images were also commonly clad in fitness apparel (e.g., leggings and sports bra for women, stringer tank-top and gym shorts for men) and sometimes wore sexualized clothing (Deighton-Smith & Bell, 2018). To a much lesser extent, some fitspiration messages also contained images of food, nutritional supplements (e.g., protein shakes), and promotional images such as of brands and products (Carrotte et al., 2017). On images found in fitspiration messaging, Tiggemann and Zaccardo (2018) also note that what sets these images apart from similar messages in mass media sources such as magazines and television ads is the fact that fitspiration images are generated and disseminated largely by "ordinary individuals" as opposed to by commercial interests (p. 1009).

Of the 10 content analyses reviewed here, two studies stand out in particular with regards to the emphasis placed on exploring the textual component of fitspiration messages. First,

Santarossa et al. (2019) used the online text and social network analysis software Netlytic (Gruzd, 2016) to analyze captions from 10,000 Instagram posts tagged with the hashtag "#fitspo" which resulted in 229,525 unique words. Santarossa and colleagues found that the largest category of these words or phrases (54%) were associated with positive affect; the second largest category of the words analyzed (12%) were associated with appearance. Based on these findings, the authors inferred that people participating in the dissemination of fitspiration messages appear to do so with the intent of motivating others to pursue their fitness goals.

Second, Deighton-Smith and Bell (2016) conducted a thematic analysis of the captions harvested from 392 Instagram posts tagged with "#fitspiration" which resulted in the discovery of six main themes. The first theme consisted of messages that promote the idea that fitness equates attractiveness and sex appeal (e.g., "Fit people have better sex"; p. 475). The second theme emphasizes the commitment and discipline required to attain a fit physique (e.g., "A one hour workout is 4% of your day. No excuses"; p. 475). The third theme concerns the idea of fitness as a function of personal agency and the importance of making the right choices in the pursuit of fitness goals (e.g., "It takes 524 burpees to burn off 1 large fries. Burpees suck. Choose wisely"; p. 475). The fourth theme consists of what Tiggemann and Zaccardo (2018) refer to as "dysfunctional quotations" (p. 1006) and promote extreme behaviors and attitudes toward fitness (e.g., "Unless you puke, faint, or die, keep going"; p. 476). The fifth theme frames the pursuit for health and fitness as an internal battle (e.g., "Take on your greatest rival, yourself"; p. 476). The last theme consisted of quotations that fosters an in-group versus out-group mindset among members of the fitness community (e.g., "Sometimes the people around you won't understand your journey. They don't need to, it's not for them"; p. 477). Findings from this study show that

the communicated content in the captions of fitspiration messages, although similar in that they are rooted in fitness, is rather complex.

In addition to the aforementioned studies, the content analysis by Murashka et al. (2020) provides information on yet another facet of the text-based content on fitspiration by identifying topic clusters in user comments on Instagram fitspiration posts. By extracting over 35,000 comments from 1,000 fitspiration posts, Murashka and colleagues identified three main topic clusters. The largest cluster was fitness inspiration, followed by body-related discussions, and image-related discussions. Based on their findings, the authors concluded that "individuals not only felt inspired but also shared their feelings of inspiration in their comments" (Murashka et al., 2020, p. 9). These findings provide evidence to support the idea that fitspiration could have utility in terms of motivating individuals to pursue healthier habits related to physical activity.

These content analyses also provide us with a tentative understanding of the overall theme/s being communicated in fitspiration messages as interpreted by the researchers. However, in reviewing these findings, it is important to note that the focus of most of these studies concern the effects of exposure to fitspiration content on body image-related concerns, objectification and sexualization (of self and others), and perceptions of current body ideals (both masculine and feminine). For example, Boepple et al. (2016), stated that a limitation of their study was that they focused specifically on content they suspected to be similar to thinspiration (i.e., a media trend that promotes a thin ideal among women by encouraging extreme weight loss behaviors), thus neglecting to examine a "broad range of possible thematic content on these sites" (p. 135).

Some studies observed that fitspiration positions appearance-related reasons as the primary motivator for exercising and dieting. Specifically, fitspiration promotes these behaviors as means to achieve a thin and athletic appearance for women and a muscular appearance for men (Alberga

et al., 2018; Boepple et al., 2016; Carrotte et al., 2017; Deighton-Smith & Bell, 2016; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018). A subset of fitspiration messages has also been found to stigmatize excess weight and promote the idea that being healthy equates to having a thin and athletic body, while also conflating the concept of beauty with physical fitness (Alberga et al., 2018; Boepple et al., 2016; Carrotte et al., 2017; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018).

On the other hand, other studies have found that fitspiration content may indeed be a source of inspiration to many. For example, Simpson and Mazzeo (2017) opined that despite its aforementioned potential negative effects, exposure to fitspiration content "might motivate at-risk individuals to increase physical activity levels" (p. 565). This notion is also echoed by findings suggesting that fitspiration content may have the potential to motivate viewers to pursue healthier habits involving physical activity and dietary intake (Santarossa et al., 2019; Tiggemann and Zaccardo, 2018;).

Message Effects: Pros and Cons

The past five years has seen a proliferation of published research on the effects of exposure to fitspiration content on a variety of outcomes with there being evidence for both its positive as well as negative effects. This section reviews these studies and highlights their main findings. Findings from studies reviewed in this section are categorized and presented in three groups: (1) qualitative findings; (2) cross-sectional or correlational findings; and (3) experimental findings.

Qualitative findings. The findings presented in this section focused on the exploration of fitspiration as perceived by viewers. These studies used a combination of netnography (i.e., online ethnography), focus groups, and interviews. Additionally, this part of the review will also include qualitative analysis of open-ended questions from cross-sectional or correlational studies.

With the exception of the study conducted by Bell et al. (2016), participants in these studies were mostly young adult women who self-identified as members or subscribers to online fitness culture and were regular consumers of fitspiration content.

First, these studies provide evidence suggesting that fitspiration content is an accessible and convenient source of fitness and health information. Based on their netnography of fitspiration on social networking sites and 22 semi-structured interviews with college-aged women in Australia, Jong and Drummond (2016) found that participants liked having access to the fitness and health information (e.g., exercise technique, nutritional tips) available in fitspiration content (i.e., in the posts themselves or in the comments to those posts); fitspiration provided participants with the knowledge to exercise from the comfort of their own homes based on the exercise routines and recommendations provided. This ease of access to such information allowed viewers to overcome common barriers to engaging in regular exercise such as the need to pay for gym memberships or personal trainers (Raggatt et al., 2018). Viewers also felt that most of the information on fitspiration content was more relatable and more easily applicable to their lives because they were posted by other individual users instead of commercial content posted by celebrities or models (Raggatt, et al., 2018). Additionally, Easton et al. (2018) in their focus groups and interviews with 20 young adults in the United Kingdom found that this convenient access to fitness and health information was one of the main factors motivating participants to engage with or continue to engage with fitspiration content.

Second, these studies found evidence suggesting that fitspiration content may indeed inspire or motivate viewers to exercise and pursue healthier lifestyle habits, thus confirming findings from content analyses (see Santarossa et al., 2019; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018). This perceived effect was found to be achieved through several means. For

example, many of the quotes in fitspiration messages promoted personal agency by pushing the idea that individuals ultimately have control over their own bodies, hence encouraging them to take responsibility for the way their bodies look (Jong & Drummond, 2016). This is consistent with Tiggemann and Zaccardo's (2018) description of fitspiration as a trend that emphasizes strength and empowerment. Additionally, comments from viewers show that fitspiration provides them with the sense that the promoted fitness and appearance goals are attainable through determination, discipline, and hard work (Raggatt et al., 2018).

Another way fitspiration content motivates or inspires viewers to exercise and regulate their dietary intake is through participation in the online fitness community. It was shown that the social connections and interactions available on the fitspiration community not only provide viewers social support to pursue their fitness goals, but also created within them a sense of accountability to remain consistent with their efforts (Raggatt et al., 2018). This makes sense since there is evidence to suggest that social support is a correlate of physical activity (Bauman et al., 2012).

Conversely, these qualitative findings also shed light on some problematic effects of fitspiration content. These studies generally show that fitspiration content does seem to position appearance-based reasons as a main motivator for engaging in the promoted behaviors, which validates findings from the reviewed content analysis studies. Findings suggest that viewers are often motivated to engage with fitspiration content by their desire to improve their appearance with some expressing aspirations to achieve the potentially unrealistic body ideals depicted in these posts (Raggatt et al., 2018). Additionally, Bell et al. (2016) found that fitspiration messages were perceived to promote the idea that having a physique like what is depicted in these messages (i.e., thin and muscular) increases one's attractiveness. This emphasis on appearance was also found to

contribute to viewers' negative feelings about their own bodies, feelings of inadequacy, guilt about not adhering to the promoted lifestyle, and jealousy, among both male and female viewers (Easton et al., 2018; Raggatt et al., 2018).

There is also evidence to suggest that viewers of fitspiration content tend to conflate having an ideal physique as depicted in the posts with optimal health (Jong & Drummond, 2016; Raggatt et al., 2018). That is, the idea that only thin and toned physiques equate to healthiness is reinforced. This is argued to be problematic because it results in an ingroup-outgroup dichotomy where adherents of fitspiration view individuals not complying with these socially constructed ideals of health as not being responsible members of society by not taking care of their health, which then leads to a form of "health fascism" wherein members of the online fitness culture take it upon themselves to monitor and regulate the behaviors of others (Jong & Drummond, 2016, p. 763).

Cross-sectional and correlational findings. Unlike the exploratory research findings reviewed in the previous section, these studies were more targeted in that they were chiefly concerned with determining the association between exposure to fitspiration content and a variety of body image-related consequences. For example, a survey of 276 college-aged women from the United States and Australia found that "viewing more fitspiration images was associated with higher body dissatisfaction and a greater drive for thinness among young women but was not associated with self-objectification" despite overall Instagram usage (i.e., across all types of content) being positively associated with self-objectification (Fardouly et al., 2018, p. 1390). This study is particularly interesting given criticism that positions Instagram as an inherently self-objectifying social media platform due to its overall emphasis on physical appearance.

Next, a study of 118 college-aged male Instagram users in Australia found that frequency of viewing fitspiration content on Instagram was not directly correlated with body satisfaction or

exercise motivation (i.e., health or appearance) among men but was positively correlated with internalization of muscular ideals and appearance comparison tendencies (Fatt et al., 2019). However, further mediation analysis revealed several interesting findings. First, fitspiration viewing frequency had significant indirect effects on both health-based exercise motivation (+) and body satisfaction (-) that were serially mediated by internalization of muscular ideals and appearance comparison tendency. Second, fitspiration viewing frequency also had an indirect effect on appearance-based exercise motivation through internalization of muscular ideals. Findings from this study highlight the complex nature of fitspiration's effects on viewers (i.e., the multiple, sometimes contradictory, mediators), at least among men.

Experimental findings. Since the first experimental study on fitspiration was published in 2015, researchers have conducted experiments with the main aim of determining the potential consequences of exposure to fitspiration content on body image-related outcomes. For instance, most experimental findings have consistently shown that acute exposure to researcher-generated fitspiration content resulted in higher levels of body dissatisfaction, higher self-objectification, greater state appearance comparison, and greater negative moods among college-aged women (Chansiri et al., 2020; Davies et al., 2020; Prichard et al., 2020; Robinson et al., 2017; Tiggemann & Zaccardo, 2015).

Many of these studies developed their experimental fitspiration messages from Instagram accounts that were publicly available and had participants view these messages in laboratory settings via the use of iPads or other devices. The effect sizes in these studies ranged from small to medium (Chansiri et al., 2020; Davies et al., 2020; Robinson et al., 2017;) and medium to large (Prichard et al., 2020; Tiggemann & Zaccardo, 2015). However, not all experiments found such effects. For instance, Slater et al. (2017) used an experimental design close to that of Tiggemann

and Zaccardo (2015) and found that exposure to fitspiration did not significantly affect body image or mood among female undergraduate students.

In general, experimental studies on fitspiration employ between-subjects designs but with two main variations in terms of message manipulations. The most common method is by exposing participants to either generic fitspiration messages or non-fitspiration messages such as thinspiration messages or travel messages (e.g., Prichard et al., 2020; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). The second method, which has only recently been used, is by exposing participants to different variations of fitspiration messages. For example, Davies et al. (2020) exposed participants in one group to a series of fitspiration images coupled with body positive captions, while participants in another group were exposed to fitspiration images with neutral captions.

Although experimental studies on the effects of fitspiration on young women were most common, there are several studies that sought to determine if fitspiration affected men differently. The findings in this regard are far from conclusive. For instance, Yee et al. (2020) in their experiment involving 223 young adult men who were mostly Asian found that viewing fitspiration images increased muscularity dissatisfaction, body fat dissatisfaction, negative mood, and the urge to decrease body fat and increase muscularity. The effect sizes for these effects were large except for the effect of exposure to fitspiration on negative mood, which was small to medium. Conversely, Tiggemann and Anderberg (2020) concluded from their experimental study of 300 men aged between 18 and 30 that although men are "vulnerable to some types of social media imagery, results typically obtained for women cannot simply be generalized to men" after finding that men only experienced significantly higher body dissatisfaction when viewing fitspiration images of other men exposing their bare chests, but not when fully clothed.

Separately, there have been a few experimental efforts to examine the effects of exposure to fitspiration on exercise-related inspiration/motivation as well as actual exercise behavior. For example, Tiggemann and Zaccardo (2015) found that female undergraduates who viewed fitspiration images had higher levels of inspiration to improve their fitness (d = 1.38) and to eat healthily (d = 1.45) compared to those viewing travel images. Similarly, Robinson et al. (2017) found that fitspiration-type images that featured athletic and muscular physiques produced higher levels of inspiration and motivation to engage in fitness activities among young women compared to thinspiration-type images that featured thin ideals. However, Robinson et al., did not find this increased level of inspiration/motivation to translate to increases in actual exercise behavior. Prichard et al., (2020) also found no differences in the actual exercise behavior of young women who viewed either fitspiration or travel images.

Most studies included in this review were rooted in the frameworks of social comparison theory and self-objectification theory (e.g., Chansiri et al., 2020; Robinson et al., 2017; Tiggemann & Anderberg, 2020; Tiggemann & Zaccardo, 2015). The experimental study by Peng et al. (2019), on the other hand, attempted to integrate the core tenets of social comparison theory with some aspects of social cognitive theory (i.e., motivation and self-efficacy) to examine the effects of exposure to fitspiration images on the intentions to exercise among male Instagram users in Taiwan. While this study found some significant findings (e.g., upward social comparison with fitspiration models resulted in higher levels of motivation), the application of social cognitive theory (SCT) was loose at best as it only measured self-efficacy but not other core constructs such as outcome expectations (Young et al., 2014).

Finally, existing experimental studies have mostly focused on the visual aspect of fitspiration messages. The study by Davies et al. (2020) breaks away from this trend and examines

the effects of fitspiration captions in concert with images on the mood and body satisfaction of young adult women. Davies et al. found that while there were significant increases in negative mood and body dissatisfaction after viewing fitspiration images, these effects were not observed when the same images were paired with body positive captions. Findings from this study indicate that the captions accompanying fitspiration images do indeed play a role in the overall effects of fitspiration content, thus warranting further examination.

Gaps in the Literature and Rationale for Dissertation

This review revealed several trends that speak to the gaps in literature on fitspiration, thus setting up the rationale for this dissertation. First, most studies reviewed here examined fitspiration content with the primary aim of fleshing out its potentially detrimental effects on body image concerns, particularly among young women. This is evidenced by the fact that the majority of these studies were published in the journal Body Image. This focus, while an important one, neglects to address several questions: (1) Why does fitspiration as a trend command such a massive following (i.e., tens of millions of followers)? (2) Under what circumstances can fitspiration content produce positive effects among viewers as opposed to negative ones? Further, this emphasis on body image-related concerns has prompted researchers to base their treatment of fitspiration in the theoretical frameworks of self-objectification theory, social comparison theory, and sociocultural theory. This approach limits the extent to which the potential utility of fitspiration for health promotion purposes can be examined. Although theories like social comparison theory can be applied to health promotion, its application when involving exposure to messages in the media typically leans toward body image and self-esteem concerns.

Second, for reasons which are not clear, it certainly appears to be the case that research on fitspiration is conducted mostly outside of the United States (e.g., Australia, United Kingdom).

This in and of itself represents a gap considering that the United States has the highest number of Instagram users in the world with 140 million users as of October 2020 (Clement, 2020). Additionally, the United States health and fitness industry has seen consistent growth over the past ten years with 20 percent of American adults having a fitness club membership and spending an average of $155 per month on health and fitness (Midgley, 2018; My Protein as cited in Puhak, 2018).

Third, most studies published so far have examined fitspiration as being homogenous in terms of its message form. Based on the content analyses reviewed, it is clear that fitspiration exists in a variety of forms (e.g., images of models exercising or posing, different types of captions). With the exception of Davies et al. (2020), studies have yet to flesh out and examine the effects of fitspiration's various message features and their combinations as they exist in online spaces. Plainly put, researchers have yet to examine fitspiration from the perspective of message design.

Fourth and last, while some studies have shown that fitspiration has positive effects in terms of motivating viewers to engage in regular exercise and dietary regulation, we do not yet understand through what mechanisms through which this motivation occurs nor do we know what specific message features or variations are responsible for these effects.

To address the gaps highlighted above, the overarching goal of this dissertation is to examine fitspiration from a health promotion perspective by assessing its potential utility as a means to promote exercise behavior among viewers. Specifically, this dissertation adopts a communication perspective and examines how specific variations in fitspiration messaging (i.e., visual and textual) influence known correlates of exercise behavior.

Social Cognitive Theory and Exercise Behavior

Bandura's (1986, 2001a) social cognitive theory (SCT) is premised on the idea that people have the agency to develop regulatory mechanisms including intentionality, forethought, self-reactiveness and self-reflectiveness, that govern their own thoughts and behaviors. That is, people do not merely respond to stimuli in a deterministic manner. This agentic perspective proposes that people develop these regulatory mechanisms and form behaviors through what Bandura describes as the triadic reciprocation between personal factors (i.e., cognitive, affective, motivational), environmental factors (i.e., media, social norms, social influence), and behavioral factors (i.e., behavioral patterns). The reciprocal nature of these factors as theorized by Bandura suggests that while they influence one another, they do not necessarily determine each other.

Further, Bandura (2001b) emphasizes that these regulatory mechanisms are deeply rooted in social systems which means that they influence as well as are influenced by a network of vast sociocultural influences in the environment, including media influences. In order to navigate these environmental influences, people rely on their symbolizing capability to make sense of what they observe around them by transforming those observations into cognitive models and guides for future actions.

SCT is one of the most popular theoretical frameworks used to explain and predict exercise behavior (Beauchamp et al., 2019; Biddle & Fuchs, 2009). A meta-analysis of studies using SCT to predict physical activity found that SCT models explained 31% of the variance in physical activity when pooled across 55 models (Young et al., 2014). Although originally developed to explain the formation of self-regulatory capabilities among humans, SCT has been adapted and applied in many areas of study including exercise psychology, media effects studies, and web-

delivered health behavior change interventions (Bandura, 1986; Beauchamp et al., 2019; Biddle & Fuchs, 2009; Lustria et al., 2013; Pajares et al., 2009).

Social Modeling

A central component of SCT is the concept of social modeling. According to Bandura (2005), social modeling occurs when "people pattern their styles of thinking and behaving after the functional ones exemplified by others" (p. 11). This form of observational learning occurs not only from models in an individual's physical and social environment, but also models in the symbolic environment of the mass media (Bandura, 2001b). He further explained that the influence of social modeling occurs through four main ways:

> First, it instructs people in new ways of thinking and behaving. Second, it also affects motivation and self-regulation by conveying the functional value of modeled behavior. Seeing others gain desired outcomes by their actions creates outcome expectancies that serve as positive incentives...Third, people are easily aroused by the emotional experiences of others…Fourth, during the course of their daily lives, people have direct contact with only a small sector of the physical and social environment. Consequently, their conceptions of vast social reality (with much of which they have little or no contact) are greatly influenced by media representations of society…Influence via the media is the most pervasive type of influence and shapes public consciousness. (Bandura, 2016, p. 236).

In unpacking the social cognitive theory of mass communication, Bandura (2001b) also introduces the concept of social prompting and explains that the symbolic environment of mass media exposes individuals to the actions of others that "serve as social prompts for previously learned behavior that observers can perform but have not done so because of insufficient inducements, rather than because of restraints" (p. 282). For instance, seeing someone posting an image of themselves lifting weights on social media might prompt a former high school athlete to begin exercising again in college.

Social Cognitive Framework for Health Behavior

In the specific context of health behavior promotion, SCT specifies the core determinants of behavior as well as the mechanisms through which they work which provides targets for behavior-change interventions (Bandura, 2004; see Figure 1). The determinants are: (1) perceived self-efficacy, (2) outcome expectations, (3) sociocultural factors, and (4) goals. The clarity and parsimony in which these constructs are presented is one of SCT's most significant contributions (Beauchamp et al. 2019). The following section will describe perceived self-efficacy, outcome expectations, and goals. Although sociocultural factors are included in the model, they will not be discussed here because they are beyond the scope of this dissertation.

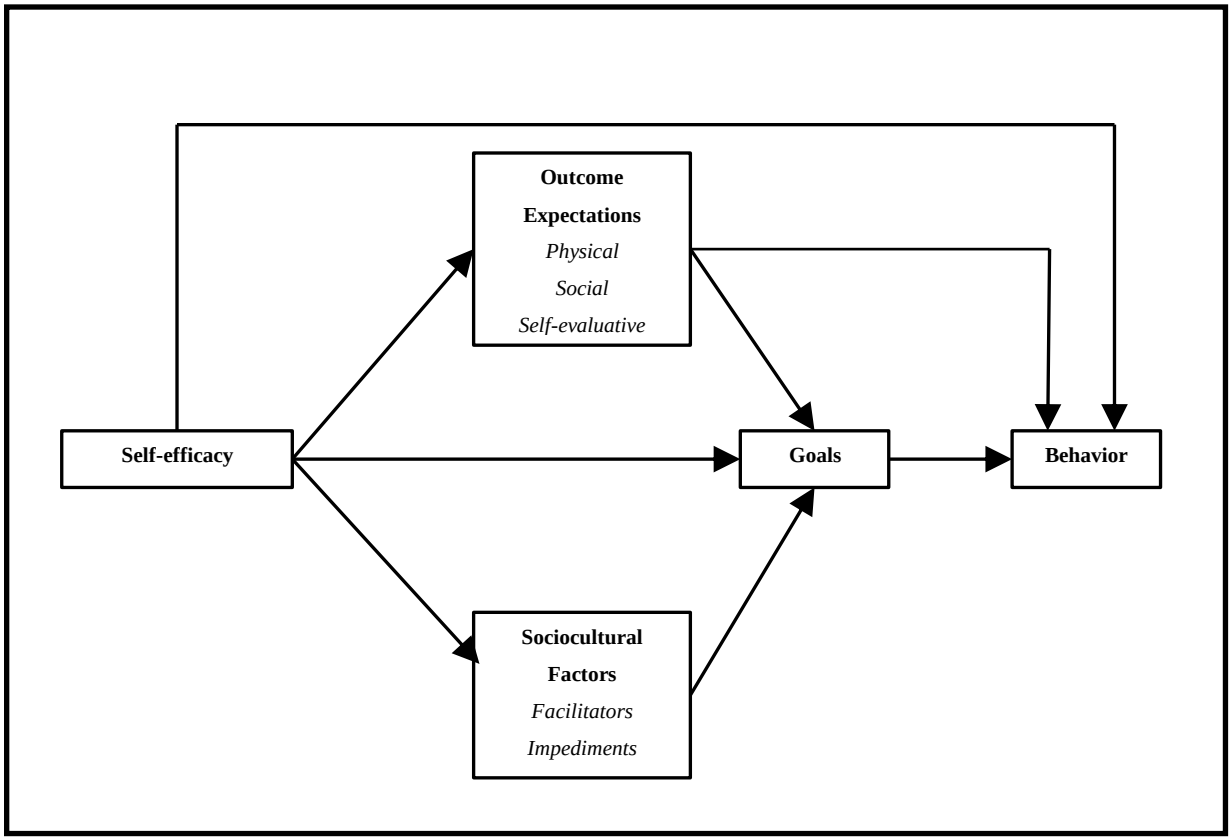


Figure 1. Structural paths of influence between SCT determinants of health behavior.

Note. From Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior, 31*(2), 143-164. Copyright 2004 by SAGE Publications.

Self-efficacy

Consistent with SCT's emphasis on human agency, Bandura (2004) explains that perceived self-efficacy "is the foundation of human motivation and action" (p. 144) and is the precursor for behavior change. Defined as one's beliefs in their abilities to perform a behavior and achieve the associated results, perceived self-efficacy is positioned as the focal determinant within the SCT framework and is theorized to affect behavior directly and indirectly through its influence on other core determinants as illustrated in Figure 1 (Bandura, 1998, 2004). For example, a person with high levels of perceived self-efficacy is more likely to have positive views of the outcomes associated with a behavior compared with someone who has low self-efficacy, which affects the likelihood of them performing the behavior. The basic premise of self-efficacy in the SCT framework is that people are more likely to perform behaviors they believe they will be successful.

Self-efficacy is well documented to be a strong and consistent predictor of physical activity and exercise behavior (Bauman et al., 2012; McAuley & Blissmer, 2000; Plotnikoff et al., 2013; Sherwood & Jeffery, 2000; Young et al., 2014). There is also evidence of the same among college students (Marr & Wilcox, 2015; Pauline, 2013; Rovniak et al., 2002; Von Ah et al., 2004). This evidence suggests that efforts to promote physical activity or exercise behavior would be likely to achieve success if they increased levels perceived self-efficacy among the intended audience (Sherwood & Jeffery, 2000).

Sources of self-efficacy. Bandura (1994) delineates four sources of self-efficacy. The first and most potent source is through mastery experiences. That is, people are likely to feel capable of performing a behavior if they have succeeded in performing the behavior in the past. Studies have also shown that past behavior was positively correlated with physical activity self-efficacy (e.g., Hagger et al., 2001; Wang & Zhang, 2016). Additionally, interventions incorporating

feedback on past performance have been shown to produce small to medium effects on physical activity self-efficacy (Ashford et al., 2010).

Second, self-efficacy beliefs can be developed or fortified through the vicarious experiences provided by social models. According to Bandura, people can develop self-efficacy by observing models in their environment succeed at a behavior. This is a form of symbolic modeling whereby an individual derives meaning from the exemplars of others without having to first perform the behavior themselves. However, Bandura (1994) also notes that "the impact of modeling on perceived self-efficacy is strongly influenced by perceived similarity to the models" (p. 72). That is, the more an individual perceives similarity with the observed model, the more likely they are to be persuaded by the successes of the model. This source of self-efficacy extends to modeling from the symbolic environment in the media as well. Additionally, interventions aimed at influencing physical activity self-efficacy that incorporated vicarious experiences as a technique in their interventions produced large effects on self-efficacy (Ashford et al., 2010).

The third source of self-efficacy beliefs is social persuasion, which is explained as verbal persuasion that strengthens an individual's belief that they have the capabilities necessary to perform a given behavior (Bandura, 1994). However, Bandura notes that social persuasion alone may not be effective in improving self-efficacy beliefs without also providing the necessary guidance for the successful performance of a behavior. This notion is echoed by the findings of Ashford et al. (2010) who found that social persuasion when used as a standalone technique had weak effects on physical activity self-efficacy. The last source of self-efficacy relates to the management of somatic and emotional states. This means that "to reduce people's stress reactions and alter their negative emotional proclivities and misinterpretations of their physical states" (Bandura, 1994, p. 73) can have an impact on their self-efficacy.

Dimensions of self-efficacy. Although commonly treated as a unitary concept, it has been contended that there are different types of self-efficacy (Maddux, 1995). In exploring this idea further, Rodgers and Sullivan (2001) found support for the multidimensionality of physical activity self-efficacy and proposed that it consists of three dimensions: (1) task self-efficacy, (2) coping self-efficacy, and (3) scheduling self-efficacy. Task self-efficacy is explained as an individual's confidence in performing the basic elements of a task or behavior (e.g., confidence in one's ability to do a pushup with proper form). Coping self-efficacy refers to an individual's confidence in performing a behavior in adverse situations (e.g., confidence in one's ability to perform a workout during exam week). Scheduling self-efficacy refers to an individual's confidence in their ability to schedule the performance of a behavior effectively (e.g., confidence in one's ability to arrange the time to exercise three times a week). This line of research has culminated in the development of the Multidimensional Self-efficacy for Exercise Scale (MSES; Rodgers et al., 2008) which has been validated in various populations and continues to be used to measure physical activity and exercise self-efficacy.

Outcome Expectations

SCT conceptualizes outcome expectations as an individual's estimation of the likely benefits or consequences of a behavior (Bandura, 1986). SCT predicts that people are more likely to be motivated to perform behaviors that would produce desirable outcomes. For example, an individual is more likely to exercise if he/she expects regular exercise to achieve a desirable outcome such as weight loss. It is important to note that the SCT conceptualizes outcomes in terms of the expectation of outcomes and not actual outcomes. According to Bandura (1986), "The widely accepted dictum that behavior is governed by its consequences fares better for anticipated

than for actual consequences" (p. 229) and that "…future outcomes can be converted into current guides and motivators of behavior" (p. 232).

According to Bandura (2004), three categories of outcomes make up overall outcome expectations related to a behavior: physical outcomes (e.g., weight loss, muscle gain, improved health), social outcomes (e.g., positive interpersonal reactions, status), and self-evaluative reactions (e.g., personal satisfaction, increased sense of self-worth). An example to illustrate this construct influencing behavior is a situation where someone is likely to perform resistance training if he/she perceives that he/she will lose weight, be admired by peers, and feel good about him/herself as a result of engaging in such an activity.

Based on the SCT framework of health behavior (see Figure 1), outcome expectations have a direct effect on behavior and goals. However, evidence to support the correlation between outcome expectations and behavior is mixed. A meta-analysis of 55 SCT models used to predict physical activity found that outcome expectations was not consistently predictive of behavior (Young et al., 2014). A review of studies including the construct in the prediction of physical activity behavior also found mixed results such that outcome expectations appear to be more predictive of behavior among older adults compared to younger or middle-aged adults (Williams et al., 2005).

Goals

According to Bandura (2004), goals are a form of incentive that guide health behaviors and are categorized into two types: distal and proximal. Distal goals provide an orienting function that come into play when an individual is seeking to appraise their own performance of a behavior. Bandura (1986) explains that this type of goal represents the "conditional requirements for positive self-evaluation" (p. 469). As it can be observed, distal goals serve to provide markers of

achievement only after the performance of a behavior and is preceded by motivation to perform the behavior in the first place.

On the other hand, proximal goals (or goal intentions) "regulate effort and guide action in the here and now" (Bandura, 1998, p. 628). Generally, goals per SCT are explained to be a construct separate from intentions. However, Bandura (1998) explains that in the case of proximal goals, they are essentially the same in that they are conceptualized as what a person proposes to do (e.g., "I intend to.."). The SCT framework illustrated in Figure 1 positions proximal goals as a direct predictor of health behavior. Unlike in the case of outcome expectations, goals when conceptualized as proximal goals has been shown to be consistently predictive of physical activity (Young et al., 2014).

Dissertation Objective, Hypotheses, and Research Questions

The overarching objective of this dissertation is to examine the mechanisms through which fitspiration messages could potentially affect muscle-strengthening exercise behavior. To this end, this dissertation has two research aims. First, this dissertation aims to assess the causal relationships between core SCT determinants as theorized by Bandura's (2004) framework for health behavior change. For these purposes, self-efficacy will be conceptualized as a multidimensional construct consisting of task self-efficacy, coping self-efficacy, and scheduling self-efficacy. On outcome expectations, only physical and social outcome expectations will be assessed with self-evaluative outcomes being excluded. This is in view of findings suggesting that college-aged individuals (who are the participants of this dissertation) are more likely to be driven to exercise by extrinsic (e.g., appearance) and social (e.g., romantic, social expectations) reasons (e.g., Fletcher, 2016; Kilpatrick et al., 2005; Snyder et al., 2017). Goals are conceptualized as proximal goals, while behavior is conceptualized as muscle-strengthening behavior.

Guided by Bandura's (2004) framework for health behavior change, this dissertation posed multiple hypotheses and research question regarding the relationship between SCT components and muscle strengthening behavior (see Figure 2 for conceptual framework). The first three hypotheses predict main effects for the three SCT components:

H1: *Self-efficacy [as (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling self-efficacy] is positively correlated with behavior.*

H2: *Outcome expectations [as ($_1$) physical outcome expectations and ($_2$) social outcome expectations] are positively correlated with behavior.*

H3: *Proximal goals are positively correlated with behavior.*

Hypotheses 4-6 posit that, consistent with the logic of Figure 2.1, SCT components themselves should be related. For example, self-efficacy should predict the other two components, and proximal goals should be predicted by the other two components.

H4: *Self-efficacy [as (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling self-efficacy] is positively correlated with proximal goals.*

H5: *Self-efficacy [as (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling self-efficacy] is positively correlated with outcome expectations [as ($_1$) physical outcome expectations and ($_2$) social outcome expectations].*

H6: *Outcome expectations [as ($_1$) physical outcome expectations and ($_2$) social outcome expectations] are positively correlated with proximal goals.*

Given these predictions, SCT also implicitly assumes that the impact of self-efficacy on proximal goals and actual behavior is mediated by other SCT components, which leads to H7-9 and RQ1.

H7: *The effect of self-efficacy [as (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling self-efficacy] on proximal goals is mediated by outcome expectations [as (1) physical outcome expectations and (2) social outcome expectations]. [SE → OE → PG].*

H8: *The effect of self-efficacy [as (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling self-efficacy] on behavior is mediated by outcome expectations [as (1) physical outcome expectations and (2) social outcome expectations].*

[SE → OE → Behavior].

H9: *The effect of self-efficacy [as (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling self-efficacy] on behavior is mediated by proximal goals.*

[SE → PG → Behavior].

RQ1: *Do outcome expectations [as (1) health outcome expectations and (2) social outcome expectations] and proximal goals both serially mediate the relationship between self-efficacy [as (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling self-efficacy] and behavior? [SE → OE → PG → Behavior].*

The full set of hypotheses associated with the first research aim is shown in Figure 2.

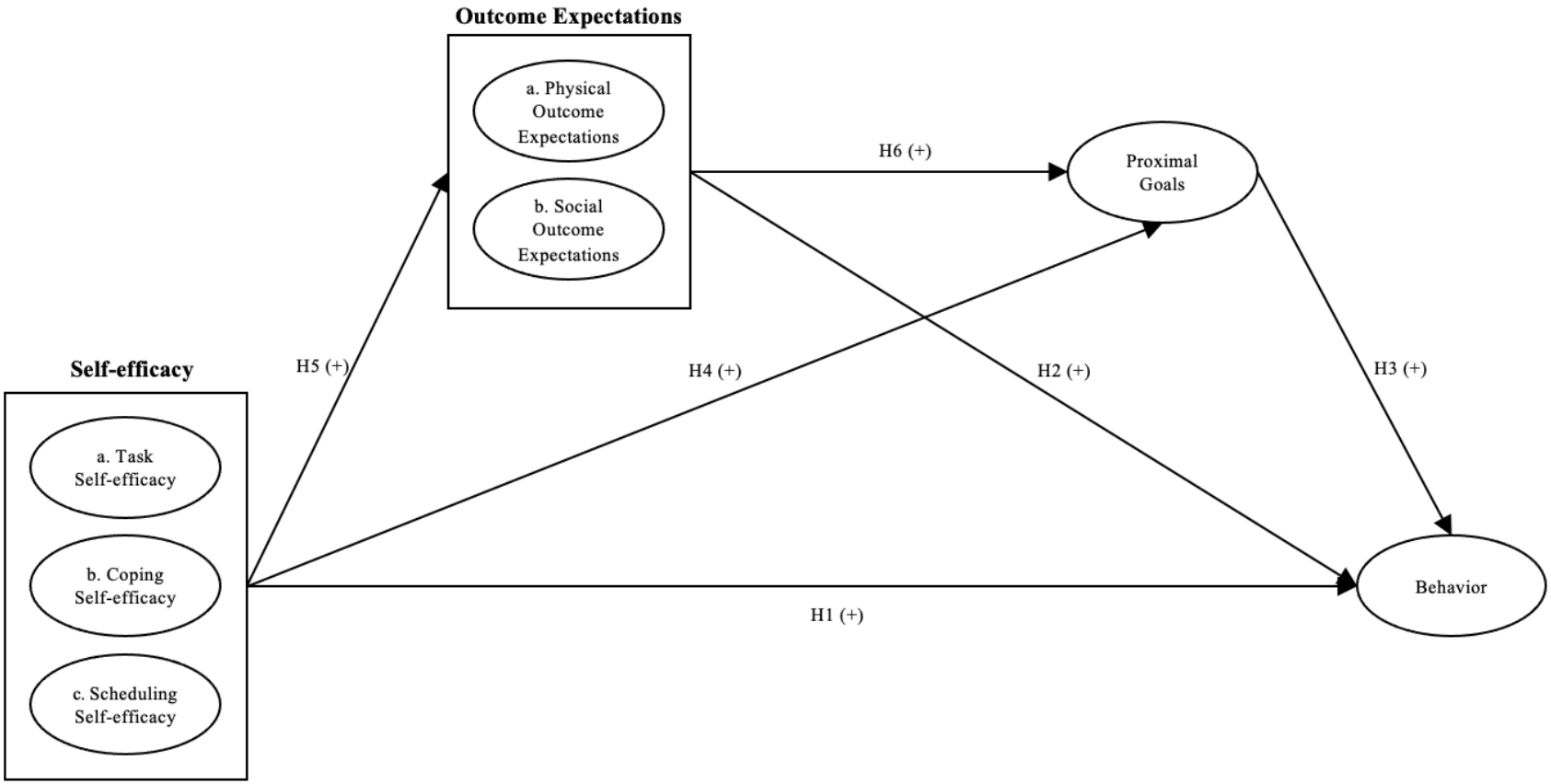


Figure 2. Conceptual framework of dissertation: Research Aim 1.

Second, this dissertation aims to examine the effects of fitspiration messages on core determinants within the SCT framework. As presented in the review of literature, fitspiration messages prototypically consist of an image with an individual either posing or exercising accompanied by a caption that is generally inspiring/motivating or not. Following these findings, this dissertation examines the effect of the portrayed action in the images as well as the caption type included with fitspiration messages on the core SCT determinants of self-efficacy (as task self-efficacy, coping self-efficacy, and scheduling self-efficacy) and outcome expectations.

Bandura (1994) explained that one of the sources of self-efficacy is through the vicarious experiences of social models such that people learn new ways of thinking and behaviors by observing the behaviors of others in their environment, including the symbolic environment of the media. That is, people are likely to develop higher levels of self-efficacy if they observe models in their environment successfully performing a behavior and achieving the associated outcomes. In this dissertation, I contend that images of models in fitspiration messages represent Bandura's description of vicarious experiences such that images with models exercising show behaviors that could be modeled by viewers and subsequently improve their perceived exercise self-efficacy. Conversely, images with models posing do not explicitly suggest a particular behavior or offer clues on how to perform it. Based on this, I hypothesized that:

> ***H10:*** *Participants viewing fitspiration-type messages with models exercising as the portrayed action will report higher levels of self-efficacy [as (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling self-efficacy] compared to those viewing messages with models posing.*

Another source of self-efficacy is social persuasion, which Bandura (1994) explained as verbal persuasion that strengthens an individual's belief that they have the capabilities necessary

to perform a given behavior. As presented in the review of literature, fitspiration messages typically include captions which can be broadly categorized into those being inspiring/motivating (e.g., "lifting has changed my life. You can do it too and be healthier if you just get started") and those that are not (e.g., "brushing up on the guns for tank-top weather"). I contend that the former captions, when explicitly expressing encouragement and motivation, fit Bandura's description of social persuasion messages and function as a source of exercise self-efficacy. It is based on this reasoning that I hypothesize the following:

> ***H11:*** *Participants viewing fitspiration-type messages with social persuasion captions will report higher levels of self-efficacy [as (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling self-efficacy] compared to those viewing messages without social persuasion captions.*

Additionally, Bandura (1977) explained that one of the ways people develop outcome expectations that guide behavior is through modeling the behaviors of observed others that produce outcomes. Similar with the case of self-efficacy, fitspiration images of models exercising do provide such models of behavior whereby the models in fitspiration images provide a symbolic association between their behavior and the outcomes of the behavior (i.e., strength, muscle tone). I then hypothesized that:

> ***H12:*** *Participants viewing fitspiration-type messages with models exercising as the portrayed action will report higher levels of outcome expectations [as (a) health outcome expectations and (b) social outcome expectations] compared to those viewing messages with models posing.*

In explaining the way through which vicarious experiences offered by models in the environment influence self-efficacy, Bandura (1994) noted that the effect of social modeling on

perceived self-efficacy is influenced by the perceived similarity between the viewer and the model. That is, viewers who perceive the model as more similar to them will have more improvements in their perceived self-efficacy as a result of the modeling that occurs. Given that outcome expectations are also developed through vicarious experiences of social models, the same moderating effect of perceived similarity can be assumed to occur as well. That is, viewers who perceive the model as more similar to them will develop more positive outcome expectations associated with the behavior compared to viewers who perceive low similarity with the models. I then pose the following:

> ***H13:*** *Perceived similarity will moderate the impact of the portrayed action in fitspiration-type messages on self-efficacy [as (a) task, (b) coping, (c) scheduling] such that participants who are exposed to messages with models exercising will report higher levels of self-efficacy when they perceive higher levels of similarity with those models but not when exposed to messages with models posing.*
>
> ***RQ2:*** *Does perceived similarity moderate the impact of the portrayed action in fitspiration-type messages on outcome expectations [as (a) health, (b) social] such that participants who are exposed to messages with models exercising will report higher levels of outcome expectations when they perceive higher levels of similarity with those models but not when exposed to messages with models posing?*

In examining the effects of fitspiration message features, the question then arises of whether the different combinations of these features (i.e., portrayed action, caption type) influence the dimensions of self-efficacy and types of outcome expectations differently than either one alone. Recall that a study by Davies et al. (2020) found that while there were significant increases in negative mood and body dissatisfaction after viewing fitspiration images, these effects were not

observed when the same images were paired with body positive captions. Their findings suggest that the impact of portrayed action (exercising vs. posing) might vary depending on what type of caption accompanied the image. As such, the following question is posed:

> ***RQ3:*** *Will the experimentally manipulated fitspiration-type messages characteristics of portrayed action (exercising vs. posing) and caption type (social persuasion vs. without social persuasion) interact to influence self-efficacy [as (a) task, (b) coping, and (c) scheduling self-efficacy] and outcome expectations [as (1) health and (2) social outcome expectations]?*

Lastly, in view that most studies on fitspiration messages have examined its effects on female participants, this dissertation seeks to determine if there are any sex differences in terms of the effects of fitspiration messages. I then ask:

> ***RQ4:*** *Are there differences in the effects of the message characteristics of portrayed action and caption type on self-efficacy [as (a) task, (b) coping, and (c) scheduling self-efficacy] and outcome expectations [as (d) health and (e) social outcome expectations] based on sex?*

CHAPTER 3. METHODS

This chapter describes the methods that were used to assess the hypotheses and research questions related to this study's research aims, which are to (1) examine the interplay between the three cognitive processes of self-efficacy (as task, coping, and scheduling self-efficacy), outcome expectations (as health and social outcome expectations), and proximal goals, in influencing muscle-strengthening exercise behavior within the social cognitive theory (SCT) framework; and (2) examine the effects of fitspiration-type message features of portrayed action and caption type on the SCT constructs of self-efficacy and outcome expectations. Specifically, this chapter describes the study design and procedures, procedures for data screening and the handling of missing data, participants, development of stimulus materials, survey order, and measures used.

Study Design and Procedures

This study was a longitudinal experiment using a 2 (portrayed action: exercising/posing) x 2 (caption type: social persuasion/non-social persuasion) between-subjects factorial design with two post-test questionnaires (i.e., T1: immediately after exposure to treatment; T2: follow-up two weeks post-treatment). Participants were randomly assigned to one of four conditions: messages with (1) models exercising with a social persuasion caption; (2) models exercising with a non-social persuasion caption; (3) models posing with a social persuasion caption; and (4) models posing with a non-social persuasion caption.

Participants were undergraduate students enrolled in Communication courses at Purdue University and were recruited for the study via the Brian Lamb School of Communication's (the

Lamb School) Research Participation System (RPS)[1] from October to December 2019. In order to qualify for participation in the study, students were required to be 18 years of age or older. Eligible participants were offered extra course credit for participating in the study. Institutional Review Board (IRB) approval was obtained prior to making the study available on the RPS (Study #IRB-2019-376).

Participants were redirected from the RPS to a Qualtrics questionnaire that took approximately 20 to 30 minutes to complete. Participants were randomly assigned to an experimental condition using the survey platform's automated randomizer. In addition to answering the questionnaire, participants were instructed to examine 20 "Instagram posts." Each of the 20 posts consisted of 12 fitspiration messages (i.e., corresponding to their experimental condition; six messages with male models and six with female models) and eight non-fitspiration messages. Posts were displayed one at a time for 20 seconds before participants were able to proceed to the next one, a measure implemented to ensure that participants had sufficient time to carefully examine the posts and appropriately respond to the accompanying questions before moving on to the next post.

At the end of the survey, participants were issued an automatically generated five-digit code number associated with their response and invited to respond to a follow-up questionnaire two weeks later. The code numbers (along with participant date of birth and the last four digits of their phone numbers) allowed for the matching of responses between the two timepoints. As clearly communicated in the information sheet that appeared prior to the start of the survey (see Appendix A), participants were reminded that complete participation in both the first and follow-

[1] The Lamb School research participation system caters to courses in the Communication department including COM114, a university required presentational speaking course taken by students from across Purdue University including students majoring in STEM disciplines, humanities, and social sciences.

up surveys was required in order to receive the extra credit associated with participation in this study. In the follow-up survey, participants were instructed to complete a brief questionnaire that took approximately five minutes to finish.

Procedures for Data Screening and the Handling of Missing Data

A total of 472 and 270 initial responses were collected for T1 and T2 respectively. These initial responses were screened prior to analysis to attenuate for the likelihood of including low quality data in analysis obtained from online surveys (Johnson, 2005). Although the objective was to retain as much usable data as possible, research has shown that as much as 10 – 12% of undergraduates responding to online surveys for course credit provided responses deemed to be careless and inattentive (Meade & Craig, 2012).

Several criteria were established to dictate the screening process resulting in the listwise removal of responses from the dataset. First, responses that started the survey but did not continue to the random assignment of conditions were removed because they were not exposed to the experiment's treatment. Second, multiple responses from the same individual were removed while retaining their first attempt. This was determined by reviewing the IP address, date of birth, and last four digits of cellphone number provided by the responses.

Third, responses deemed as inattentive were removed. I used three criteria in determining inattentive responses. Responses with *no variation* in their answers to entire blocks of measures that included distractor items as indexed by a computed standard deviation of zero across all items in the measure were excluded; for example, a response that answered "3" for all 15 items of the Multidimensional Outcome Expectations for Exercise Scale (MOEES) measure including seven distractor items was removed. Responses that *failed attention checks* more than once were removed; for example, a response that was exposed to a message with an image of a person eating

at a restaurant but answered that the individual in the message was exercising was removed. Responses with *clearly inconsistent answers* also were removed; for example, a response that answered in one question that they did not engage in regular exercise but answered that they identified as someone who exercised regularly in another question was removed.

Fourth, extreme outliers for questions related to demographics and health and wellness habits were reviewed with boxplots. For example, a response with a calculated body mass index (BMI) of 50 was removed due to the remote likelihood of a college student actually having that BMI of that magnitude. After screening and removal, 315 responses were retained for T1 and 210 for T2.

A series of independent samples t-tests were performed to determine whether the group of participants who completed both T1 and T2 (n = 210) differed from the group who completed only T1 (n =105; see Table 1). There were no significant differences in the scores for the study's variables between the two groups (i.e., task, scheduling, coping self-efficacy; physical, social outcome expectations; perceived similarity; intention). In terms of selected participant characteristics, the two groups also did not differ significantly on the average time spent on social media per day, self-evaluations of general state of health, number of days participants performed physical activity of at least moderate intensity, and number of days participants performed muscle-strengthening exercises. However, the groups did differ in three ways. First, participants who completed both T1 and T2 had higher BMIs compared to those who completed only T1, $t(313) = -2.32$, $p = .021$ (Cohen's $d = 0.29$). Second, participants who completed both T1 and T2 perceived themselves to be more overweight compared to those who completed only T1, $t(313) = -2.45$, $p = .015$ (Cohen's $d = 0.30$). Third, participants who completed both T1 and T2 were more motivated to exercise for appearances compared to those who completed only T1 $t(313) = -3.65$, $p < .001$

Table 1. Comparison between participants who completed only T1 (n = 105) and participants who completed both T1 & T2 (n = 210).

Variable		T1 Only	Both T1 & T2	t-value	*p*	*Cohen's d*
Participant Characteristics						
*BMI	*M*	22.84	23.88	-2.32	.021	0.29
	SD	3.25	3.98			
Average time spent on social networking apps in a typical day	*M*	2.74	2.62	0.73	.309	0.12
	SD	1.07	0.99			
Self-evaluation of general state of health	*M*	3.46	3.28	1.65	.099	0.20
	SD	0.91	0.88			
*Perception of weight relative to body frame	*M*	3.15	3.38	-2.45	.015	0.30
	SD	0.69	0.82			
*Appearance as a motivator to exercise or continue exercising regularly	*M*	2.64	3.04	-3.65	<.001	0.42
	SD	0.99	0.89			
Days performed PA of at least moderate intensity in the two weeks prior to taking the survey	*M*	3.12	2.95	0.73	.467	0.09
	SD	2.03	1.94			
Days performed MSE in the two weeks prior to taking the survey	*M*	1.48	1.67	-0.90	.371	0.10
	SD	1.77	1.85			
Scores on Study Variables						
Task self-efficacy	*M*	61.23	60.32	0.29	.773	0.03
	SD	27.25	25.74			
Coping self-efficacy	*M*	40.07	40.16	-0.03	.978	<0.01
	SD	28.81	25.88			
Scheduling self-efficacy	*M*	54.22	54.29	-0.02	.984	<0.01
	SD	30.40	29.14			
Physical outcome expectations	*M*	4.31	4.28	0.48	.634	0.06
	SD	0.54	0.50			
Social outcome expectations	*M*	3.02	3.09	-0.66	.508	0.07
	SD	0.97	0.93			
Self-evaluative outcome expectations	*M*	4.21	4.25	-0.54	.590	0.06
	SD	0.66	0.60			
Perceived similarity	*M*	2.11	2.17	-0.65	.517	0.08
	SD	0.76	0.80			
Intention	*M*	2.41	2.60	-0.88	.380	0.10
	SD	1.91	1.76			

Notes. M is mean. *SD* is standard deviation. *BMI* is body mass index. *MSE* is muscle-strengthening exercise. * $p < .05$

(Cohen's d = 0.42). Although the two groups appear to be similar in most respects, participants who completed both T1 and T2, which are used in the study's models that include behavior as a variable, are different in some ways that should raise caution in terms how far this study's findings can be generalized. For instance, the findings may apply more to individuals who are driven to exercise for appearance reasons but less to individuals who are motivated to exercise for other reasons.

A missing data analysis was conducted independently for each of the final two datasets. For the T1 data (n = 315), 0.20% of the data was missing: 0.28% of reported data from Condition 1, 0.20% from Condition 2, 0.14% from Condition 3, and 0.17% from Condition 4 were missing. 12.39% of the items in the T1 data had at least one missing value; no item was missing over 5% of the data. Based on Little's MCAR test, the data for all four conditions were found to be missing completely at random (Condition 1: Chi-square = 763.62, df = 803, p = .84; Condition 2: Chi-square = 458.57, df = 478, p = .73; Condition 3: Chi-square = 557.79, df = 564, p = .57; Condition 4: Chi-square = 474.36, df = 485, p = .63). Considering that less than 5% of the T1 data was missing and that the data was missing completely at random, the expectation maximization (EM) method was used to estimate the missing data. The EM method was used because it has been found to produce estimates that are less biased than listwise deletion and mean substitution, as well as more accurate estimates than pairwise deletion (see Roth, 1994). There was no missing data for the T2 dataset (n = 210) which is likely due to the brief nature of the T2 questionnaire.

Participants

Participants for this study consisted of 315 undergraduate students enrolled in Communication courses at Purdue University; their ages ranged from 18 to 25 years old (M = 19.7, SD = 1.45). Participants were primarily White/Caucasian (69.2%, n = 218) females (66.9%, n =

210). Most participants were US-domestic students (87.3%, *n* = 275) with English as their first language (83.8%, *n* = 264). The majority of participants were not members of Greek organizations (71.1%, *n* = 224). See Table 2 for full details about demographic information.

Table 2. Participant demographic characteristics (N = 315).

Individual-level Variables	*n*	%
Age (*M* = 19.71, *SD* = 1.45, *Min* = 18, *Max* = 25)		
Sex		
Male	104	33.1
Female	210	66.9
Ethnicity		
Hispanic or Latino/a	23	7.3
Not Hispanic or Latino/a	291	92.7
Race		
American Indian or Alaskan Native	1	0.3
Asian	71	22.5
Black or African American	7	2.2
White/Caucasian	218	69.2
Mixed Race	13	4.1
Other	4	1.3
Nationality		
US-domestic Student	275	87.3
International Student	40	12.7
English as first language		
Yes	264	83.8
No	51	16.2
Membership in Fraternity or Sorority		
Yes	90	28.6
No	224	71.1

Notes. M is mean. *SD* is standard deviation. *Min* is minimum value. *Max* is maximum value.

Over three quarters of participants reported that they were “extremely likely” to use social networking apps in a typical day (76.8%, *n* = 242) with over half spending between 1 to 3 hours per on such apps in a typical day (56.2, *n* = 177). Instagram was the most popular social networking app among participants with almost all participants maintaining an account on the app (93.9%, *n* = 295) and nearly half reporting that it was the most used app in a typical day (42.2%, *n* = 132).

Snapchat, another image/video-sharing based app, was a close second in terms of most used app in a day (40.3%, *n* = 126). See Table 3 for full details about online social networking app habits.

Close to three quarters of participants perceived themselves to be either in "good" or "very good" health in general (41.3%, *n* = 130; 31.4%, *n* = 99, respectively). The majority of participants were classified as having a normal/healthy weight (68.4%, *n* = 214). The average body mass index (BMI) among participants was 25.53 (*SD* = 3.78). Over half of participants perceived themselves to be of "just the right weight" relative to their frame (55.5, *n* = 175).

On physical activity and exercise, only 8.3% (*n* = 26) of participants reported that concern over the way they looked did not influence their decisions to start or continue exercising regularly. In terms of general exercise, slightly over half were in the "maintenance" stage of the transtheoretical model of change (TTM; 51.4%, *n* = 162) while only approximately one third were in the "maintenance" stage for muscle-strengthening exercise (37.8%, *n* = 119). On average, participants performed some form of physical activity of moderate intensity on 3.01 days (*SD* = 1.97) in the two weeks prior to participating in the study but performed muscle-strengthening exercises on only 1.61 days (*SD* = 1.82). See Table 4 for full details about participant health and wellness habits.

Table 3. Participant online social networking app habits.

Individual-level Variables	*n*	%
Likelihood of using social networking apps in a typical day		
Extremely likely	242	76.8
Somewhat likely	30	9.5
Neither likely nor unlikely	6	1.9
Somewhat unlikely	11	3.5
Extremely unlikely	26	8.3
Average time spent on social networking apps in a typical day		
Less than 1 hour	85	27
1 – 3 hours	177	56.2
3 – 5 hours	40	12.7
5 – 7 hours	9	2.9
7 – 9 hours	2	0.6
More than 9 hours	2	0.6
Participants maintain accounts on the following social networking apps:*		
Facebook	253	80.6
Instagram	295	93.9
Twitter	198	63.1
Snapchat	291	92.7
Pinterest	171	54.5
MySpace	2	0.2
Tumblr	39	12.4
Other	41	13.1
Primary social networking app used in a typical day		
Facebook	16	5.1
Instagram	132	42.2
Twitter	34	10.9
Snapchat	126	40.3
Pinterest	3	1
Tumblr	2	0.6
Average time spent on primary social networking app in a typical day		
Less than 1 hour	85	27
1 – 3 hours	177	56.2
3 – 5 hours	40	12.7
5 – 7 hours	9	2.9
7 – 9 hours	2	0.6
More than 9 hours	2	0.6

Notes. * indicates multiple response item.

Table 4. Participants health and wellness habits.

Individual-level Variables	*n*	%	*M*	*SD*
Participants' self-evaluation of health status in general				
"Excellent"	32	10.2		
"Very good"	99	31.4		
"Good"	130	41.3		
"Fair"	52	16.5		
"Poor"	2	0.6		
*BMI** (*Min* = 15.20, *Max* = 37.12)			25.53	3.78
BMI Category per CDC				
Underweight	16	5.1		
Normal or healthy weight	214	68.4		
Overweight	58	18.5		
Obese	25	8		
Participants' perception of their weight relative to their frame				
"Underweight"	5	1.6		
"Slightly underweight"	26	8.3		
"Just about the right weight"	175	55.6		
"Slightly overweight"	86	27.3		
"Overweight"	23	7.3		
"How much does concern over the way you look reflect why you would start or continue exercising regularly?"				
"Not at all"	26	8.3		
"A little"	78	24.8		
"Some"	110	34.9		
"A lot"	101	32.1		
Days performed PA of at least moderate intensity in the two weeks prior to taking the survey (*Min* = 0, *Max* = 7)			3.01	1.97
Days performed MSE in the two weeks prior to taking the survey (*Min* = 0, *Max* = 7)			1.61	1.82
Stage in TTM for general exercise				
Precontemplation	5	1.6		
Contemplation	29	9.2		
Preparation	53	16.8		
Action	66	21		
Maintenance	162	51.4		
Stage in TTM for MSE				
Precontemplation	42	13.3		
Contemplation	53	16.8		
Preparation	51	16.2		
Action	50	15.9		
Maintenance	119	37.8		

Notes. BMI is body mass index. * calculated based on participant provided height and weight. *CDC* is Centers for Disease Control and Prevention. *PA* is physical activity. *MSE* is muscle-strengthening exercises. *TTM* is transtheoretical model of change.

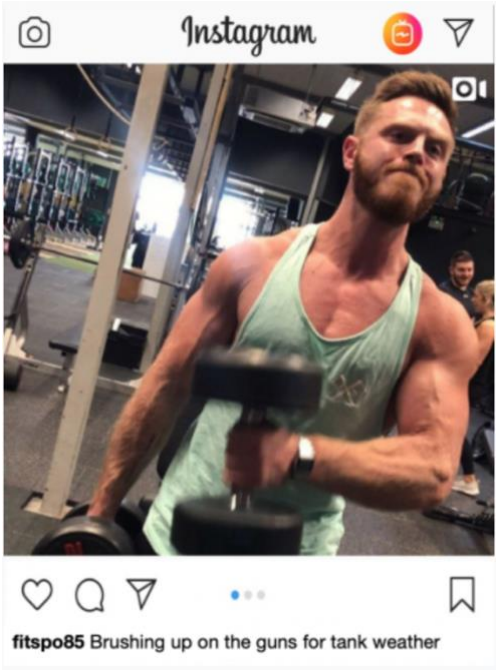
Development of Stimulus Materials

Four different sets of messages were developed to instantiate a 2 (portrayed action: exercising/posing) X 2 (caption type: social persuasion/non-social persuasion) experimental design. The messages were formatted to mimic posts on the image/video-sharing app Instagram which consisted of an image accompanied by a caption below it. The decision to base the experimental messages on Instagram was based on past research indicating that the app is a prominent source of fitspiration content (Tiggemann & Zaccardo, 2018). This is further evidenced by results of a search using the term "fitspo" (i.e., abbreviation of fitspiration) which yielded over 72 million posts.

The sets of messages included message features reflecting the four possible combinations of fitspiration models exercising vs. posing with social persuasion captions vs. non-social persuasion captions. The messages with fitspiration models exercising depicted images of an individual performing some form of muscle-strengthening exercise (e.g., weight training) while posing messages showed an individual posing for the camera in various positions not involving the performance of exercises (e.g., flexing biceps). These messages were harvested from publicly available Instagram profiles using the tags #fitspiration or #fitspo. Messages with social persuasion captions included captions that explicitly encouraged viewers that they too were able to engage in the behavior promoted in the message while message with non-social persuasion captions had captions that were not meant to be encouraging. For examples, see Figure 3.

Exercising x Social Persuasion

Exercising x Non-Social Persuasion



Posing x Social Persuasion

Posing x Non-Social Persuasion

Figure 3. Examples of experimental messages.

Pilot Testing of Stimulus Material

In an effort to reduce potential experimental confounds, a pool of 40 images (10 males exercising, 10 males posing, 10 females exercising, 10 females posing) was first pilot tested. The goal of the pilot testing was to select 24 images (i.e., six from every set of 10 mentioned above) that did not significantly differ from one another in terms of physical and social attractiveness as well as perceived similarity to be used for message development.

Eighty-six undergraduate students from Purdue University were recruited through the Lamb School RPS to participate in the pilot test[2] (Study #IRB-2019-376). They were each instructed to rate all 40 images on their physical and social attractiveness as well as perceived similarity with the models in the images. Physical and social attractiveness were measured using an adapted version of a scale developed by McCroskey et al. (2006) while perceived similarity was measured with McCroskey et al.'s (1975) attitudinal homophily scale. The latter measure is described in more detail below.

For every set of images (e.g., 10 males exercising), the mean scores for each of the three scales were arranged in descending order so that sets of six images with the closest scores could be determined. The selected sets of six images were then compared between conditions according to sex (e.g., six males exercising compared with six males posing) to ensure that they did not significantly differ in terms of the three ratings. As Table 5 shows, the sets of images (i.e., posing vs. exercising) did not significantly differ for images with male models in terms of their perceived physical and social attractiveness as well as perceived similarity. Similarly, the sets of images did not differ for images with female models in terms of physical and social attractiveness. They did

[2] The pilot study was conducted one semester prior to the main experiment. Although I was not able to implement a mechanism that would restrict students who participated in the pilot study from also participating in the main experiment, it is unlikely that many did so given that most students in the RPS pool are non-COM majors who would not be taking other COM courses in following semesters after fulfilling the requirement.

significantly differ in terms of perceived similarity (p = .049). However, the size of this effect was only small (Cohen's d = .22). The 12 photos used to instantiate each of the four experimental conditions are shown in Appendix C.

Table 5. Paired-sample t-test results: Comparison between exercising images and posing images for male and female models.

		Male				***Female***				
Variable		Posing	Exercising	*t*-value	*p*		Posing	Exercising	*t*-value	*p*
Physical Attractiveness	*M*	3.41	3.42	-0.23	.815	*M*	3.66	3.64	0.52	.601
	SD	0.64	0.66			*SD*	0.60	0.56		
Social Attractiveness	*M*	2.83	2.85	-0.68	.499	*M*	3.21	3.23	-0.48	.634
	SD	0.55	0.54			*SD*	0.54	0.55		
Perceived similarity	*M*	2.08	2.13	-1.36	.178	*M*	2.69	2.60	1.99	.049
	SD	0.71	0.80			*SD*	0.84	0.79		

Notes. n = 86 for all paired t-tests.

Distractor Messages

To increase the ecological validity of the experiment, distractor images (i.e., non-fitspiration images) were included in addition to the manipulated fitspiration messages. This was decided considering the remote likelihood that any individual would be exposed solely to fitspiration posts on their social networking feed. As such, a set of eight of non-fitspiration posts were included for every condition along with the 12 images that instantiated their experimental condition. For example, participants randomly assigned to the "exercising/social persuasion" condition would see 12 posts of people engaged in strength-training exercises (6 male, 6 female) accompanied by social-persuasion captions along with 8 distractor images. These distractor messages consisted of images of models sightseeing or dining along with accompanying captions, themes typically observed on Instagram. The same 8 distractor images were included in each of the four experimental conditions; these photos also are shown in Appendix C.

Survey Order

The survey questionnaire for T1 was structured into six blocks of questions as illustrated in Figure 4. The questionnaire for T2 was structured into two blocks: the first block consisted of questions to provide information that would enable the matching of responses between T1 and T2 (i.e., four-digit code, date of birth, last four digits of cellphone number); the second block consisted of one question for the main dependent variable of the study (i.e., muscle-strengthening exercise behavior).

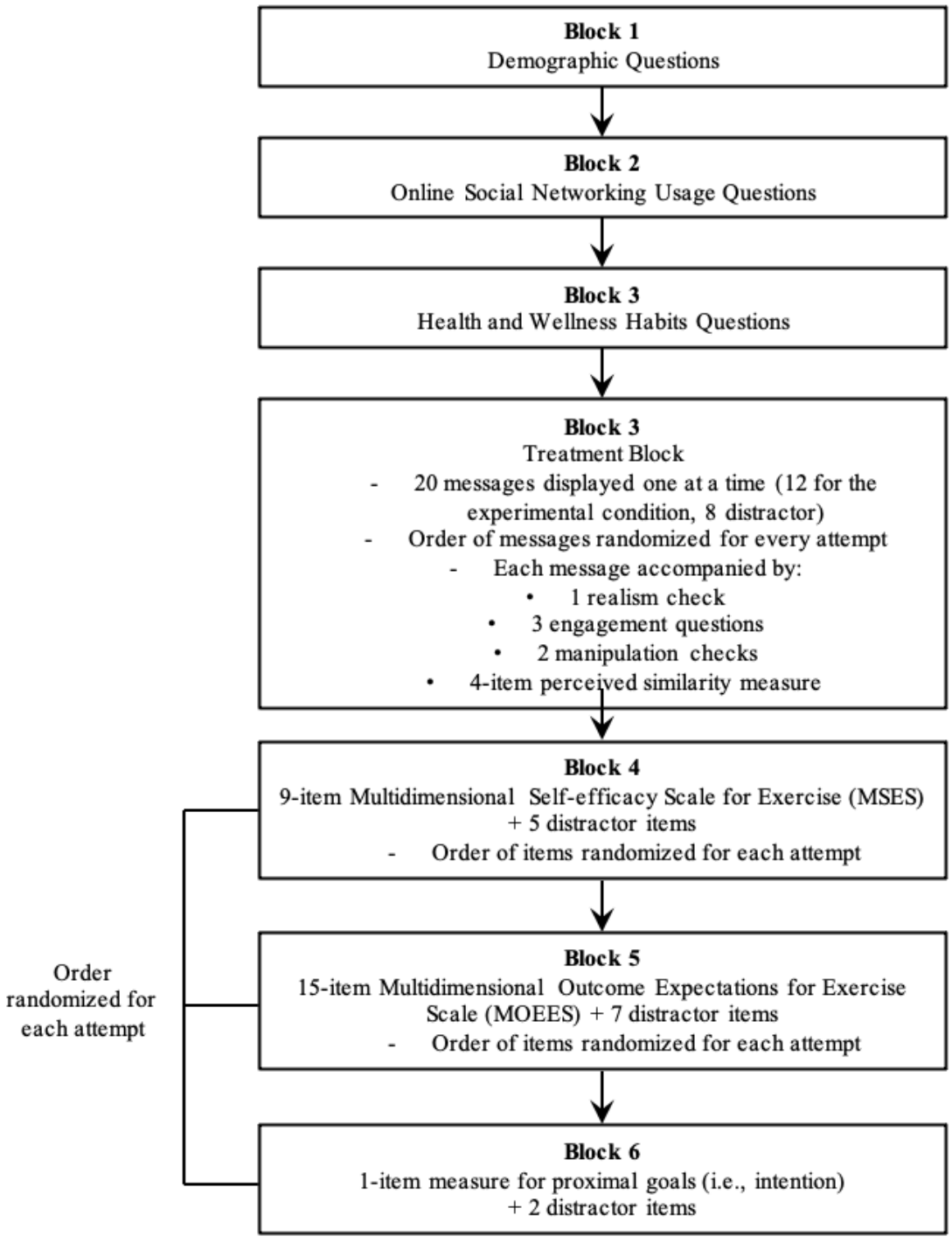


Figure 4. T1 survey questionnaire order.

Measures

This study utilized established measures that have been validated by past research. However, due to the minor adaptations made to the scale items to suit the context of this study, confirmatory factor analyses (CFA) were conducted to validate the structure for the scales with multiple items. The fit of the models were assessed using a combination of several indices. According to Matsunaga (2010), fit was considered acceptable when CFI/TLI > .90 and RMSEA < .08, and good when CFI/TLI > .95, RMSEA < .06, and SRMR < .10. The results for the CFA are presented in Table 6.

Table 6. Results from confirmatory factor analysis.

Scale	χ^2	*df*	χ^2/df	*p*	*TLI*	*CFI*	*SRMR*	*RMSEA*
Perceived Similarity (1 factor)[3]	.08 - 40.9	2	0.04 - 20.45	< .001 - .96	.726 - 1.02	.909 – 1	.002 - .039	0 - .487
Self-efficacy (3 factors)	57.7	24	2.40	< .001	.978	.985	.025	.067
Outcome Expectations (3 factors)	202	87	2.32	< .001	.918	.932	.051	.065

Demographic Characteristics

This study also collected participant demographic information in the form of biological sex, age, ethnicity, race, status in the United States (i.e., US-domestic or international), English as the primary spoken language, membership in fraternities/sororities/cooperatives, height, and weight. See Appendix B for full list of questions/items.

[3] CFA indices for perceived similarity scale were computed across 48 instances it was used (i.e., 1 per message, 12 messages per condition, 4 conditions).

Perceived Similarity

Perceived similarity was measured using an adapted version of McCroskey et al.'s (1975) four-factor perceived homophily measure. Specifically, this study used the attitude dimension of the original scale consisting of four items measured on 5-point semantic differential scales. The stem "Please rate your perception of the model in the post above based on the following criteria. The model:" was followed by bipolar statements such as "doesn't think like me – thinks like me." See Appendix B for full list of items. Table 6 shows that the model fit indices for the scale varied across the 48 photos that were rated (i.e., 48 CFAs for the scale). Most of them met the criteria for acceptable if not good fit (i.e., CFI in all cases > .90; SRMR in all cases < .10). However, there was more variability in terms of the RMSEA and TLI. In terms of internal reliability, the scales were highly reliable when used across all 48 messages with Cronbach's alphas ranging from .92 to .98.

Self-efficacy

Self-efficacy in the form of its dimensions of task, coping, and scheduling self-efficacy was measured using an adapted version of the Multidimensional Self-efficacy for Exercise Scale (MSES; Rodgers et al., 2008). The overall scale consisted of nine items (i.e., three for each dimension) with the stem of "How confident are you that you can:" followed by statements such as "complete muscle-strengthening exercises using proper technique" (task self-efficacy), "perform muscle-strengthening exercises when you lack energy" (coping self-efficacy), and "include muscle-strengthening exercises in your daily routine" (scheduling self-efficacy). For full list of items, see Appendix B. The items were rated on a scale of 0 (not at all confident) to 100 (completely confident) using the visual analogue scales (VAS) feature supported by Qualtrics.

A three-factor CFA was conducted and confirmed the multidimensional factor structure (see Table 6). All three scales were internally reliable, comparable to the original scale (Rodgers et al., 2008): task self-efficacy ($\alpha = .83$), coping self-efficacy ($\alpha = .88$), and scheduling self-efficacy ($\alpha = .92$).

Outcome Expectations

Outcome expectations in the form of its dimensions of physical and social outcome expectations were measured using an adapted version of the Multidimensional Outcome Expectations for Exercise Scale (MOEES; Wójcicki et al., 2009). The MOEES measures the three dimensions of outcome expectations as described by Bandura (2004; i.e., physical, social, and self-evaluative) with 15 items rated on a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*). The items included statements such as "muscle-strengthening exercises will improve my ability to perform daily activities" (physical outcomes), "muscle-strengthening exercises will make me more at ease with people" (social outcomes), and "muscle-strengthening exercises will improve my psychological state" (self-evaluative). For full list of items, see Appendix B.

A three-factor CFA was conducted and confirmed the structure of the scale (see Table 6). However, only physical and social outcomes are assessed in this study. As stated in Chapter 2, self-evaluative outcomes are not assessed in this study based on evidence suggesting that college students are more motivated to exercise by extrinsic and social reasons (e.g., Fletcher, 2016; Kilpatrick et al., 2005; Snyder et al., 2017). By using only two of the original three dimensions, the number of structural models used to test the first group of hypotheses also was reduced from nine to six models (see the second section of the results presented in Ch. 4). Both scales were internally reliable with the six items measuring physical outcomes showing a Cronbach's α of .71 and the four items measuring social outcomes having a Cronbach's α of .81.

Proximal Goals and Behavior

Proximal goals was measured only at T1 (n = 315) while behavior was measured only at T2 (n = 210). Both were measured in this study with single-item measures. Proximal goals (i.e., intentions) were measured with the following statement: "I intend to perform muscle-strengthening exercises on at least _____ days per week over the next two weeks." Participants had the options of 0 to 7 days. Behavior was measured with the following question at time 2 (i.e., two weeks after the first survey questionnaire): "In the past two weeks, how many days per week have you done physical activities specifically designed to strengthen your muscles such as lifting weights or circuit training (do not include cardio exercise such as walking, biking, or swimming)?" For this question, participants also had the options of 0 to 7 days.

Additional Measures

In addition to the demographic characteristics and aforementioned study variables, this study also collected information on participant online social networking app habits (e.g., social networking app most used, amount of time used on social networking apps in a day), health and wellness habits (e.g., stage of change according to transtheoretical model of change, amount of fruits and vegetables consumed in a day), and online health information-seeking behavior (e.g., how regularly do participants read information about fitness on the Internet). While this data was not within the immediate scope of the study, they were important to help characterize the sample as well as for potential use in future analyses. See Appendix B for full list of measures/questions.

Preview of the Data Analysis Plan

After screening and estimating the missing data, descriptive statistical analyses were performed with the final datasets to characterize the sample as well as to determine whether the

assumptions for further inferential parametric statistical analyses were met. To assess the hypotheses and research questions related to the first research goal of the dissertation (i.e., to assess the causal relationships between core SCT determinants; H1 – 9 and RQ1), a series of mediation models were computed and analyzed using Hayes' (2018) ordinary least squares (OLS) regression-based PROCESS macro in SPSS. To assess the hypotheses and research questions subsumed in the second research aim (i.e., examining the effects of fitspiration messages on core determinants within the SCT framework; H10 – 13 and RQ2 – 4), a series of multiple regression analyses was performed including the assessment of main and interaction effects. More detail on these analyses is provided in the following chapter (i.e., Results).

CHAPTER 4. RESULTS

This chapter reports the results from the assessment of this study's hypotheses and research questions. Specifically, the chapter will report normality and descriptive statistics, results from the mediation analyses assessing the interplay between social cognitive theory (SCT) variables in influencing muscle-strengthening exercise behavior, and results from the moderation analyses assessing the effects of this study's experimental manipulations of fitspiration message features on SCT variables.

Normality and Descriptive Statistics

The variables used in the analyses reported in this chapter were assessed for normality (see Table 7 for descriptive statistics). All of the variables were within the convention for approximately normally distributed data as indexed by their skew and kurtosis of between -1.0 and +1.0 with the exception of scheduling self-efficacy, which was platykurtic. However, the variable was retained without being transformed because it was not skewed and only marginally exceeded the cutoff point of -1.0 for kurtosis.

Table 7. Descriptive statistics.

	Min	Max	*M*	*SD*	*Skew*	*Kurtosis*
Task self-efficacy	0	100	60.62	26.22	-.43	-.68
Coping self-efficacy	0	100	40.13	26.85	.44	-.66
Scheduling self-efficacy	0	100	54.26	29.51	-.07	-1.06
Physical outcome expectations	2.83	5.00	4.29	.52	-.18	-.83
Social outcome expectations	1.00	5.00	3.07	.95	-.05	-.40
Perceived similarity	1.00	4.58	2.15	.78	.40	-.35
Proximal goals	0	7	2.54	1.81	.43	-.48
Behavior[4]	0	7	3.07	1.81	.19	-.75

[4] Data for behavior was collected through a follow-up survey (T2) two weeks after participants took the initial survey (T1) and had an *n* of 210 instead of 315 due to attrition rates in participation between T1 and T2.

Bivariate correlations for the variables were also assessed (see Table 8) with the inclusion of three demographic variables (i.e., age, sex, race) and two dichotomous variables representing the experimental conditions in this study (i.e., portrayed action, caption type). Sex was significantly inversely correlated with all of the measurement variables except physical outcome expectations; hence, sex was included as a demographic control for all subsequent analyses. More specifically, the point-biserial correlation coefficients presented in Table 8 indicate that in the context of fitspiration and muscle-strengthening exercises (i.e., the behavior), males are more likely than females to perceive higher levels of similarity with the individuals depicted in fitspiration posts (i.e., perceived similarity), have higher levels of confidence in: (1) performing the movements related to the behavior (i.e., task self-efficacy), (2) performing the behavior under challenging conditions (i.e., coping self-efficacy), and (3) their ability to effectively schedule the behavior, perceive more social benefits associated with the behavior (i.e., social outcome expectations). Males also had higher intentions than females to perform the behavior (i.e., proximal goals), and finally, performed the behavior more regularly (i.e., behavior). However, these correlations ranged only from weak to moderate in strength.

Race, when coded dichotomously as either White/Caucasian or non-White/non-Caucasian, showed statistically significant inverse correlations with all the three dimensions of self-efficacy. That is, Whites/Caucasians reported higher levels of task self-efficacy, coping self-efficacy, and scheduling self-efficacy when compared with non-Whites/non-Caucasians (the latter group includes international students). Similar to sex, these correlations were only weak to moderate in strength. Race was not significantly correlated with any of the other study variables; hence, race was not included as a demographic control in subsequent analyses.

Table 8. Bivariate correlations for study variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	–												
2. Sex	.03	–											
3. Race	.11*	< .01	–										
4. Portrayed Action	-.01	< .01	-.03	–									
5. Caption Type	.11*	-.05	.03	< .01	–								
6. Perceived Similarity	-.06	-.16**	-.09	.02	.16**	–							
7. Task SE	-.09	-.34***	-.22***	-.02	-.04	.33***	–						
8. Coping SE	-.06	-.27***	-.20***	-.01	.01	.35***	.70***	–					
9. Scheduling SE	-.04	-.31***	-.15**	-.05	-.02	.34***	.80***	.79***	–				
10. Physical OE	-.03	.02	.02	-.05	.05	.25***	.28***	.27***	.36***	–			
11. Social OE	< .01	-.27***	.04	.02	.01	.21***	.20***	.23***	.25***	.44***	–		
12. Proximal Goals	-.03	-.20***	-.08	-.07	.01	.32***	.52***	.59***	.68***	.37***	.27***	–	
13. Behavior	-.11	-.33***	-.10	.02	.02	.28***	.50***	.53***	.63***	.28***	.22**	.70***	–

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. SE = Self-efficacy. OE = Outcome Expectations. Sex: Male coded as 0; Female coded as 1. Race: White/Caucasian coded as 0; Non-white/Caucasian coded as 1. Portrayed Action: Posing coded as 0; Exercising coded as 1. Caption Type: Non-social persuasion coded as 0; With social persuasion coded as 1. $N = 315$ except for correlations with behavior, where $N = 210$.

Bivariate correlations between perceived similarity and all the social cognitive theory (SCT) variables in this study are statistically significant. More specifically, increases in perceived similarity was associated with increases in task self-efficacy, coping self-efficacy, scheduling self-efficacy, physical outcome expectations, social outcome expectations, proximal goals, and behavior. The strengths of these effects were moderate. In light of these statistically significant correlations, perceived similarity was included in subsequent analyses as a covariate when not hypothesized as a moderator.

The correlation matrix presented in Table 8 also provides preliminary evidence to assess the first six hypotheses of this study[5]. As hypothesized, all of the SCT variables in this study showed statistically significant positive correlations with one another. With regard to correlations across time (i.e., predictors assessed at time 1 with behavior assessed at time 2), task self-efficacy, coping self-efficacy, and scheduling efficacy were all positively and strongly correlated with behavior; hence, Hypothesis 1 is supported (i.e., task, coping, and scheduling self-efficacy are positively correlated with behavior). Physical outcome expectations and social outcome expectations were both positively correlated with behavior; hence, Hypothesis 2 is supported (i.e., health and social outcome expectations are positively correlated with behavior). However, these associations were only weak to moderate in strength. Proximal goals was positively and strongly correlated with behavior; hence, Hypothesis 3 is supported (i.e., proximal goals is positively correlated with behavior). Cross-sectionally at time 1, task self-efficacy, coping self-efficacy, and scheduling self-efficacy were all positively and strongly correlated with proximal goals; hence, Hypothesis 4 is supported. Task self-efficacy, coping self-efficacy, and scheduling self-efficacy were all positively correlated with physical outcome expectations and social outcome expectations;

[5] Hypotheses 1 – 6 will be revisited in the following section when they are reassessed multivariately.

hence, Hypothesis 5 is supported. However, these associations ranged only from weak to moderate in strength. Lastly, physical outcome expectations and social outcome expectations were both positively correlated with proximal goals; hence, Hypothesis 6 is supported. However, both these associations were only moderate in strength.

Assessing the Interplay between Social Cognitive Theory Variables with Mediation Analysis

Hypothesis 7 states that self-efficacy [as its three dimensions: (a) task self-efficacy, (b) coping self-efficacy, and (c) scheduling efficacy] indirectly influences proximal goals through its effects on outcome expectations [as its two dimensions: ($_1$) physical outcome expectations and ($_2$) social outcome expectations]. Additionally, self-efficacy is also hypothesized to indirectly influence behavior through its effect on outcome expectations (H7) as well as its effect through proximal goals (H8). Research Question 1 also poses the question of whether this effect occurs serially through outcome expectations and then through proximal goals.

Although, structural equation modeling (SEM) would allow the testing of the aforementioned hypotheses and research question concurrently within a single model[6], my repertoire at the time of analysis did not include the necessary proficiency in SEM to conduct such a procedure. In order to mitigate this deficiency, I opted to assess these hypotheses separately parsed out according to the combinations between the three dimensions of self-efficacy and the two dimensions of outcome expectations. For example, one combination would consist of task self-efficacy and physical outcome expectations, while another combination would consist of task

[6] A statistical model with the following variables: self-efficacy as its three dimensions of (1) task self-efficacy, (2) coping self-efficacy, and (3) scheduling self-efficacy; outcome expectations as its two dimensions of (4) physical outcome expectations and (5) social outcome expectations; (6) proximal goals; (7) behavior; while controlling for sex and perceived similarity.

self-efficacy and social outcome expectations, for a total of six possible combinations. After presenting each of the six combinations, I summarize patterns across them.

Using Hayes' (2018) ordinary least squares (OLS) regression-based PROCESS macro for mediation, moderation, and conditional process analysis in SPSS, Hypothesis 7 was assessed with simple mediation analyses (PROCESS Model 4) while Hypotheses 8 and 9 and Research Question 1 were assessed with serial multiple mediator analyses (PROCESS Model 6). In effect, two mediation models were produced for each of the six combinations previously mentioned resulting in a total of 12 mediation models. Sex and perceived similarity were included as covariates in each of the models. Also, the simple mediation analyses (i.e., proximal goals as the outcome variable) had an *n* of 314, whereas the serial multiple mediator analyses (i.e., behavior as the outcome variable) had an *n* of 210. As detailed in Chapter 3, this discrepancy in sample size was due to the 33 percent attrition rate in responses between the initial survey and the follow-up survey which collected data for behavior. Finally, the data were screened prior to analyses and there were no serious violations of the assumptions of linearity, homoscedasticity of the errors, and normality of error distribution, nor were there influential multivariate outliers as determined by Mahalanobis distance.

Combination 1: Task Self-efficacy and Physical Outcome Expectations

A simple mediation analysis was conducted to assess the indirect effect of task self-efficacy on proximal behavior through its effect on physical outcome expectations ($H7a_1$). The results indicate that task self-efficacy influences proximal goals indirectly through physical outcome expectations. As shown in Figure 5 (Model 1a), higher task self-efficacy was related with more positive physical outcome expectations ($a = .27$, $p < .001$), and more positive physical outcome expectations was related with higher proximal goals ($b = .14$, $p < .001$). A 95% bias-corrected

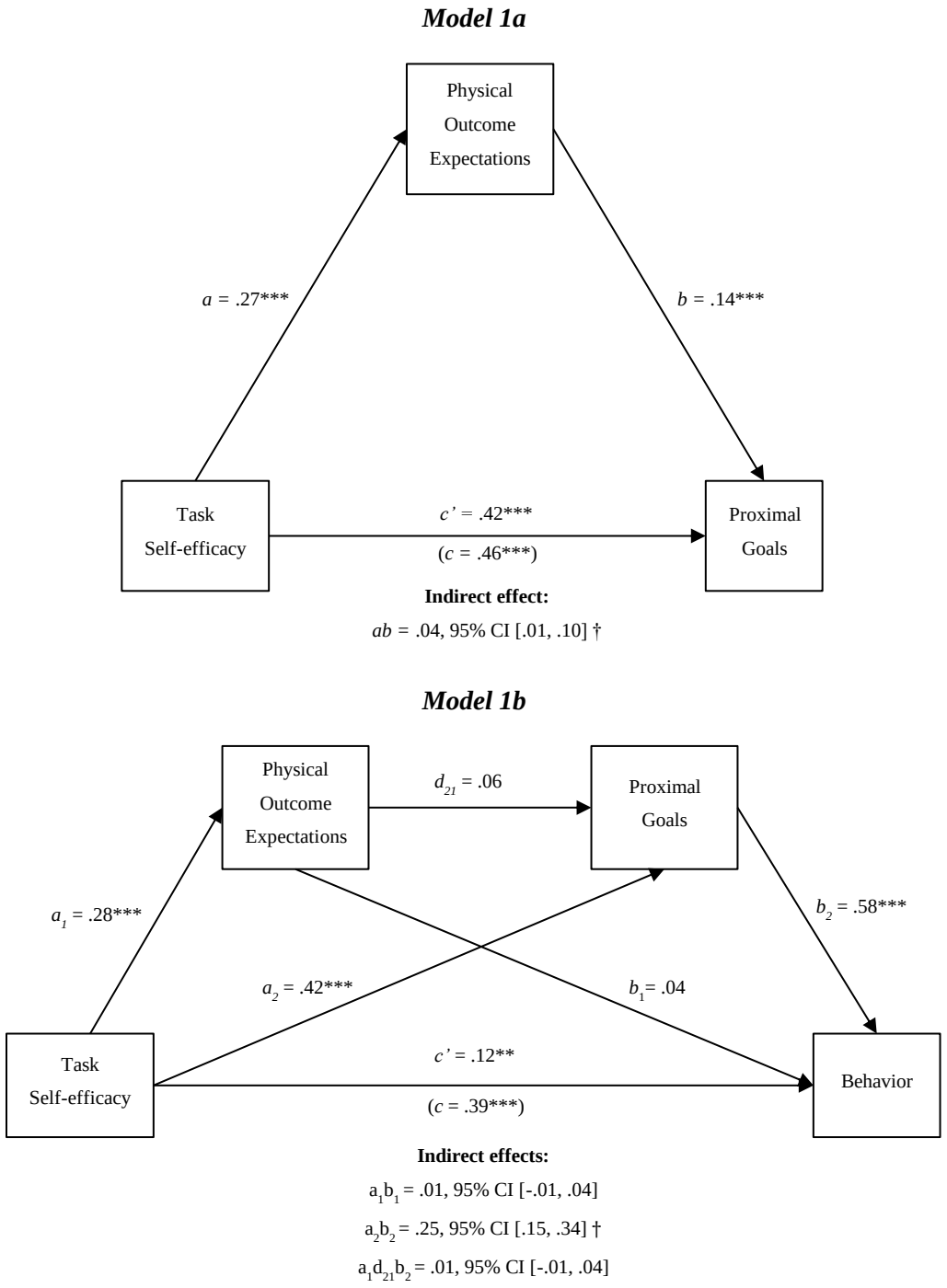


Figure 5. The indirect effect of task self-efficacy on proximal goals through physical outcome expectations (Model 1a; n = 314); indirect effect of task self-efficacy on behavior through proximal goals and physical outcome expectations (Model 1b; n = 210).

Notes. All presented effects are standardized (β). * $p < 0.1$. ** $p < .05$. *** $p < .01$. † significant indirect effect. *c'* is direct effect of task self-efficacy on behavior/proximal goals. *c* is total effect of task self-efficacy on behavior/proximal goals. For mediation tables, see Table D.1 and Table D.7 in Appendix D.

confidence interval based on 10,000 bootstrap samples indicated that the indirect effect (ab = .04) was entirely above zero (.01 to .10); thus, the indirect effect is significant and Hypothesis H7a_1 is supported. Moreover, participants with higher levels of task self-efficacy reported higher proximal goals even when taking into account task self-efficacy's indirect effect through physical outcome expectations, indicating partial mediation (c' = .42, p < .001).

Next, a serial multiple mediation analysis was conducted to assess the indirect effect of task self-efficacy on behavior through (1) physical outcome expectations (H8a_1), (2) proximal goals (H9a), and (3) both physical outcome expectations and proximal goals (RQ1a_1). The results indicate that task self-efficacy influences behavior indirectly through proximal goals. Figure 5 (Model 1b) shows that higher task self-efficacy was related to more positive physical outcome expectations (a_1 = .28, p < .001) and higher proximal goals (a_2 = .42, p < .001); higher proximal goals was related to more frequent behavior (b_2 = .58, p < .001). A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect of task self-efficacy on behavior through proximal goals (a_2b_2 = .25), controlling for physical outcome expectations, was entirely above zero (.15 to .34); thus, the indirect effect is significant and Hypothesis 9a is supported (in this model). In contrast, the indirect effects through physical outcome expectations and proximal goals (a_1b_1 and $a_1d_{21}b_2$) were not different than zero (-.01 to .04 and -.01 to .04, respectively); thus, the indirect effects were not significant. Therefore, Hypothesis 8a_1 was not supported and task self-efficacy does not indirectly influence behavior serially through physical outcome expectations and proximal goals (RQ1a_1). Moreover, participants with higher task self-efficacy reported exercising more even when taking into account task self-efficacy's indirect effect through proximal goals (c' = .12, p < .001).

Combination 2: Task Self-efficacy and Social Outcome Expectations

A simple mediation analysis was conducted to assess the indirect effect of task self-efficacy on proximal behavior through its effect on social outcome expectations (H7a$_2$). The results indicate that task self-efficacy does not influence proximal goals indirectly through social outcome expectations. As shown in Figure 6 (Model 2a), the effect of task self-efficacy on social outcome expectations (a = .07, p = .229) was not significant, but more positive social outcome expectations was related with higher proximal goals (b = .15, p < .001). A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect (ab = .01) was not different than zero (-.01 to .03); thus, the indirect effect is not significant and Hypothesis H7a$_2$ is not supported. Moreover, participants with higher levels of task self-efficacy reported higher proximal goals even when controlling for social outcome expectations (c' = .45, p < .001).

Next, a serial multiple mediation analysis was conducted to assess the indirect effect of task self-efficacy on behavior through (1) social outcome expectations (H8a$_2$), (2) proximal goals (H9a), and (3) both social outcome expectations and proximal goals (RQ1a$_2$). The results indicate that task self-efficacy influences behavior indirectly through proximal goals. Figure 6 (Model 2b) shows that the effect of task self-efficacy on social outcome expectations was not significant (a_1 = .06, p = .417). However, higher task self-efficacy was related to higher proximal goals (a_2 = .44, p < .001); higher proximal goals was related to more frequent behavior (b_2 = .58, p < .001). The effects of social outcome expectations on proximal goals (d_{21} = .03, p = .581) and behavior (b_1 = .07, p = .179) were not significant. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect of task self-efficacy on behavior through proximal goals (a_2b_2 = .25), controlling for social outcome expectations, was entirely above zero (.16 to .35); thus, the indirect effect is significant and Hypothesis 9a is supported (in this model).

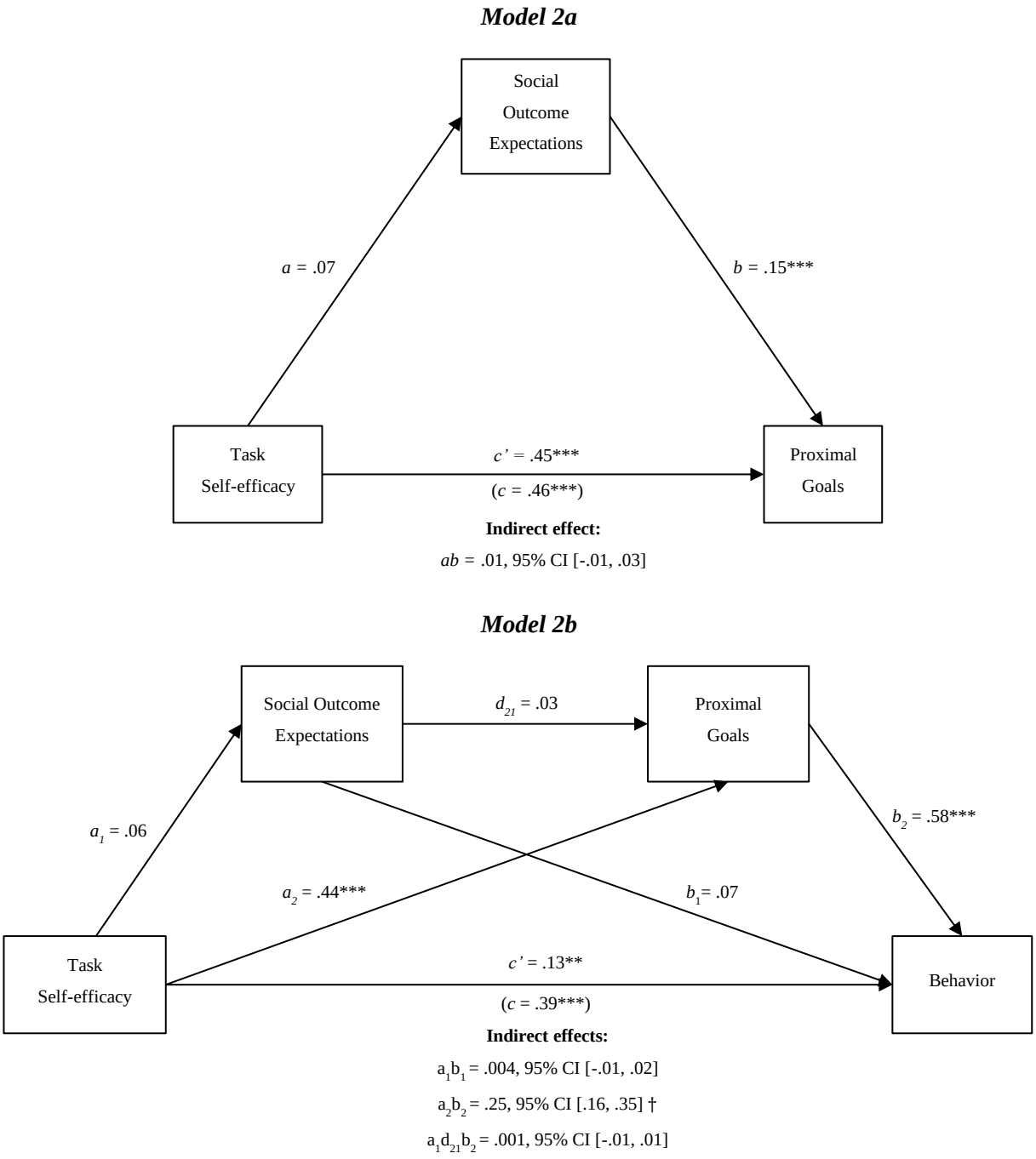


Figure 6. The indirect effect of task self-efficacy on proximal goals through social outcome expectations (Model 2a; n = 314); indirect effect of task self-efficacy on behavior through proximal goals and social outcome expectations (Model 2b; n = 210).

Notes. All presented effects are standardized (β). * $p < 0.1$. ** $p < .05$. *** $p < .01$. † significant indirect effect. *c'* is direct effect of task self-efficacy on proximal goals/behavior. *c* is total effect of task self-efficacy on proximal goals/behavior. For mediation tables, see Table D.2 and Table D.8 in Appendix D.

In contrast, the indirect effects through social outcome expectations and proximal goals (a_1b_1 and $a_1d_{21}b_2$) were not different than zero (-.01 to .02 and -.01 to .01, respectively); thus, the indirect effects were not significant. Therefore, Hypothesis $8a_2$ was not supported and task self-efficacy does not indirectly influence behavior serially through social outcome expectations and proximal goals ($RQ1a_2$). Moreover, participants with higher task self-efficacy reported exercising more even when taking into account task self-efficacy's indirect effect through proximal goals (c' = .13, $p < .001$).

Combination 3: Coping Self-efficacy and Physical Outcome Expectations

A simple mediation analysis was conducted to assess the indirect effect of coping self-efficacy on proximal behavior through its effect on physical outcome expectations ($H7b_1$). The results indicate that coping self-efficacy influences proximal goals indirectly through physical outcome expectations. As shown in Figure 7 (Model 3a), higher coping self-efficacy was related with more positive physical outcome expectations (a = .23, $p < .001$), and more positive health outcome expectations was related with higher proximal goals (b = .14, $p < .001$). A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect (ab = .03) was entirely above zero (.01 to .07); thus, the indirect effect is significant and Hypothesis $H7b_1$ is supported. Moreover, participants with higher levels of coping self-efficacy reported higher proximal goals even when taking into account coping self-efficacy's indirect effect through physical outcome expectations (c' = .50, $p < .001$).

Next, a serial multiple mediation analysis was conducted to assess the indirect effect of coping self-efficacy on behavior through (1) physical outcome expectations ($H8b_1$), (2) proximal goals (H9b), and (3) both physical outcome expectations and proximal goals ($RQ1b_1$). The results indicate that coping self-efficacy influences behavior indirectly through proximal goals.

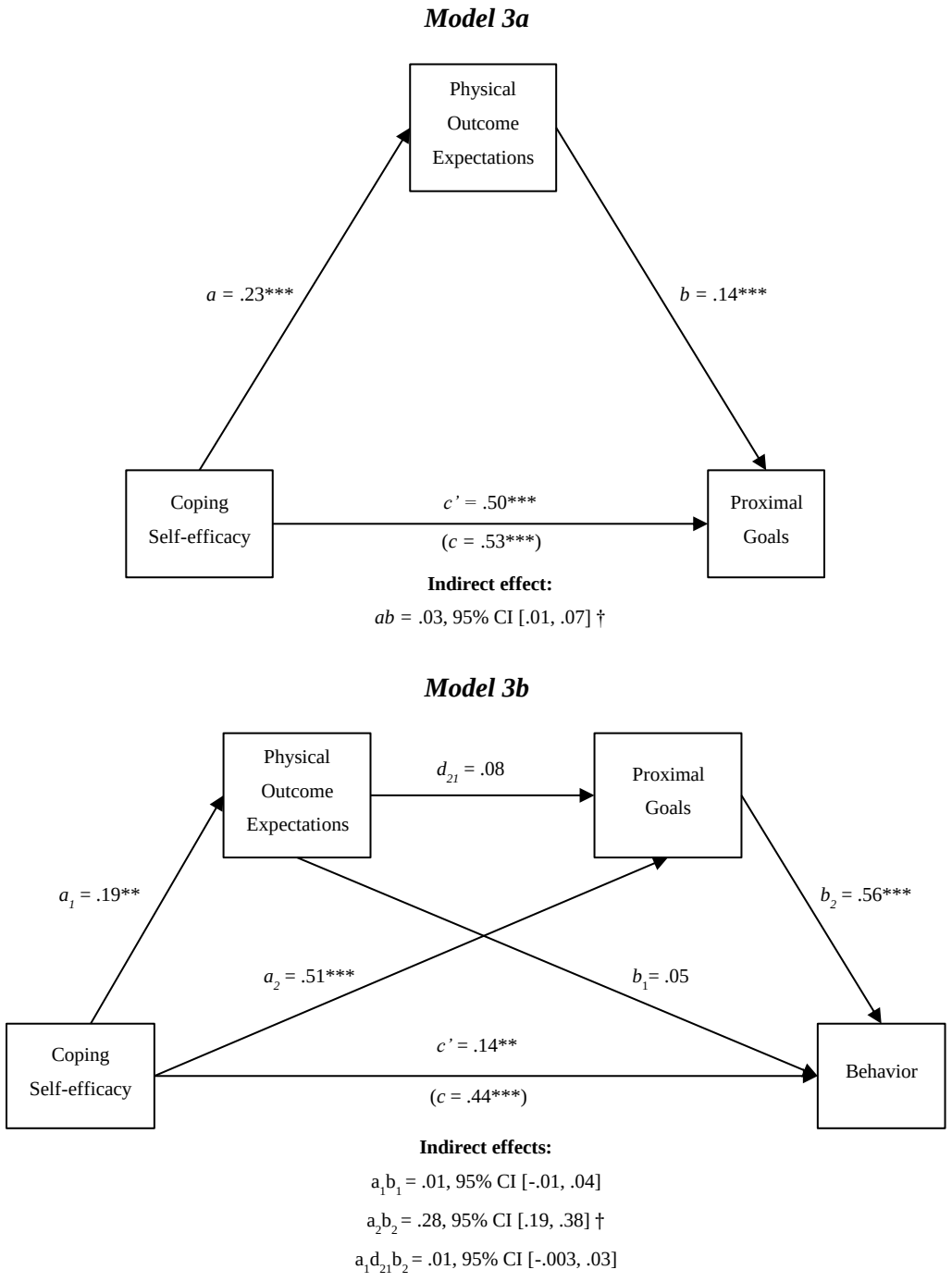


Figure 7. The indirect effect of coping self-efficacy on proximal goals through physical outcome expectations (Model 3a; n = 314); indirect effect of coping self-efficacy on behavior through proximal goals and physical outcome expectations (Model 3b; n = 210).

Notes. All presented effects are standardized (β). * $p < 0.1$. ** $p < .05$. *** $p < .01$. † significant indirect effect. *c'* is direct effect of coping self-efficacy on proximal goals/behavior. *c* is total effect of coping self-efficacy on proximal goals/behavior. For mediation tables, see Table D.3 and Table D.9 in Appendix D.

Figure 7 (Model 3b) shows that higher coping self-efficacy was related to more positive physical outcome expectations (a_1 = .19, p < .05) and higher proximal goals (a_2 = .51, p < .001); and higher proximal goals was related to more frequent behavior (b_2 = .56, p < .001). A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect of coping self-efficacy on behavior through proximal goals (a_2b_2 = .28) was entirely above zero (.19 to .38); thus, this indirect effect is significant. Therefore, Hypothesis 9b (in this model) is supported.

In contrast, the indirect effects through physical outcome expectations and proximal goals (a_1b_1 and $a_1d_{21}b_2$) were not different than zero (-.01 to .04 and -.003 to .03, respectively); thus, the indirect effects were not significant. Therefore, Hypothesis $8a_1$ was not supported and task self-efficacy does not indirectly influence behavior serially through physical outcome expectations and proximal goals ($RQ1a_1$). Moreover, participants with higher task self-efficacy reported exercising more even when taking into account task self-efficacy's indirect effect through proximal goals (c' = .14, p < .05).

Combination 4: Coping Self-efficacy and Social Outcome Expectations

A simple mediation analysis was conducted to assess the indirect effect of coping self-efficacy on proximal behavior through its effect on social outcome expectations ($H7b_2$). The results indicate that coping self-efficacy does not influence proximal goals indirectly through social outcome expectations. As shown in Figure 8 (Model 4a), higher coping self-efficacy was related with more positive social outcome expectations (a = .13, p = .033), and more positive social outcome expectations was related with higher proximal goals (b = .12, p = .011). A 95% bias-corrected confidence interval based on 10,000 bootstrap samples, however, indicated that the indirect effect (ab = .02) was not different than zero (.00 to .04); thus, the indirect effect is not significant and Hypothesis $H7b_2$ is not supported. Moreover, participants with higher levels of

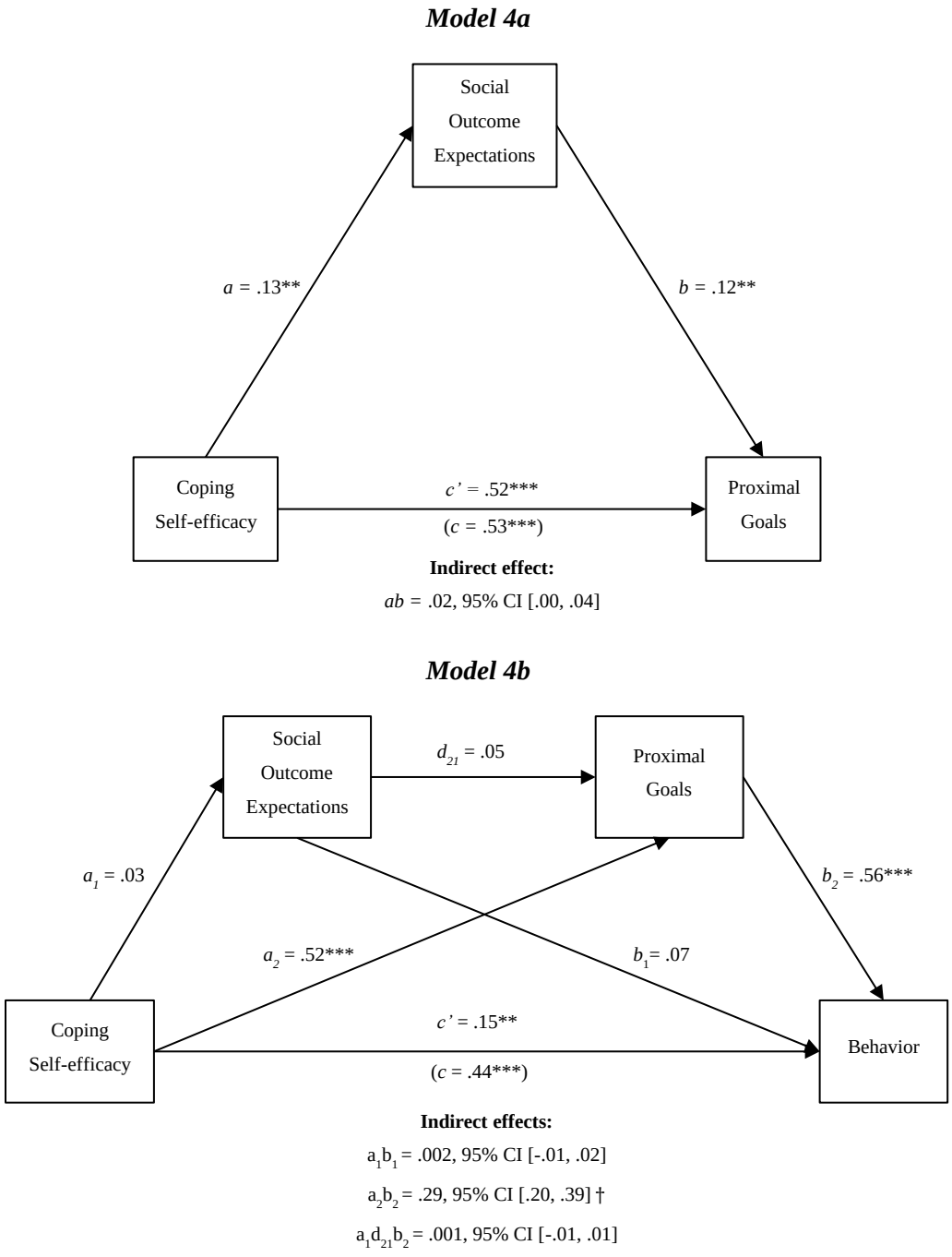


Figure 8. The indirect effect of coping self-efficacy on proximal goals through social outcome expectations (Model 4a; n = 314); indirect effect of coping self-efficacy on behavior through proximal goals and social outcome expectations (Model 4b; n = 210).

Notes. All presented effects are standardized (β). * $p < 0.1$. ** $p < .05$. *** $p < .01$. † significant indirect effect. *c'* is direct effect of coping self-efficacy on proximal goals/behavior. *c* is total effect of coping self-efficacy on proximal goals/behavior. For mediation tables, see Table D.4 and Table D.10 in Appendix D.

coping self-efficacy reported higher proximal goals even when controlling for social outcome expectations (c' = .52, p < .001).

Next, a serial multiple mediation analysis was conducted to assess the indirect effect of coping self-efficacy on behavior through (1) social outcome expectations (H8b$_2$), (2) proximal goals (H9b), and (3) both social outcome expectations and proximal goals (RQ1b$_2$). The results indicate that coping self-efficacy influences behavior indirectly through proximal goals. Figure 8 (Model 4b) shows that the effect of coping self-efficacy on social outcome expectations was not significant (a_1 = .03, p = .725). However, coping self-efficacy was related to higher proximal goals (a_2 = .52, p < .001); higher proximal goals was related to more frequent behavior (b_2 = .56, p < .001). The effects of social outcome expectations on proximal goals (d_{21} = .05, p = .440) and behavior (b_1 = .07, p = .150) were not significant. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect of coping self-efficacy on behavior through proximal goals (a_2b_2 = .29), controlling for social outcome expectations, was entirely above zero (.20 to .39); thus, the indirect effect is significant and Hypothesis 9b is supported (in this model). In contrast, the indirect effects through social outcome expectations and proximal goals (a_1b_1 and $a_1d_{21}b_2$) were not different than zero (-.01 to .02 and -.01 to .01, respectively); thus, the indirect effects were not significant. Therefore, Hypothesis 8b$_2$ was not supported and coping self-efficacy does not indirectly influence behavior serially through social outcome expectations and proximal goals (RQ1b$_2$). Moreover, participants with higher coping self-efficacy reported exercising more even when taking into account coping self-efficacy's indirect effect through proximal goals (c' = .15, p < .001).

Combination 5: Scheduling Self-efficacy and Physical Outcome Expectations

A simple mediation analysis was conducted to assess the indirect effect of scheduling self-efficacy on proximal behavior through its effect on physical outcome expectations ($H7c_1$). The results indicate that scheduling self-efficacy does not influence proximal goals indirectly through physical outcome expectations. As shown in Figure 9 (Model 5a), higher scheduling self-efficacy was related with more positive physical outcome expectations (a = .35, p < .001), but health outcome expectations was not related with proximal goals. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect (ab = .02) was not entirely above zero (-.02 to .05); thus, the indirect effect is not significant and Hypothesis $H7c_1$ is not supported. Participants with higher levels of scheduling self-efficacy reported higher proximal goals when controlling for physical outcome expectations (c' = .63, p < .001).

Next, a serial multiple mediation analysis was conducted to assess the indirect effect of scheduling self-efficacy on behavior through (1) physical outcome expectations ($H8c_1$), (2) proximal goals (H9c), and (3) both physical outcome expectations and proximal goals ($RQ1c_1$). The results indicate that scheduling self-efficacy influences behavior indirectly through proximal goals. Figure 9 (Model 5b) shows that higher scheduling self-efficacy was related to more positive physical outcome expectations (a_1 = .33, p < .001) and higher proximal goals (a_2 = .64, p < .001); proximal goals was related to more frequent behavior (b_2 = .50, p < .001). The effects of physical outcome expectations on proximal goals (d_{21} = -.02, p = .753) and behavior (b_1 = .02, p = .694) were not significant. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect of scheduling self-efficacy on behavior through proximal goals (a_2b_2 = .32), controlling for physical outcome expectations, was entirely above zero (.22 to .42); thus, the indirect effect is significant and Hypothesis 9c is supported (in this model). In

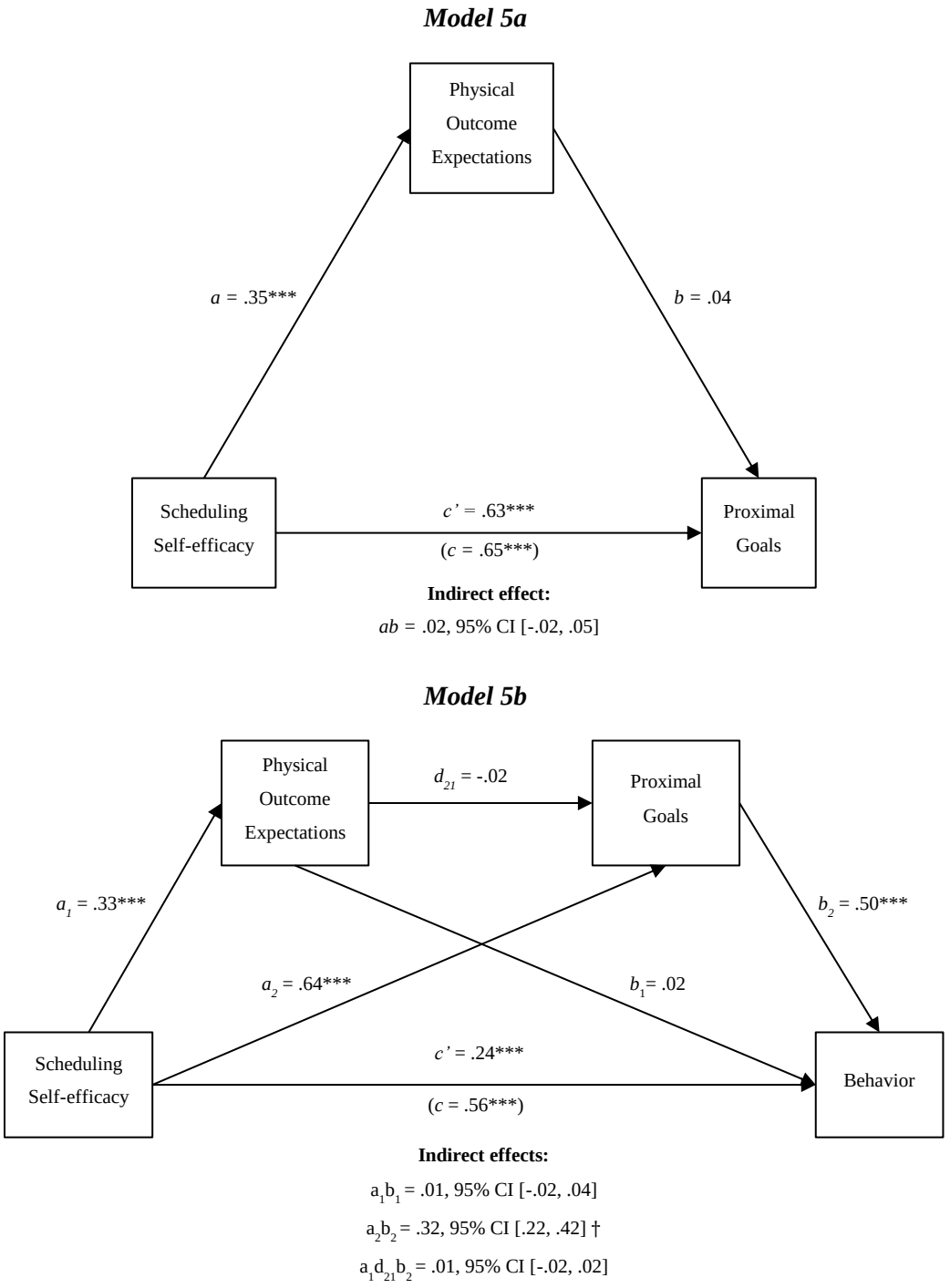


Figure 9. The indirect effect of scheduling self-efficacy on proximal goals through physical outcome expectations (Model 5a; n = 314); indirect effect of scheduling self-efficacy on behavior through proximal goals and physical outcome expectations (Model 5b; n = 210).

Notes. All presented effects are standardized (β). * $p < 0.1$. ** $p < .05$. *** $p < .01$. † significant indirect effect. *c'* is direct effect of scheduling self-efficacy on proximal goals/behavior. *c* is total effect of scheduling self-efficacy on proximal goals/behavior. For mediation tables, see Table D.5 and Table D.11 in Appendix D.

contrast, the indirect effects through physical outcome expectations and proximal goals (a_1b_1 and $a_1d_{21}b_2$) were not different than zero (-.02 to .04 and -.02 to .02, respectively); thus, the indirect effects were not significant. Therefore, Hypothesis $8c_1$ was not supported and scheduling self-efficacy does not indirectly influence behavior serially through physical outcome expectations and proximal goals ($RQ1c_1$). Moreover, participants with higher scheduling self-efficacy reported exercising more even when taking into account scheduling self-efficacy's indirect effect through proximal goals (c' = .24, p < .001).

Combination 6: Scheduling Self-efficacy and Social Outcome Expectations

A simple mediation analysis was conducted to assess the indirect effect of scheduling self-efficacy on proximal behavior through its effect on social outcome expectations ($H7c_2$). The results indicate that scheduling self-efficacy does not influence proximal goals indirectly through social outcome expectations. As shown in Figure 10 (Model 6a), higher scheduling self-efficacy was related with more positive social outcome expectations (a = .14, p = .022), and more positive social outcome expectations was related with higher proximal goals (b = .10, p = .018). A 95% bias-corrected confidence interval based on 10,000 bootstrap samples, however, indicated that the indirect effect (ab = .01) was not different than zero (.00 to .03); thus, the indirect effect is not significant and Hypothesis $H7c_2$ is not supported. Moreover, participants with higher levels of coping self-efficacy reported higher proximal goals even when controlling for social outcome expectations (c' = .63, p < .001).

Next, a serial multiple mediation analysis was conducted to assess the indirect effect of scheduling self-efficacy on behavior through (1) social outcome expectations ($H8c_2$), (2) proximal goals (H9c), and (3) both social outcome expectations and proximal goals ($RQ1c_2$). The results indicate that scheduling self-efficacy influences behavior indirectly through proximal goals.

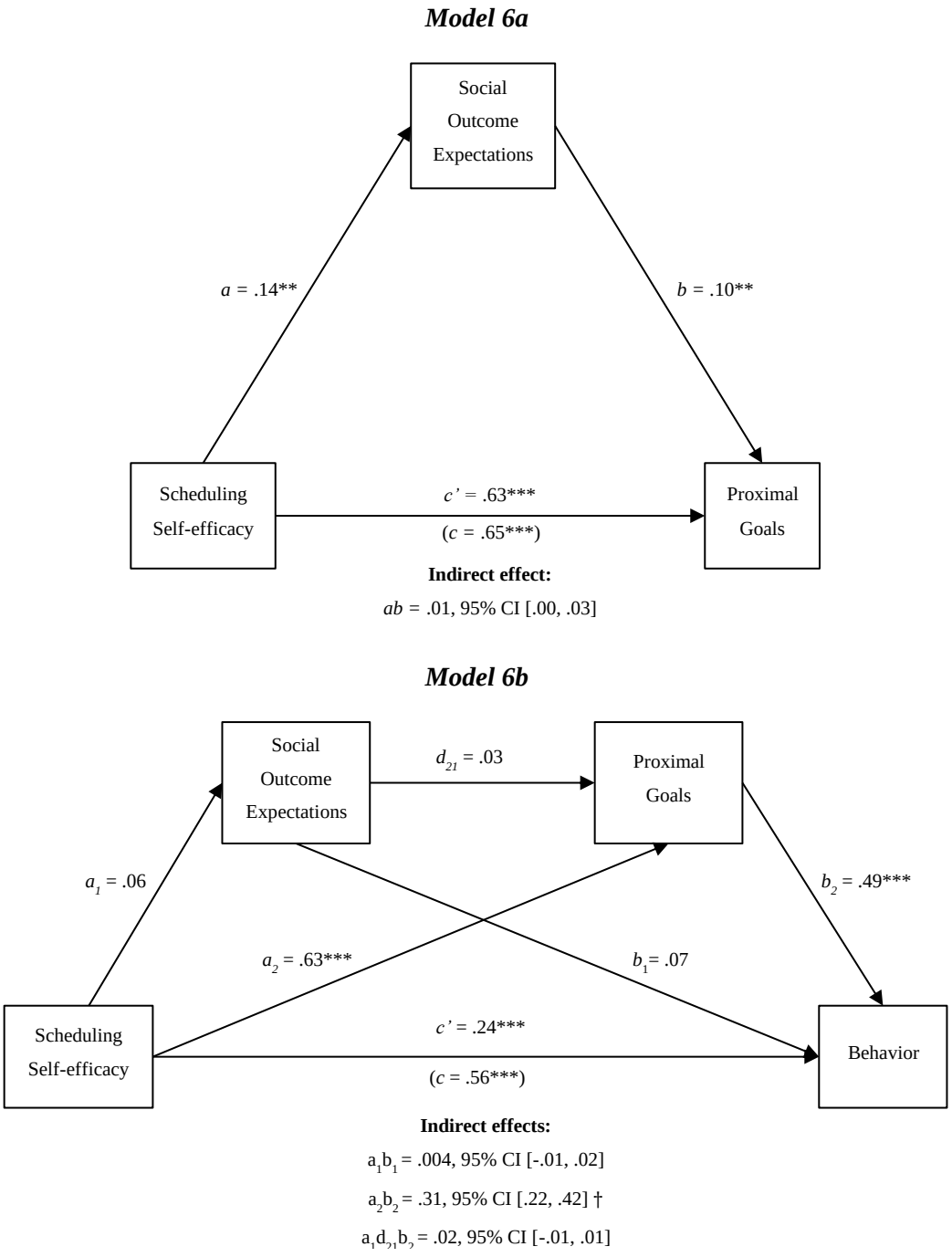


Figure 10. The indirect effect of scheduling self-efficacy on proximal goals through social outcome expectations (Model 6a; n = 314); indirect effect of scheduling self-efficacy on behavior through proximal goals and social outcome expectations (Model 6b; n = 210).

Notes. All presented effects are standardized (β). * $p < 0.1$. ** $p < .05$. *** $p < .01$. † significant indirect effect. *c'* is direct effect of scheduling self-efficacy on proximal goals/behavior. *c* is total effect of scheduling self-efficacy on proximal goals/behavior. For mediation tables, see Table D.6 and Table D.12 in Appendix D.

Figure 10 (Model 6b) shows that the effect of scheduling self-efficacy on social outcome expectations was not significant (a_1 = .06, p = .460). However, scheduling self-efficacy was related to higher proximal goals (a_2 = .63, p < .001); higher proximal goals was related to more frequent behavior (b_2 = .49, p < .001). The effects of social outcome expectations on proximal goals (d_{21} = .03, p = .619) and behavior (b_1 = .07, p = .168) were not significant. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect of scheduling self-efficacy on behavior through proximal goals (a_2b_2 = .23), controlling for social outcome expectations, was entirely above zero (.22 to .42); thus, the indirect effect is significant and Hypothesis 9c is supported (in this model). In contrast, the indirect effects through social outcome expectations and proximal goals (a_1b_1 and $a_1d_{21}b_2$) were not different than zero (-.01 to .02 and -.01 to .01, respectively); thus, the indirect effects were not significant. Therefore, Hypothesis 8c$_2$ was not supported and scheduling self-efficacy does not indirectly influence behavior serially through social outcome expectations and proximal goals (RQ1c$_2$). Moreover, participants with higher scheduling self-efficacy reported exercising more even when taking into account scheduling self-efficacy's indirect effect through proximal goals (c' = .24, p < .001).

Summary of Findings from Mediation Analyses

The series of mediation analyses reported in this section produced several significant findings pertaining to this study's first research aim which is to examine how the three cognitive processes of self-efficacy (as task, coping, and scheduling self-efficacy), outcome expectations (as physical and social outcome expectations), and proximal goals as proposed by SCT interact with one another to influence behavior in the context of muscle-strengthening exercises.

Hypothesis 7, in general terms, stated that self-efficacy indirectly influences proximal goals through its effect on outcome expectations. The results indicated partial support for Hypothesis 7

such that only task and coping self-efficacy had indirect effects on proximal goals only through their effects on physical outcome expectations, but not social outcome expectations. These indirect effects (β) were weak ranging from .03 to .04. In contrast, scheduling self-efficacy did not indirectly affect proximal goals through outcome expectations. However, all three dimensions of self-efficacy on average strongly influenced proximal goals above and beyond their indirect effects through physical outcome expectations (where applicable) with effects (β) ranging from 0.42 to 0.63.

The results also showed that with the exception of the combination of task self-efficacy and social outcome expectations, participants who were more confident in their capabilities related to muscle-strengthening exercise (i.e., self-efficacy) perceived more positive benefits associated with the activity (i.e., outcome expectations). The strength of these effects (β) ranged from 0.13 to 0.35, with the effects of the three self-efficacy dimensions on physical outcome expectations being consistently stronger than their effects on social outcome expectations; the effects of all three dimensions of self-efficacy on physical outcome expectations were moderate in strength, but weak on social outcome expectations. Additionally, participants with more positive outcome expectations intended to perform muscle-strengthening exercises more frequently (i.e., proximal goals) except in the combination of scheduling self-efficacy and physical outcome expectations. However, the strengths of these effects (β) were weak and ranged from 0.10 to 0.14.

Hypothesis 8, in general terms, stated that self-efficacy indirectly influences behavior through its effect on outcome expectations. The results show no support for Hypothesis 8 such that self-efficacy (i.e., all three dimensions) did not indirectly influence behavior through outcome expectations (i.e., both dimensions). Additionally, when controlling for proximal goals and behavior, self-efficacy only had an effect on physical outcome expectations but not social outcome

expectations. The strengths of these effects (β) were moderate ranging from 0.19 to 0.33. This indicated a partial departure from the bivariate assessment of Hypothesis 5 which indicated that all three dimensions of self-efficacy were positively correlated with both physical and social outcome expectations.

Hypothesis 9, in general terms, stated that self-efficacy indirectly influences behavior through its effect on proximal goals. The results indicated support for Hypothesis 9 such that self-efficacy (i.e., all three dimensions) had an indirect effect on behavior through its effect on proximal goals when controlling for outcome expectations (i.e., both dimensions). These indirect effects (β) were moderate on average ranging from 0.25 to 0.32 across all six combinations. The results also showed that self-efficacy influenced behavior above and beyond its indirect effect through proximal goals with effects (β) ranging from 0.12 to 0.24. These effects were approaching moderate strength in the case of scheduling self-efficacy but weak in the cases of task and coping efficacy.

The results also showed that participants who were more confident in their capabilities related to muscle-strengthening exercises (i.e., self-efficacy) intended to exercise more frequently (i.e., proximal goals) than those who were less confident. The strength of these effects (β) were strong on average and ranged from 0.42 to 0.64, with the strongest effects being between scheduling self-efficacy and proximal goals. Also, participants with higher proximal goals performed muscle-strengthening exercises more frequently (i.e., behavior) compared to those with lower proximal goals. The strengths of these effects (β) were also strong on average and ranged from 0.49 to 0.58 with the strongest effects occurring when controlling for task self-efficacy and outcome expectations (i.e., both dimensions).

Lastly, Research Question 1 posed the question of whether self-efficacy indirectly influenced behavior through its serial effect on outcome expectations and proximal goals. The results showed that outcome expectations and proximal goals do not serially mediate the effects of self-efficacy on behavior. Additionally, the results show that outcome expectations do not influence proximal goals when controlling for self-efficacy and behavior (across all combinations). This indicates a departure from the bivariate assessment of Hypothesis 6 which indicated that outcome expectations were positively correlated with proximal goals.

Not specifically part of this study's hypotheses or research questions but an interesting finding pertains to the goodness of fit for the models (for regression tables with model indices, see Appendix 4.1). The explanatory ability of the simple mediation models in explaining the variance in proximal goals as indexed by the model's R^2 was strongest for scheduling self-efficacy (.47 and .48, respectively) followed by coping self-efficacy (.38 and .37, respectively), and task self-efficacy (.31 and .32, respectively). This is consistent with findings from the bivariate correlation analysis (see Table 8) which indicated that scheduling efficacy had the strongest correlation with proximal goals, followed by coping and then task self-efficacy. However, the same could not be observed in the serial multiple mediator models in terms of the degrees of differences between the models when predicting actual resistance training behavior, perhaps because proximal goals at time 1 was a strong predictor of behavior at time 2 in all six serial mediator models.

Assessing the Effects of the Experimentally Manipulated Fitspiration Messages Features within the Framework of SCT with Moderation Analysis

Generally, Hypotheses 10 – 13 and Research Questions 2 – 4 aimed to assess the effects of the experimental manipulations of portrayed action and caption type in fitspiration-type messages on the SCT variables of interest. Specifically, I hypothesized that: the type of portrayed action in

fitspiration-type messages would influence self-efficacy [as (a) task, (b) coping, and (c) scheduling self-efficacy] and outcome expectations [as (e) health and (f) social outcome expectations] such that participants exposed to messages with fitspiration models exercising would report higher levels of self-efficacy (H10) and outcome expectations (H12) compared to participants exposed to messages with models posing; and the caption type in fitspiration-type messages would influence self-efficacy such that participants exposed to messages with social persuasion captions would report higher levels of self-efficacy (H11) compared to participants exposed to messages with non-social persuasion captions. Additionally, I also hypothesized that perceived similarity will moderate the impact of exposure to fitspiration-type messages with models exercising as the portrayed action on self-efficacy such that participants will report higher levels of self-efficacy [as (a) task, (b) coping, (c) scheduling] when they perceive higher levels of similarity with those models (H13).

Research Question 2 posed the question of whether perceived similarity moderates the impact of exposure to fitspiration-type messages with models exercising as the portrayed action on outcome expectations such that participants will report higher levels of outcome expectations [as (a) health, (b) social] when they perceive higher levels of similarity with those models. Research Question 3 aimed to determine whether the experimentally manipulated fitspiration-type messages features of portrayed action (exercising vs. posing) and caption type (social persuasion vs. non-social persuasion) interact to influence self-efficacy [as (a) task, (b) coping, and (c) scheduling self-efficacy] and outcome expectations [as (d) health and (e) social outcome expectations]. Lastly, Research Question 4 aimed to determine whether there are differences in the any of the effects (i.e., main or interaction) of the message features of portrayed action and caption

type on self-efficacy [as (a) task, (b) coping, and (c) scheduling self-efficacy] and outcome expectations [as (d) health and (e) social outcome expectations] based on sex.

The aforementioned hypotheses and research questions were assessed using a series of multiple linear regression analyses with a separate analysis being conducted for each of the outcome variables (i.e., task, coping, and scheduling self-efficacy; and health and social outcome expectations) individually for a total of five separate regression analyses. For each of the analyses, portrayed action (dichotomous; exercising or posing), caption type (dichotomous; social persuasion or non-social persuasion), perceived similarity (mean-centered prior to being entered into the model and prior to the creation of interaction terms), sex (dichotomous; male or female), and the 11 interaction terms between them (i.e., four-way interaction as the highest order interaction) were added as predictors in the models using the enter method. Significant interactions in the analyses then were probed. The data were screened prior to analyses and there were no serious violations of the assumptions of linearity, homoscedasticity of the errors, and normality of error distribution, nor were there influential multivariate outliers as determined by Mahalanobis distance.

Outcome Variable: Task Self-efficacy

A multiple regression analysis was conducted to see if portrayed action, caption type, perceived similarity, sex, together with their 11 interaction terms predicted participants' task self-efficacy. All 15 predictor variables were added to the model with task self-efficacy as the outcome variable. The overall regression was found to be statistically significant, $F(15, 298) = 5.79$, $p < .001$, explaining 18.7% of the variance in task self-efficacy as indexed by the adjusted R^2 ($R^2 = .23$)[7].

[7] For regression table, see Table E.1 in Appendix E.

The results show that the conditional effects of portrayed action (β = -0.04, p = .760) and caption type (β = -0.20, p = .135) on task self-efficacy were not significant; hence, Hypothesis 10a and 11a were not supported. That is, neither portrayed action nor caption type in fitspiration-type messages had an effect on participants' task self-efficacy.

Although not hypothesized in this study, there was a statistically significant conditional effect of sex on task self-efficacy (β = -0.36, p = .001) such that female participants on average reported 20 points lower in task self-efficacy compared to males. This is consistent with the bivariate correlation analysis between sex and task self-efficacy as shown in Table 8.

Finally, the results showed that none of the interactions (i.e., four-way, three-way, and two-way) in the model were statistically significant which indicated no evidence of moderation. Based on these results: Hypothesis 13a is not supported such that perceived similarity with the fitspiration models does not moderate the impact of the portrayed action in fitspiration-type messages on participants' task self-efficacy; Research Question 3a is answered such that the message features of portrayed action and caption type in fitspiration-type messages do not interact to influence participants' task self-efficacy; and Research Question 4a is answered such that fitspiration-type message features of portrayed action and caption type do not individually nor do they interact to influence male and female participants differently in terms of task self-efficacy.

Outcome Variable: Coping Self-efficacy

A multiple regression analysis was conducted to see if portrayed action, caption type, perceived similarity, sex, together with their 11 interaction terms predicted participants' coping self-efficacy. All 15 predictor variables were added to the model with coping self-efficacy as the outcome variable. The overall regression was found to be statistically significant, F(15, 298) =

5.34, $p < .001$, and explained 17.2 percent of the variance in coping self-efficacy as indexed by the adjusted R^2 ($R^2 = .21$)[8].

The results show that the highest order interaction, a four-way interaction between portrayed action, caption type, perceived similarity, and sex, was significant ($\beta = -0.39$, $p = .027$). Aside from the four-way interaction, perceived similarity was also significant as a main effect, such that participants who perceived higher similarity with the models also reported higher coping self-efficacy ($\beta = 0.54$, $p = .022$). Because the main effect is qualified by the higher-order interaction, interpretation of findings focuses on the interaction.

To probe this four-way interaction, it was first decomposed into two separate three-way interactions based on sex consisting of portrayed action, caption type, and perceived similarity as predictors of coping self-efficacy[9]. Both sets of three-way interactions (i.e., males and females) were then analyzed with Hayes' (2018) PROCESS macro Model 3 (i.e., moderated moderation) which enables the probing of three-way interactions. For each model (see Figure 11), portrayed action was entered as the focal predictor variable (*X*), caption type as the primary moderator (*W*), perceived similarity as the secondary moderator (*Z*), and coping self-efficacy as the outcome variable (*Y*). Significant interactions in these models were then probed with the Johnson-Neyman technique which determines the regions of significance corresponding to the range of values of *Z* where the effect of *X* and *W* on *Y* are statistically significant.

The results from the multiple regression analysis of portrayed action, caption type, perceived similarity, and the four interaction terms between them to predict the coping self-efficacy of male participants ($n = 104$) showed the regression model to be statistically significant,

[8] For regression table, see Table E.2 in Appendix E.
[9] The dataset was split according to sex (i.e., males and females).

R^2 = .15, F(7, 96) = 5.34, p = .021.[10] While the eight predictor variables (i.e., four variables and four interaction terms) collectively explained approximately 15 percent of coping self-efficacy among male participants, none of the interactions nor conditional effects were statistically significant. Thus, no probing of interactions occurred for this model.

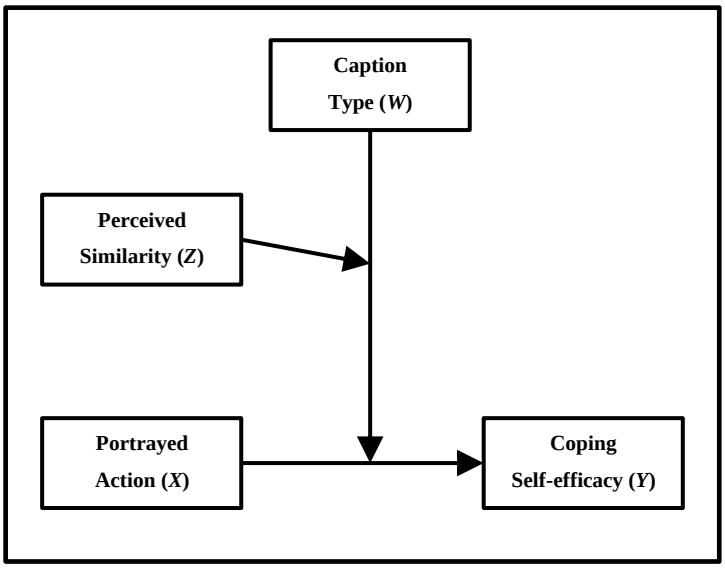


Figure 11. Conceptual diagram of moderated moderation model.

For female participants (n = 210), the multiple regression analysis of portrayed action, caption type, perceived similarity, and the four interaction terms between them to predict coping self-efficacy showed the model to be statistically significant, R^2 = .15, F(7, 202) = 4.93, p < .001.[11] The results from this model indicate that the highest order interaction between portrayed action, caption type, and perceived similarity was statistically significant (B = -21.90, p = .019). This interaction was probed using the Johnson-Neyman technique which determined the levels of

[10] For regression table, see Table E.3 in Appendix E.
[11] For regression table, see Table E.4 in Appendix E.

perceived similarity at which the effect of portrayed action and caption type on coping self-efficacy was significant (see Table 9).

Table 9. The conditional effects of portrayed action (X) x caption type (W) on coping self-efficacy (Y) of female participants at values of perceived similarity (Z).

Perceived Similarity Value	Effect of Portrayed Action x Caption Type (*B*)	*SE*	*t*	*p*	LLCI	ULCI
-1.15	27.36	11.67	2.34	.020	4.35	50.38
-1.00	24.01	10.54	2.28	.024	3.24	44.79
-0.84	20.66	9.48	2.18	.030	1.98	39.34
-0.69	17.31	8.52	2.03	.044	0.51	34.10
-0.64	16.26	8.25	1.97	.050	0	32.53
-0.54	13.95	7.71	1.81	.072	-1.24	29.15
-0.39	10.60	7.08	1.50	.136	-3.37	24.57
-0.23	7.25	6.71	1.08	.281	-5.98	20.48
-0.08	3.90	6.63	0.59	.557	-9.17	16.96
0.08	0.54	6.84	0.08	.937	-12.95	14.03
0.23	-2.81	7.33	-0.38	.702	-17.26	11.64
0.38	-6.16	8.04	-0.77	.444	-22.02	9.69
0.53	-9.52	8.92	-1.07	.287	-27.11	8.08
0.69	-12.87	9.93	-1.30	.196	-32.45	6.71
0.84	-16.22	11.03	-1.47	.143	-37.96	5.52
0.99	-19.58	12.19	-1.61	.110	-43.61	4.46
1.15	-22.93	13.40	-1.71	.089	-49.36	3.50
1.30	-26.28	14.65	-1.79	.074	-55.17	2.61
1.45	-29.63	15.93	-1.86	.064	-61.05	1.78
1.61	-32.99	17.23	-1.91	.057	-66.96	0.99
1.76	-36.34	18.55	-1.96	.051	-72.91	0.24
1.81	-37.41	18.97	-1.97	.050	-74.82	0
1.91	-39.69	19.88	-2.00	.047	-78.89	-0.49

Notes. Zones of significance at $p \leq .05$ significance level are highlighted.

As shown in Table 9, the effect of portrayed action and caption type on the coping self-efficacy of female participants was conditional upon the level of perceived similarity they had with the individuals depicted in fitspiration-type messages. Specifically, the effect was significant only at low levels of perceived similarity (mean-centered scores ≤ -0.64; original score ≤ 1.51) and at high levels (mean-centered score ≥ 1.81; original score ≥ 3.96). Of all the female participants in the study, 57 had perceived similarity scores of 1.51 or lower while only two had scores of 3.96 or higher. Female participants on average reported lower levels of perceived similarity with the

models in the fitspiration-type messages (n = 210; M = 2.07, SD = 0.73) compared to males (n = 104; M = 2.33, SD = 0.87). As such, there was insufficient data to accurately visualize the significant interaction effects at high levels of perceived similarity as determined by the region of significance in Table 9.

The significant interaction for female participants with low perceived similarity scores (i.e., 1.51 on the original 1 – 5 scale) was plotted to visualize the effects of portrayed action and caption type on coping self-efficacy. Figure 12 shows that for female participants who perceived low similarity with the models in the fitspiration-type messages, messages with social persuasion captions produced higher levels of coping self-efficacy when the models in the messages were exercising compared to when they were posing. Conversely, messages with non-social persuasion captions produced approximately equal levels of coping self-efficacy regardless of whether the models in the messages were posing or exercising. The figure also shows that fitspiration-type messages combining social persuasion captions with models exercising produced the highest coping self-efficacy scores among all four combinations.

To approximate the interaction effect at high levels of perceived similarity[12], an interaction plot was produced using data for female participants with perceived similarity scores of one standard deviation above the mean[13] (i.e., 0.65; 2.8 on the original 1 – 5 scale) and above.
As shown in Figure 13, for female participants who perceived high similarity with the models in the fitspiration-type messages, messages with social persuasion captions produced higher levels of

[12] This is only an approximation because the results of the Johnson-Neyman technique presented in Table 9 indicate that the interaction between portrayed action and caption type for female participants is only significant when levels of perceived similarity are ≥ 1.81 (3.96 on actual 1 to 5 scale) and ≤ -0.64 (1.51 on actual 1 to 5 scale). Although only an approximation, this projection should adequately visualize the trend in effects as substantiated by Figure E.2 in Appendix E.
[13] Mean for female participants and not overall mean.

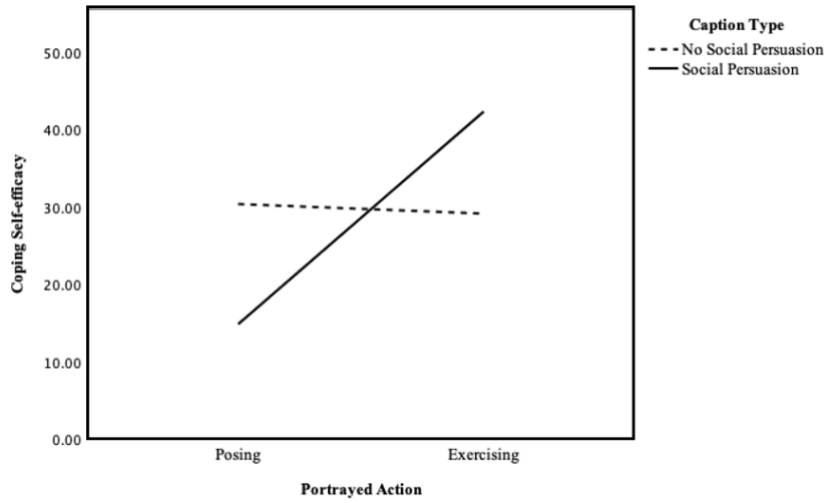


Figure 12. Interaction plot for the effect of portrayed action and caption type on coping self-efficacy among female participants with low levels of perceived similarity (Scores of ≤ 1.51; n = 57).

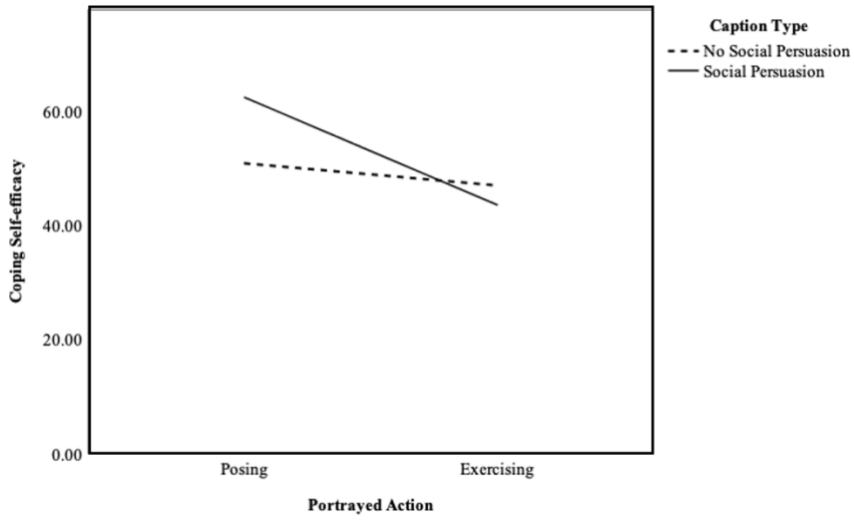


Figure 13. Interaction plot for the approximated effect of portrayed action and caption type on coping self-efficacy among female participants with high levels of perceived similarity (Score of ≥ 2.8; n = 41).

coping self-efficacy when the models in the messages were posing compared to when they were exercising, which is the opposite of what was observed for female participants with low levels of perceived similarity in Figure 12. However, similar to the low perceived similarity group, messages with non-social persuasion captions produced about the same level of coping self-efficacy among female participants with high levels of perceived similarity regardless of whether models in the messages were posing or exercising, although only slightly. Contrary to the low perceived similarity group, fitspiration-type messages combining social persuasion captions with models posing produced the highest coping self-efficacy scores among females who perceived high levels of similarity with those models. Additionally, a comparison between Figure 12 and 13 shows that in the case of female participants, coping self-efficacy scores appeared higher when perceived similarity was high as opposed to low.

Taken together, the results presented in this section do not provide evidence to support the hypothesis that participants exposed to fitspiration-type messages with models exercising resulted in higher coping self-efficacy scores compared to those who viewed messages with models posing (H10b not supported); nor was there a main effect of caption type on levels of coping self-efficacy (H11b not supported). Additionally, there was no direct support for the hypothesis that higher levels of perceived similarity would result in higher levels of coping self-efficacy among participants exposed to messages with models exercising compared to posing (H13b not supported). On Research Question 3b and 4b, there is some evidence that fitspiration-type message features of portrayed action and caption type interact to influence coping self-efficacy and that there are differences in terms of how those message features influence male compared to female participants as well as females who perceived lower as opposed to higher similarity with models in the posts. Specifically, portrayed action and caption type only interact to influence coping self-

efficacy among female participants who perceive either low or high levels of similarity with the models in the messages, but not for moderate levels.

Outcome Variable: Scheduling Self-efficacy

A multiple regression analysis was conducted to see if portrayed action, caption type, perceived similarity, sex, together with their 11 interaction terms predicted participants' scheduling self-efficacy. All 15 predictor variables were added to the model with scheduling self-efficacy as the outcome variable. The overall regression was found to be statistically significant, $F(15, 298) = 5.55$, $p < .001$, and explained 17.9 percent of the variance in scheduling self-efficacy as indexed by the adjusted R^2 ($R^2 = .22$)[14].

The results show that the conditional effects of portrayed action ($\beta = 0.09$, $p = .49$) and caption type ($\beta = -0.08$, $p = .55$) on scheduling self-efficacy were not significant; hence, Hypothesis 10c and 11c were not supported. That is, neither portrayed action nor caption type in fitspiration-type messages had an effect on participants' scheduling self-efficacy.

Although not hypothesized in this study, there was a statistically significant conditional effect of sex on scheduling self-efficacy ($\beta = -0.22$, $p = .048$) such that female participants on average reported 14 points lower in scheduling self-efficacy compared to males. This is consistent with the bivariate correlation analysis between sex and scheduling self-efficacy as shown in Table 4.2.

Finally, the results showed that none of the interactions (i.e., four-way, three-way, and two-way) in the model were statistically significant which indicated no evidence of moderation. Based on these results: Hypothesis 13c is not supported such that perceived similarity with the fitspiration

[14] For regression table, see Table E.5 in Appendix E.

models does not moderate the impact of the portrayed action in fitspiration-type messages on participants' scheduling self-efficacy; Research Question 3c is answered such that the message features of portrayed action and caption type in fitspiration-type messages do not interact to influence participants' scheduling self-efficacy; and Research Question 4c is answered such that fitspiration-type message features of portrayed action and caption type do not individually nor do they interact to influence male and female participants differently in terms of scheduling self-efficacy.

Outcome Variable: Physical Outcome Expectations

A multiple regression analysis was conducted to see if portrayed action, caption type, perceived similarity, sex, together with their 11 interaction terms predicted participants' physical outcome expectations. All 15 predictor variables were added to the model with physical outcome expectations as the outcome variable. The overall regression was found to be approaching significance, $F(15, 298) = 1.62$, $p = .067$, and explained 2.9 percent of the variance in physical outcome expectations as indexed by the adjusted R^2 ($R^2 = .08$)[15].

The results show that the conditional effects of caption type ($\beta = -0.10$, $p = .487$) and portrayed action ($\beta = -0.10$, $p = .495$) on physical outcome expectations were not significant; hence, Hypothesis 12a was not supported. That is, the portrayed action in fitspiration-type messages had no effect on participants' physical outcome expectations.

Finally, the results showed that none of the interactions (i.e., four-way, three-way, and two-way) in the model were statistically significant which indicated no evidence of moderation. Based on these results: Research Question 2a is answered such that perceived similarity with the

[15] For regression table, see Table E.6 in Appendix E.

fitspiration models does not moderate the impact of the portrayed action in fitspiration-type messages on participants' physical outcome expectations; Research Question 3d is answered such that the message features of portrayed action and caption type in fitspiration-type messages do not interact to influence participants' physical outcome expectations; and Research Question 4d is answered such that fitspiration-type message features of portrayed action and caption type do not individually nor do they interact to influence male and female participants differently in terms of physical outcome expectations.

Outcome Variable: Social Outcome Expectations

A multiple regression analysis was conducted to see if portrayed action, caption type, perceived similarity, sex, together with their 11 interaction terms predicted participants' social outcome expectations. All 15 predictor variables were added to the model with social outcome expectations as the outcome variable. The overall regression was found to be statistically significant, $F(15, 298) = 3.28$, $p < .001$, and explained 9.9 percent of the variance in social outcome expectations as indexed by the adjusted R^2 ($R^2 = .14$)[16].

The results show that the conditional effects of caption type ($\beta = -0.01$, $p = .929$) and portrayed action ($\beta = -0.10$, $p = .481$) on social outcome expectations were not significant; hence, Hypothesis 12b was not supported. That is, the portrayed action in fitspiration-type messages had no effect on participants' social outcome expectations.

Finally, the results showed that none of the interactions (i.e., four-way, three-way, and two-way) in the model were statistically significant which indicated no evidence of moderation. Based on these results: Research Question 2b is answered such that perceived similarity with the

[16] For regression table, see Table E.7 in Appendix E.

fitspiration models does not moderate the impact of the portrayed action in fitspiration-type messages on participants' social outcome expectations; Research Question 3e is answered such that the message features of portrayed action and caption type in fitspiration-type messages do not interact to influence participants' social outcome expectations; and Research Question 4e is answered such that fitspiration-type message features of portrayed action and caption type do not individually nor do they interact to influence male and female participants differently in terms of social outcome expectations.

Summary of Findings from Moderation Analyses

The series of moderation analyses reported in this section produced some findings pertaining to this study's second research aim which is to examine how the experimentally manipulated message features of portrayed action and caption type in fitspiration-type messages influence the SCT processes of self-efficacy (as task, coping, and scheduling self-efficacy) and outcome expectations (as health and social outcome expectations) in the context of muscle-strengthening exercises. By and large, the fitspiration-type message features of portrayed action and caption type as experimentally manipulated in this study did not result in the hypothesized effects on the aforementioned outcomes.

Hypothesis 10 and 11, in general terms, stated that portrayed action and caption type would each have main effects on self-efficacy such that participants viewing fitspiration-type messages with models exercising would report higher levels of self-efficacy compared to those exposed to messages with models posing (H10) and participants viewing messages with social persuasion captions would report higher levels of self-efficacy compared to messages with non-social persuasion captions (H11). The results showed no support for these hypothesized main effects for any of the three types of self-efficacy.

Hypothesis 12, in general terms, stated that portrayed action would have a main effect on outcome expectations such that participants exposed to fitspiration-type messages with models posing would report more positive outcome expectations than those exposed to messages with models posing. The results show no support for this hypothesized main effect.

Research Question 2, in general terms, posed the question of whether perceived similarity moderated the effect of the portrayed action in fitspiration-type messages on outcome expectations such that participants who perceive higher levels of similarity with the models would report more positive outcome expectations when exposed to messages with models exercising. The moderation analysis conducted showed no evidence that perceived similarity moderates the effect of portrayed action on outcome expectations. That is, the impact of portrayed action on outcome expectations did not vary depending on levels of perceived similarity with models in the fitspiration posts.

Hypothesis 13 stated that perceived similarity would moderate the influence of portrayed action on self-efficacy such that participants who perceived higher levels of similarity with the models would report higher levels of self-efficacy when exposed to messages with models exercising compared to those who perceived lower levels of similarity. The direct tests of this moderation effect (i.e., two-way interactions between portrayed action and perceived similarity on task, coping, and scheduling self-efficacy) provided no evidence to support this hypothesis. That is, perceived similarity did not specifically moderate the effect of portrayed action on self-efficacy. However, the results do show some evidence of a conditional interaction effect involving the effect of portrayed action and perceived similarity on coping self-efficacy. The precise nature of this interaction will be reported in the following paragraphs.

Research Question 3 posed the question of whether the fitspiration-type message features of portrayed action and caption type interacted to influence self-efficacy (as task, coping, and

scheduling self-efficacy) and outcome expectations (as health and social outcome expectations). Additionally, Research Question 4 asked the question of whether the effects of portrayed action and caption type affected the self-efficacy and outcome expectations of male and female participants differently. The direct testing of the two-way interactions between portrayed action and caption type showed no significant interactions on neither self-efficacy nor outcome expectations. In general, there also did not seem to be a significant difference between male and female participants in terms of the effects of portrayed action and caption type on the outcomes of self-efficacy and outcome expectations (i.e., no significant three-way interactions between sex, portrayed action, and caption type on either self-efficacy or outcome expectations).

However, the results did show that in the specific case of coping self-efficacy, there was a difference in the effects of portrayed action and caption type on coping self-efficacy between male and female participants. While neither the main effects of portrayed action and caption type nor their interaction effect were significant in predicting the coping self-efficacy of male participants, there was evidence for a conditional interaction in the case of female participants. Specifically, the interaction between portrayed action and caption type on coping self-efficacy for female participants was evident only when participants perceived either low levels of similarity with the models in the messages or high levels of similarity, but not in between. When levels of perceived similarity were low, fitspiration-type messages with social persuasion captions produced higher levels of coping self-efficacy among female participants when the model in the message was exercising compared to when the model was posing. When levels of perceived similarity were high, however, the opposite occurred such that fitspiration-type messages with social persuasion captions produced higher levels of coping self-efficacy when the model in the message was posing compared to exercising. Messages with non-social persuasion captions resulted in similar levels

of coping self-efficacy scores among female participants regardless of whether the models in the messages were posing or exercising at both high and low levels of perceived similarity.

While these results suggest an interaction effect of portrayed action and caption type on the coping self-efficacy of female participants with low levels of perceived similarity, the results should be interpreted cautiously considering that this interaction was the only one that was significant out of a larger number of interaction effects tested across types of efficacy and outcomes. It is the case, however, that perceived similarity also was significantly associated with coping self-efficacy (even after controlling for all other variables in the model) in ways it was not with the other two forms of self-efficacy or either form of outcome expectations (compare Table E.2 with the others in Appendix E), which suggests that perceived similarity might play a unique role for coping self-efficacy. Furthermore, the described interaction effects of portrayed action and caption type on coping self-efficacy for high levels of perceived similarity was only an approximation to aid in describing the effect since few female participants report high perceived similarity.

CHAPTER 5. DISCUSSION

The main objective of this dissertation was to provide a complimentary perspective to existing research on the online phenomenon fitspiration. Departing from the general perspective adopted in published findings, this dissertation evaluates the central thesis that fitspiration messages may have utility in health promotion by influencing muscle-strengthening exercise behavior among viewers and that this influence can be explained, in part, through the application of social cognitive theory's (SCT) framework for health behaviors.

Using an experiment involving 315 undergraduate students at Purdue University, the examination of this dissertation's thesis was guided by two research aims. Research Aim 1 was to further understand the mechanisms through which fitspiration messages could influence exercise behavior by examining the structural paths of influence between core constructs within the SCT framework. Research Aim 2 sought to examine the effects of specific fitspiration message features on the SCT determinants of exercise behavior. This chapter presents interpretations of the study's findings and discusses their implications. Limitations of the study are then acknowledged before recommendations for future research are proposed.

Research Aim 1: Examination of Structural Paths of Influence within SCT Framework

Bandura (2004) presented a concise model that explains the adoption or performance of health behaviors from the perspective of SCT (see Figure 1). In this model, perceived self-efficacy is positioned as the model's focal determinant and affects behavior both directly and indirectly through its effects on outcome expectations and goals. Outcome expectations, which are categorized as physical, social, and self-evaluative outcome expectations, are also theorized to affect behavior directly and indirectly through its effects on goals. To clarify, this then positions

perceived self-efficacy to have four paths of influence on behavior: (1) directly, (2) indirectly as mediated by outcome expectations, and (3) indirectly as mediated by goals, and (4) indirectly as serially mediated by outcome expectations and then goals. The model also includes perceptions of sociocultural factors as a mediator in the relationship between self-efficacy and goals, without it having a direct effect on behavior.

The present study applies the SCT model described above but with several modifications. First, self-efficacy is conceptualized as its three dimensions of task, coping, and scheduling self-efficacy. This shifts away from the unidimensional treatment of self-efficacy and contributes to the growing body of research examining the different types of self-efficacy and their relative influence on exercise behavior (e.g., Rodgers et al., 2009). Second, outcome expectations are conceptualized in the model as physical and outcome expectations only. Self-evaluative outcome expectations were excluded from the present study to keep the project manageable and in view of evidence suggesting that college-students are typically motivated to exercise for extrinsic and social reasons (e.g., Fletcher, 2016; Kilpatrick et al., 2005; Snyder et al., 2017). Third, the SCT model applied in this study also omits perceptions of sociocultural factors as a determinant in view that it is not theorized to have a direct effect on behavior. Fourth, goals in this study were conceptualized as proximal goals (i.e., intentions). Fifth, this study conceptualized behavior in specific terms as muscle-strengthening exercise behavior.

Although the model was not tested in its entirety (explained later as a limitation of the study), it was tested as six separate models corresponding to the possible combinations between the three dimensions of self-efficacy and two types of outcome expectations one at a time (e.g., Model 1: Task self-efficacy and physical outcome expectations; Model 2: Coping self-efficacy and physical outcome expectations). Even so, all of these models explained between 54 and 56% of

the variance in muscle-strengthening exercise behavior when controlling for sex and perceived similarity. Consistent with results from a random effects meta-analysis showing that SCT models account for 31% of the variance in physical activity behavior (Young et al., 2014), this study provides further support for the utility of SCT models in predicting exercise behavior even when self-efficacy is conceptualized multidimensionally.

In order to function in the SCT model as described, it was first hypothesized that all the determinants in the model would be positively correlated with one another (*H1 – H6*). Bivariate analyses showed this to indeed be the case. The strongest correlation was between proximal goals and behavior (r = .70), supporting its positioning as a proximal predictor of behavior. All three forms of self-efficacy were also strongly correlated with behavior whereby scheduling efficacy had the strongest association (r = .63), followed by coping (r = .53), and task self-efficacy (r .50).

In contrast, physical and social outcome expectations were both only weakly correlated with behavior, proximal goals, and all three forms of self-efficacy. This finding is surprising considering that outcome expectations are theorized in the model to have direct effects on goals and behavior. When assessed multivariately (i.e., in the SCT models predicting behavior controlling for sex and perceived similarity), both physical and social outcome expectations were consistently shown to not have statistically significant direct effects on either proximal goals or behavior. Additionally, these models also showed that self-efficacy (task, coping, and scheduling) consistently only had significant effects on physical but not social outcome expectations and that these effects were moderate in strength at best.

One possible explanation for these findings is an issue of measurement. Both physical and outcome expectations in this study were measured using the Multidimensional Outcome Expectations for Exercise Scale (MOEES; Wójcicki et al., 2009) which consists of 15 items

measuring physical (6 items), social (4 items), and self-evaluative (5 items) outcome expectations. As explained in Chapter 3, this study only used the 10 items measuring physical and social outcome expectations which had Cronbach's alphas of .71 and .81 respectively. Although these values are conventionally considered to be acceptable (i.e., > .70; Taber, 2017), the alpha for physical outcomes is relatively low. Additionally, while the use of the MOEES has been validated in college student populations (e.g., Farren et al., 2017), most applications of the scale have been in the context of older adults and populations with severe health ailments such as cancer and diabetes (e.g., Hall et al., 2012; Heiss & Petosa, 2016; Silveira et al., 2020).

A second explanation could be that outcome expectations are in fact not as integral of an SCT determinant in the specific context of physical activity and exercise behavior. This explanation is supported by findings from a meta-analysis of 55 SCT models from 44 studies predicting physical activity behavior which found that outcome expectations as a construct was not consistently predictive of behavior (Young et al., 2014). However, this notion does seem odd considering that perceived benefits/rewards are generally considered a main motivator for action as captured by other health behavior models such as the theory of reasoned action and planned behavior (Bandura, 2004).

In further examining the SCT model, it was hypothesized that self-efficacy would indirectly affect exercise behavior through its effects on outcome expectations (*H8*), proximal goals (*H9*), and serially through outcome expectations then proximal goals (*RQ1)*. The results from all six models only show support for the indirect effect of self-efficacy (i.e., all three forms) on behavior through proximal goals. This finding lends further support to the explanation provided above on the lack of evidence supporting the role of outcome expectations in predicting exercise behavior.

Although not hypothesized in this study, a noteworthy observation from these models is the difference in the strength of effects on behavior between the three different types of self-efficacy. From the six models predicting behavior, it was observed that scheduling self-efficacy had the strongest effects (total and direct) on behavior, followed by coping and task self-efficacy. The same was also observed for their effects on proximal goals with effects (standardized regression coefficient; β) ranging from .42 to .64. These findings are consistent with those of Rodgers and Sullivan (2001) who found that scheduling and coping self-efficacy were stronger predictors of exercise behavior compared with task self-efficacy. This provides further support for the importance of discerning between the types of self-efficacy in the physical activity domain and may have practical implications when designing messages for college students that encourage muscle-strengthening exercise behavior.

In addition to testing the SCT model with exercise behavior as the outcome variable, this study also tested a simpler version of the model without behavior and with proximal goals positioned as the outcome variable instead. This was done to test the indirect effects of self-efficacy on proximal goals through its effects on outcome expectations (*H7*). Similar to the full models, six versions of this simpler model were tested corresponding to the three dimensions of self-efficacy and two types of outcome expectations. Results from these models show that physical outcome expectations mediated self-efficacy's effect on proximal goals for task and coping self-efficacy, but not for scheduling self-efficacy. This might be explained by the fact that scheduling self-efficacy had the strongest direct effects (β= .63) on proximal goals compared to task and coping self-efficacy in all of the models. Moreover, the indirect effects of task and coping self-efficacy on proximal goals through physical outcome expectations were very weak (β= .03 - .04).

Research Aim 2: Examination of the Effects of Fitspiration Message Features on Self-efficacy and Outcome Expectations

This second research aim directly assessed the central thesis of this dissertation. In order to examine the effects of fitspiration messages on self-efficacy (task, coping, and scheduling) and outcome expectations (physical and social), this study focused on two salient properties of these messages: the image and the caption. From the review of literature on fitspiration, it was determined that images in these messages typically appear in two variations with the pictured individual either exercising or posing. The same was also found to be applicable to the type of caption such that they would also appear in two variations with the caption either being motivational and encouraging or not. In this study, these features were conceptualized as portrayed action (i.e., image of model exercising or posing) and caption type (i.e., social persuasion or non-social persuasion text caption) and were experimentally manipulated to examine their effects on self-efficacy and outcome expectations.

Guided by the tenets of SCT, fitspiration messages where the portrayed action was exercising were hypothesized to: (a) positively influence self-efficacy and outcome expectations more than messages with images of models posing (*H10 & H12*) (b) be moderated by perceived similarity such that the effect would be more pronounced if viewers perceived higher levels of similarity with the models in the messages compared with lower (*H13 & RQ2*). Fitspiration messages with social persuasion captions were also hypothesized to positively influence self-efficacy more than messages with non-social persuasion captions (*H11*). Additionally, the present study posed the questions of whether these two message features interact to influence self-efficacy and outcome expectations (*RQ3*), and whether there are any differences in the effects of these message features on the hypothesized outcomes based on sex (*RQ4*).

The examined message features as experimentally manipulated in this study produced virtually no effects on the outcomes as hypothesized with one subtle exception. The results show that in the specific case of coping self-efficacy, there is evidence to suggest that female participants were influenced by the interaction between portrayed action and caption type, but not males. However, this effect was conditional upon participants' level of perceived similarity with the models in the messages. Specifically, when perceived similarity was low, fitspiration messages with social persuasion captions produced higher levels of coping self-efficacy among female participants when the model in the message was exercising compared to when the model was posing. In contrast, when perceived similarity was high, messages with social persuasion captions produced higher levels of coping self-efficacy when the model in the message was posing compared to exercising.

One possible explanation for the differential effects is that when female participants perceive low levels of similarity with the models, it might be because they do not identify as "lifters" or have tried performing muscle-strengthening exercises before with little to no success; thus, their perceived ability to persevere and perform the behavior in the face of adversity (i.e., coping self-efficacy) is more positively influenced by viewing messages where the model is performing the actual behavior (i.e., exercising) coupled with a message encouraging those beliefs. On the other hand, female participants who perceive high levels of similarity with the models possibly identify as "lifters" and already regularly perform muscle-strengthening exercises; thus, they are more positively influenced by images of models showing the physical results of their behaviors (i.e., posing) rather than images of them exercising.

The general lack of significant findings related to the experimentally manipulated message features in this study could be explained by several reasons. The first is related to the design of the

study, specifically the experimental procedure. The procedure applied in this study was informed, in part, by past experimental studies examining the effects of exposure to fitspiration messages. Although focused on outcomes different from the present study, many of these studies, particularly those conducted by Tiggermann and colleagues (e.g., Prichard et al., 2020; Robinson et al., 2017; Tiggermann & Zaccardo, 2015) found significant effects ranging from small to large in effect sizes. The present study applied an experimental protocol similar to those in these studies with several differences.

First, unlike the present study, many of these studies were conducted in a laboratory setting. Although acknowledged by the researchers as a limitation in that such designs lacked ecological validity thus reducing the generalizability of their findings, conducting an experiment of this sort (i.e., exposing participants to experimental messages) in a laboratory puts participants in a more conducive situation to attend to the experimental messages and/or tasks. Additionally, it allows the researcher more control in that they are able to observe their participants closely and supervise participants when necessary. For example, the study by Tiggemann and Zaccardo (2015) involved the researchers getting participants to view fitspiration images and respond to the questionnaire on iPads while under their supervision. In contrast, this study used an online survey design which allowed participants the flexibility to participate in the study from virtually anywhere and anytime as long as they had the link to the questionnaire and an Internet compatible device. In effect, it could be the case that many participants in the present study viewed the experimental messages and responded to the questionnaires on their phones while being engaged in other activities. Although the present study included techniques that would encourage participants to attend to the messages (e.g., questions about the image displayed with every image, images were displayed for

20 seconds before participants were allowed to proceed to the next image), the fact remains that online surveys leave room for inattentive responses.

Another issue related to the experimental procedure is the dosing of messages. This study exposed participants to 12 fitspiration images regardless of condition, which is slightly less than what was used in past studies (15 – 18 images; e.g., Prichard et al., 2020; Robinson et al., 2017; Tiggermann & Zaccardo, 2015). Additionally, in an attempt to boost ecological validity, the present study also included eight non-fitspiration images for every condition in the form of travel- or food-related images for a total of 20 images being viewed by participants in each condition. In hindsight, the ratio of 12 fitspiration images to 8 non-fitspiration images does not seem high. In the first experimental study on fitspiration message effects, researchers exposed participants to 16 fitspiration images and only two distractor images (Tiggemann & Zaccardo, 2015). In subsequent studies, researchers exposed participants to fitspiration messages only without including any distractor images (e.g., Prichard et al., 2020). The *noise* generated by the distractor images might have weakened the message manipulations in the present study, thus, resulting in null findings.

The second possible explanation for the lack of significant experimental effects in the present study is that the message manipulations were not strong enough. For the portrayed action feature, messages were manipulated as two forms: exercising and posing. In hindsight, although the posing images do not show the models performing any form of muscle-strengthening exercise, it was the case in many of the images that the model was posing against the backdrop of a gym or fitness facility. While conceptually, the manipulation is sound in that the model posing is not engaging in exercise, the background for posing often is being in a gym – a setting where people engage in muscle-specific fitness activities.

A third possible explanation pertains to the participants' characteristics in relation to the main behavior being promoted through fitspiration messages (i.e., muscle-strengthening exercise behavior). From the review of literature on fitspiration, Jong and Drummond (2016) contended that fitspiration as a trend could contribute to an ingroup-outgroup dichotomy where adherents to online fitness culture as propagated by fitspiration messages might be perceived as (and may be guilty of behaving like) "health fascists." In other words, people who do not identify as "lifters" might perceive "lifters" as members of the outgroup thus associating a negative valence to them. This phenomenon (i.e., ingroup-outgroup dichotomy) is best explained by social identity theory (SIT) which posits that people derive a sense of self-concept and identity from the categories or groups they come to identify with and may display ingroup favoritism and/or highlight negative aspects of outgroups (and their members) in an effort to enhance their sense of self (Tajfel & Turner, 2004). Translated to the present study, it could be the case that participants who already identify as "lifters" might perceive the experimental images favorably as such messages confirm their self-image, whereas participants who do not already identify as "lifters" view these messages negatively (e.g., associating the images with negative stereotypes about lifters). On the one hand, perceived similarity with the models, on average, was fairly low; for example, the average score for perceived similarity in the main study across models and experimental conditions was 2.15 on a 1-5 scale (larger scores indicate higher perceived similarity), though individual participants' scores did range from 1.00 to 4.58 for the 12 models they evaluated (see Table 7). On the other hand, the majority (54%) of participants can be categorized as "lifters" based on their reported stage in the transtheoretical model of change (TTM). Although SIT offers one possible account, it does not seem likely that such a marginal difference between "lifters" and non-"lifters" would

attenuate the effects of the manipulated messages to match the full series of null findings from the experiment.

Related to the last point, a fourth possible explanation is that perceived similarity with models in the posts on average was low enough such that the majority of participants did not engage in the social modeling processes outlined by SCT. Although possible, perceived similarity with models also varied substantially across participants. This fourth explanation also suggests that perceived similarity should have moderated the impact of message features on self-efficacy and outcome expectations, such that effects only emerged for participants who reported higher levels of perceived similarity. With one exception, such interactions did not emerge.

A fifth and final possible explanation is also related to the characteristics of the study's participants. Specifically, participants' sex could be a factor contributing to the null findings from the study's experimental manipulations. The principal behavior promoted in fitspiration messages is muscle-strengthening exercise behavior. As explained by Salvatore and Marecek (2010), this specific type of exercise is gendered such that "the cultural ideal of feminine bodies discourages women from weight lifting" (p. 565) and that the behavior itself is "widely regarded as a masculine activity" (p. 565). Although there are more women participating in muscle-strengthening exercises now more than ever (Henderson, 2019), the behavior is still strongly associated with masculinity. In the present study, nearly three quarters of participants are female, which could possibly explain the lack of significant effects from the experimental messages. That is, female participants might be less likely to be moved by fitspiration messages given cultural ideas that discourage resistance training. In further support of this explanation, data from the present study indicates that female participants had significantly lower levels of exercise task, coping and scheduling self-efficacy

compared to male participants with effects sizes (Cohen's *d*) ranging from .58 (coping) to .78 (task).

Theoretical Implications

This dissertation advances SCT literature in two ways. First, to the best of my knowledge, the examination of SCT models in this dissertation is the first of its kind in terms of conceptualizing self-efficacy as its three dimensions of task, coping, and scheduling self-efficacy along with outcome expectations as physical and outcome expectations in predicting behavior. Self-efficacy and outcome expectations are widely considered to be the core constructs of SCT models (Young et al. 2014). As such, previous studies have applied SCT models with both self-efficacy and outcome expectations, but not conceptualized as their separate dimensions together.

Second, this is also the first study to examine the mediation pathways between *specific* dimensions of self-efficacy and behaviors through different dimensions of outcome expectations and proximal goals. As the findings suggest, physical and social outcome expectations do not mediate the effect of self-efficacy on behavior, at least in the context of exercise behavior. Additionally, the findings also show that physical outcome expectations mediate the effects of self-efficacy on proximal goals, but not social outcome expectations except in the case of scheduling efficacy.

Practical Implications

Although the findings do not show support for this dissertation's central thesis, several practical implications can still be observed. First, the findings provide further support for the utility of SCT models in predicting physical activity behavior. Second, the findings suggest that efforts to promote exercise behavior should focus on developing different dimensions of perceived self-

efficacy, especially scheduling efficacy. For example, messages might target scheduling self-efficacy by stressing that resistance training can be done in many settings (e.g., not only at a gym, but also at home whether alone or online with others) and that as few as two sessions a week can make a big difference in terms of energy and health. Third, given the gendered nature of some forms of exercise, it might be prudent to tailor interventions or promotions where strength training exercise behavior is the outcome according to sex.

Limitations of Study

This study exhibited several strengths, including that it: (a) moved beyond simply manipulating amount of exposure to fitspiration and used an experimental design to explore the potential impact of particular message features present in fitspiration posts, and (b) employed a longitudinal design to gather self-reports of actual resistance-training behavior. Having said this, several limitations should be considered when interpreting study findings and considering future research. First, this study did not test the entire SCT model as conceptualized concurrently. Analyzing the model using structural equation modeling (SEM) would have allowed for such an assessment and may have provided clearer insight on the structural paths of influence between highly specified dimensions of SCT constructs. Second, participants were college students enrolled in Communication courses at Purdue University. Although emerging adulthood is an important population to assess given that exercise behavior tends to decline at this stage of the life course (Caspersen et al., 2000), the sample does limit the generalizability of the study's findings regarding other age cohorts as well as emerging adults who may be less affluent than those who typically attend residential four-year colleges in the United States. A third limitation is that the study did not account for the full SCT model as theorized by Bandura (2004) by omitting self-evaluative outcome expectations and perceptions of sociocultural factors (i.e., impediments and facilitators).

The inclusion of these constructs in addition to those tested in the study would have been a enabled the testing of the full SCT model in the context of resistance training, which is something that has yet to be done with self-efficacy conceptualized as its separate dimensions**.**

Recommendations for Future Research

Findings from previous research suggests that fitspiration messages motivate and inspire viewers to pursue healthy lifestyle behaviors such as exercising (e.g., Tiggemann & Zaccardo, 2015). However, there is much more to understand in terms of when and how this influence occurs. Future studies interested in examining the utility of fitspiration messages for health promotion purposes might consider applying theories that emphasize identity (e.g., SIT) and/or motivation, such as self-determination theory, in trying to unpack the mechanisms through which these messages can influence behavior. Although the choice to apply SCT in the present study was reasonable, the findings suggest that the effects might be more complex than can be explained by a single theoretical perspective.

Second, future studies on fitspiration could examine another popular variation of fitspiration messages: before and after images. Although not revealed in the review of literature to be a prominent type of fitspiration image, a cursory exploration of Instagram using the tag #fitspo would show there is abundance of such images ranging from those emphasizing weight loss as well as those showing the development of muscle mass, both among males and females. Unlike the images as manipulated in the present study, these before and after images clearly show changes in the outcomes associated with muscle-strengthening behavior, which could be a factor in understanding when perceived outcomes have a larger impact on actual behavior.

Conclusion

The overarching goal of this dissertation was to examine the potential utility of fitspiration messages on Instagram in promoting muscle-strengthening exercise behavior among emerging adults (ages 18 – 25) by using Bandura's (2004) SCT framework for health behavior change as a theoretical framework. More specifically, the effects of two specific fitspiration message characteristics (i.e., portrayed action of model: posing or exercising; caption type: with or without social persuasion text) on SCT constructs (i.e., task, coping, and scheduling self-efficacy; physical and social outcome expectations) were examined.

Overall, this dissertation did not provide strong evidence to support the general hypothesis that exposure to fitspiration messages would promote muscle-strengthening exercise behavior or significantly improve scores on SCT constructs. Be that as it may, there were several meaningful contributions. First, these findings provide evidence to support the use of an expanded version of Bandura's (2004) original framework in physical activity and exercise research by operationalizing self-efficacy and outcome expectations according to their separate dimensions. These findings also provide reason to reexamine the theorized mediating role of outcome expectations in the pathway of influence between self-efficacy and behavior, at least in the context of physical activity and exercise research. Second, the findings of this dissertation provide some evidence in support of the idea that muscle-strengthening exercise as a behavior is gendered, which calls for gender-based considerations when tailoring messages to promote the behavior. That is, there may be subtle differences in terms of how fitspiration messages and the like may influence males and females.

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APPENDIX A. INFORMED CONSENT SHEET FOR MAIN STUDY

Informed Consent to Participate in Research
Information to Consider Before Taking Part in this Research Study
Title: Instagram Posts and Attitudes toward Wellness
Pro #IRB-2019-376

IMPORTANT: THIS IS A TWO-PART STUDY. SEE COMPENSATION BELOW.

What is the purpose of this study?
This study seeks to understand perceptions of college students toward commonly found posts on Instagram and how such posts influence attitudes toward wellness.
Why are you being asked to take part?
You are being asked to participate in this study because you are a college student at Purdue University.
Am I eligible to participate in this study?
You are eligible to participate in this study if you are 18 years of age or above.
What will I do if I choose to participate in this study?
This survey is the first part of a two-part study. Participation in the study would require you to complete both this survey and a significantly shorter follow-up survey 14 days after completing this one. For this survey, you will first be asked to complete an online survey questionnaire starting with a series of typical demographic questions (e.g., sex, age, race/ethnicity) as well as some questions about your social media and general health/wellness habits. Then, you will be asked to examine 20 Instagram posts that you might typically come across on social media and asked to respond to questions pertaining to the specific posts followed by a closing set of questions.
How long will I be in this study?
Completion of this survey should take one sitting of between 20 - 30 minutes.
Benefits and risks.
You will receive no direct benefit from this study. This research is considered to be minimal risk.
****Compensation.****
For participation through the Brian Lamb School of Communication's Research Participation System (RPS), you will be compensated with 1.0% extra credit that can be applied to participating COM courses at the Lamb School if you complete both this survey and the follow-up survey 14 days later. **The extra credit will only be awarded after your completion of BOTH surveys has been verified.** You will not receive partial credit for completing this survey if you do not complete the follow-up survey.
For participation from outside of the RPS (i.e., direct link), no compensation will be awarded.
What are my rights if I participate in this study?
You do not have to participate in this study. If you agree to participate you may withdraw your participation at any time without penalty. You may choose to skip certain questions in the survey. However, compensation will only be provided for completed surveys.
Will information about me and my participation be kept confidential?
Yes. Identifying information (e.g., name, PUID number) will not be collected for the purposes of this research.
Who can I contact if I have questions about the study?
If you have questions, comments, or suggestions about this research project, you can talk to one of the researchers. Please contact:
(1) Daniel Kamal at dkamal@purdue.edu; OR
(2) Dr. Bart Collins at bcollins@purdue.edu; OR
(3) Dr. Steve Wilson at wilson52@usf.edu

- o I acknowledge that I (1) **am 18 years of age or older**, (2) have **read and understood the information provided in the information sheet**, and (3) **consent to participate voluntarily** in this research study.

- o I am not eligible OR do not wish to participate in this study.

APPENDIX B. MEASURES

Demographic Measures

1. Are you male or female?
    a. Male
    b. Female
    c. Prefer not to answer

2. What is your age?
    Select from dropdown menu from 18 to Over 40 years old

3. Which of the following best describes your ethnicity?
    a. Hispanic or LatinX
    b. Not Hispanic or LatinX

4. Which of the following best describes your race?
    a. American Indian or Alaska Native
    b. Asian
    c. Black or African American
    d. Native Hawaiian or Pacific Islander
    e. White
    f. Mixed race. Please specify (open ended form)
    g. Other. Please specify (open ended form)

5. Which of the following best describes you?
    a. US-domestic student
    b. International student

6. Is English your first language?
    a. Yes
    b. No

7. Are you a member of a fraternity/sorority/co-op?
    a. Yes
    b. No

8. What is your height (in feet and inches)?

9. What is your weight (in lbs)?

Additional Measures

Social Networking App Habits:

1. Which of the following social networking platforms do you currently have an account with? (Check all that apply)
    a. Facebook
    b. Instagram
    c. Twitter
    d. Snapchat

e. Pinterest
f. MySpace
g. Tumblr
h. Other. Please specify (open ended form)

2. In a typical day, how likely are you to use online social networking platforms? (1 = Extremely unlikely; 5 = Extremely likely)

3. In a typical day, which of the following social networking platforms do you use **MOST** often?
a. Facebook
b. Instagram
c. Twitter
d. Snapchat
e. Pinterest
f. Tumblr
g. MySpace

4. On average, how much time **per day** would you estimate that you spend on the social networking platform you selected in the previous question?
a. Less than 1 hour
b. 1 – 3 hours
c. 3 – 5 hours
d. 5 – 7 hours
e. 7 – 9 hours
f. More than 9 hours

5. On average, how much time **per day** would you estimate that you spend on **all of your social networking platforms combined**?
a. Less than 1 hour
b. 1 – 3 hours
c. 3 – 5 hours
d. 5 – 7 hours
e. 7 – 9 hours
f. More than 9 hours

General Health and Wellness Habits/Perceptions:

1. In general, would you say your health is:
a. Poor
b. Fair
c. Good
d. Very good
e. Excellent

2. Right now you feel you are _____ for your frame.
a. underweight
b. slightly underweight
c. just about the right weight
d. slightly overweight
e. overweight

3. On the days that you do any physical activity or exercise **of at least moderate intensity**, how long are you typically doing these activities?
a. Less than 30 minutes/day
b. 30 minutes to less than 1 hour/day
c. 1 hour to less than 1.5 hours/day

d. 1.5 hours to less than 2 hours/day
e. 2 hours to less than 2.5 hours/day
f. Over 2.5 hours/day

4. On the days that you do physical activities **specifically designed to strengthen muscles such as lifting weights or circuit training**, how long are you typically doing these activities (do not include cardio exercise such as walking, biking, or swimming)?

a. Less than 30 minutes/day
b. 30 minutes to less than 1 hour/day
c. 1 hour to less than 1.5 hours/day
d. 1.5 hours to less than 2 hours/day
e. 2 hours to less than 2.5 hours/day
f. Over 2.5 hours/day

5. How much does concern over the way you look reflect why you would start or continue exercising regularly?

a. Not at all
b. A little
c. Some
d. A lot

6. Which of the following best describes you? [Exercise includes brisk walking, running, cycling, swimming, playing sports, etc]

a. "I do not exercise, and I do not intend to in the next 6 months"
b. "I do not exercise, but I intend to in the next 6 months"
c. "I do not exercise, but I intend to in the next 30 days"
d. "I do exercise, but only have been for less than 6 months"
e. "I do exercise, and have been for more than 6 months"

7. Which of the following best describes you? [Muscle-strengthening exercises includes lifting weights, using resistance machines or bands, pushups, pull-ups, sit-ups, bodyweight squats, etc]

a. "I do not perform muscle-strengthening exercises, and I do not intend to in the next 6 months"
b. "I do not perform muscle-strengthening exercises, but I intend to in the next 6 months"
c. "I do not perform muscle-strengthening exercises, but I intend to in the next 30 days"
d. "I do perform muscle-strengthening exercises, but only have been for less than 6 months"
e. "I do perform muscle-strengthening exercises, and have been for more than 6 months"

8. About how many cups of fruit (including 100% pure fruit juice) do you eat or drink each day?

a. None
b. 1/2 a cup or less
c. 1/2 a cup to 1 cup
d. 1 cup to 2 cups
e. 2 cups to 3 cups
f. 3 cups to 4 cups
g. 4 or more cups

9. About how many cups of vegetables (including 100% pure vegetable juice) do you eat or drink each day?

(Same as the Q.8)

10. How much sugar-sweetened soda or pop do you usually drink each day? Do not include diet sodas or diet pop. [Guideline: A typical can of soda is 12 ounces]

a. None
b. 12 ounces or less
c. 13 to 24 ounces
d. 25 to 36 ounces
e. 37 to 48 ounces
f. More than 48 ounces

Online Health Information-seeking Behavior

1. In the past two weeks, how many days have you read information about **fitness** on the Internet (including online discussion boards)? (0 - More than 7 days)

2. In the past two weeks, how many days have you read information about **muscle-strengthening exercises** on the Internet (including online discussion boards)? (0 - More than 7 days)

3. In the past two weeks, how many days have you read information about **diet/nutrition** (including nutritional supplements and vitamins) on the Internet (including online discussion boards)? (0 - More than 7 days)

4. In the past two weeks, how many days have you read information about **weight-loss** on the Internet (including online discussion boards)? (0 - More than 7 days)

McCroskey et al. (1975) Attitudinal Homophily Scale

Please rate your perception of the model in the post above based on the following criteria. The model:

1. doesn't think like me	_ _ _ _ _	thinks like me
2. doesn't behave like me	_ _ _ _ _	behaves like me
3. is different from me	_ _ _ _ _	is similar to me
4. is unlike me	_ _ _ _ _	is like me

Multidimensional Self-efficacy for Exercise Scale (MSES; Rodgers et al., 2008)

How confident are you that you can (measured on a 0 – 100 VAS scale):

1. Complete muscle-strengthening exercises using proper technique? (Task)
2. Follow directions to complete muscle-strengthening exercises? (Task)
3. Perform all of the required muscle-strengthening movements? (Task)
4. Perform muscle-strengthening exercises when you feel discomfort? (Coping)
5. Perform muscle-strengthening exercises when you lack energy? (Coping)
6. Perform muscle-strengthening exercises when you don't feel well? (Coping)
7. Include muscle-strengthening exercises in your daily routine? (Scheduling)
8. Consistently perform muscle-strengthening exercises three times per week? (Scheduling)
9. Arrange your schedule to include regular muscle-strengthening exercise? (Scheduling)

Multidimensional Outcome Expectations for Exercise Scale (MOEES; Wójcicki et al., 2009)

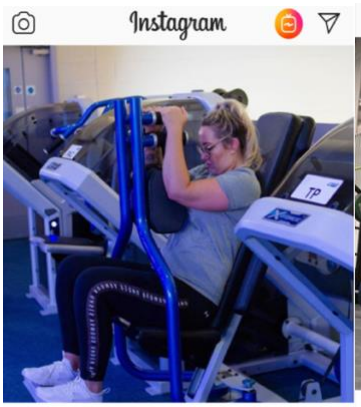
Please indicate your level of agreement with the following statements [rated on a 1 (strongly disagree) -5 (strongly agree) scale]:

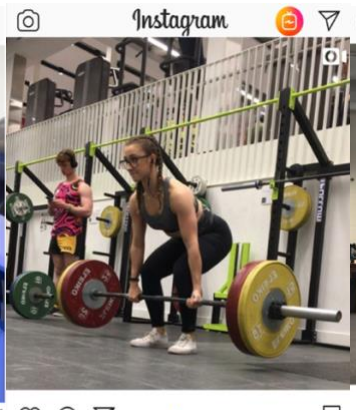
1. Muscle-strengthening exercises will improve my ability to perform daily activities. (Physical)
2. Muscle-strengthening exercises will improve my overall body functioning. (Physical)
3. Muscle-strengthening exercises will strengthen my bones. (Physical)
4. Muscle-strengthening exercises will increase my muscle strength. (Physical)

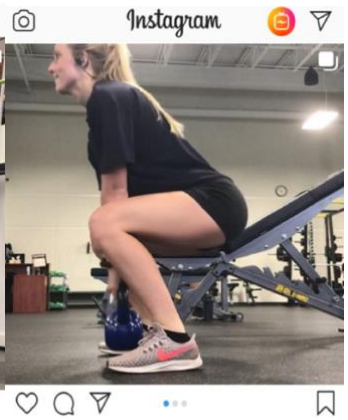
5. Muscle-strengthening exercises will aid in weight control. (Physical)
6. Muscle-strengthening exercises will improve the functioning of my cardiovascular system. (Physical)
7. Muscle-strengthening exercises will improve my social standing. (Social)
8. Muscle-strengthening exercises will make me more at ease with people. (Social)
9. Muscle-strengthening exercises will provide companionship. (Social)
10. Muscle-strengthening exercises will increase my acceptance by others. (Social)
11. Muscle-strengthening exercises will help manage stress. (Self-evaluative)
12. Muscle-strengthening exercises will improve my mood. (Self-evaluative)
13. Muscle-strengthening exercises will improve my psychological state. (Self-evaluative)
14. Muscle-strengthening exercises will improve my mental alertness. (Self-evaluative)
15. Muscle-strengthening exercises will give me a sense of personal accomplishment. (Self-evaluative)

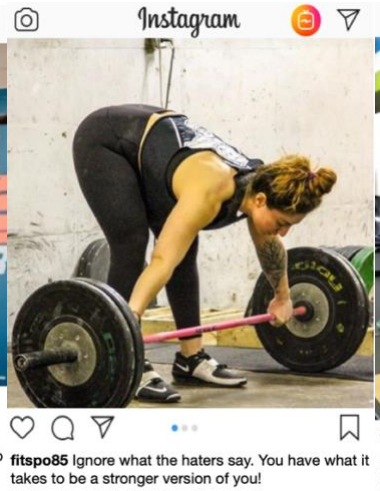
APPENDIX C. EXPERIMENTAL MESSAGES

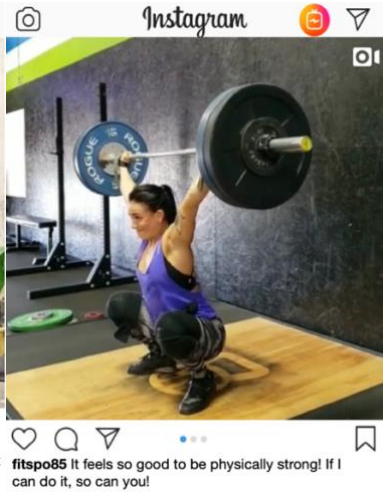
Portrayed Action (Exercising) x Caption Type (Social persuasion)

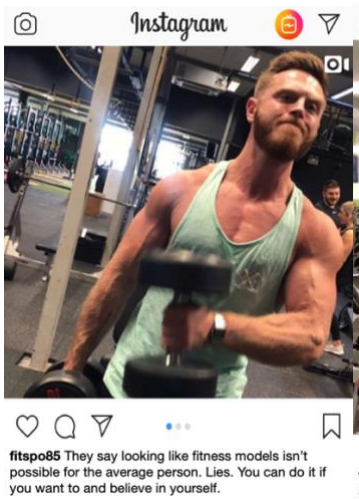











Instagram
fitspo85 They say looking like fitness models isn't possible for the average person. Lies. You can do it if you want to and believe in yourself.


Instagram
fitspo85 Yes, it can be hard. But you can make a lot of changes if you just start.

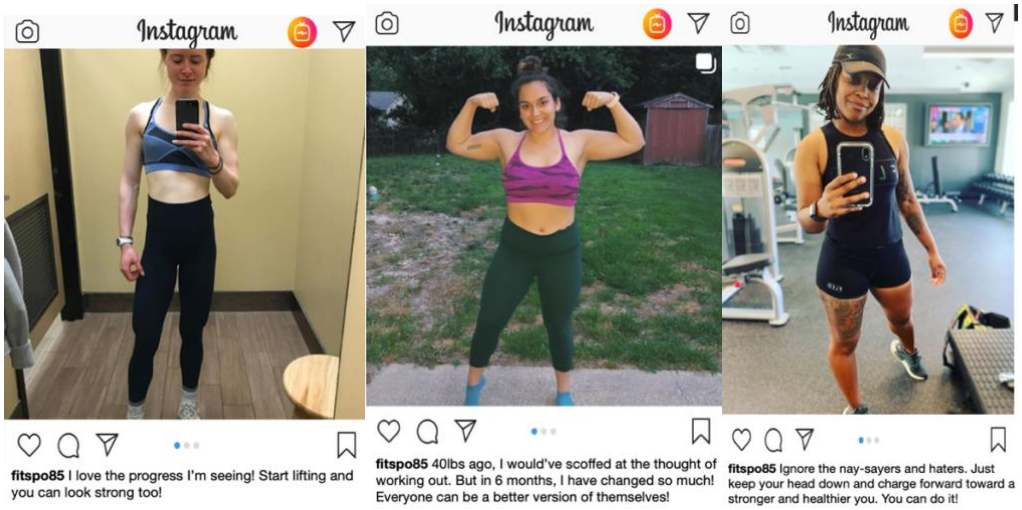

Instagram
fitspo85 When I started, I could barely handle 135lbs. Now I'm moving 405lbs. You can definitely do it if you put your mind to it!

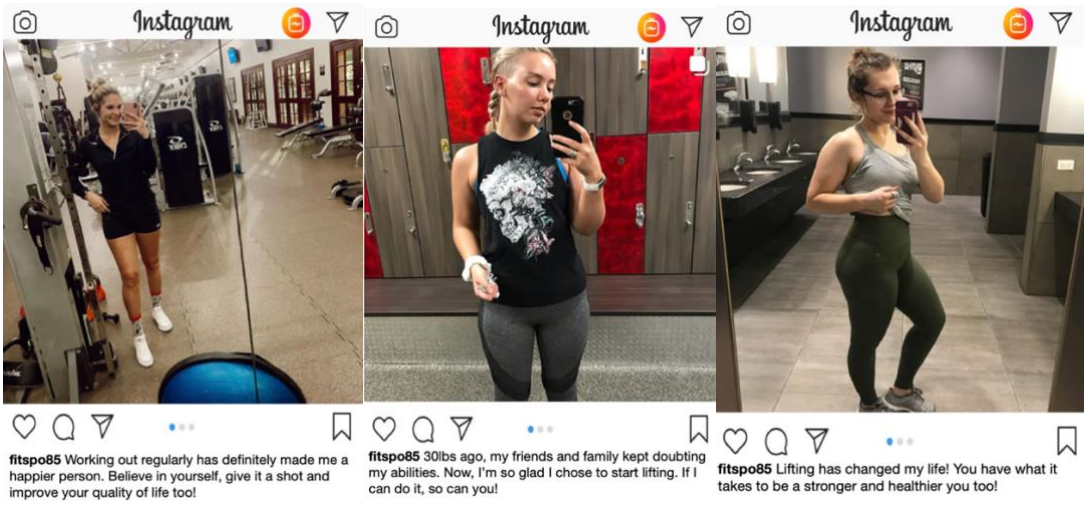

Instagram
fitspo85 It's not just about looking a certain way. It's about feeling strong. Being a stronger you is just a gym's visit away!


Instagram
fitspo85 No, steroids aren't necessary to look jacked. With the desire and discipline, you can achieve that look too!


Instagram
fitspo85 Having a beach-bod isn't as impossible as people think it is. You just have to want it and start somewhere. You got this!

Portrayed Action (Posing) x Caption Type (Social Persuasion)

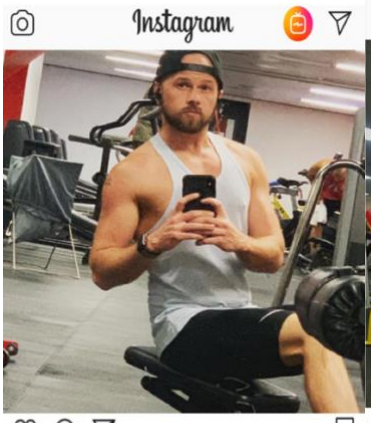




fitspo85 Leg days are hard, but keep at it and we can all get them swole!

fitspo85 I used to be a scrawny kid. I'm happy to be seeing some gains. To all you hardgainers out there, stay the course and believe! You will see the gains!

fitspo85 Many of my friends prefer partying on their free time. You can't look jacked if you're not making the right choices! You got what it takes! Just do it!

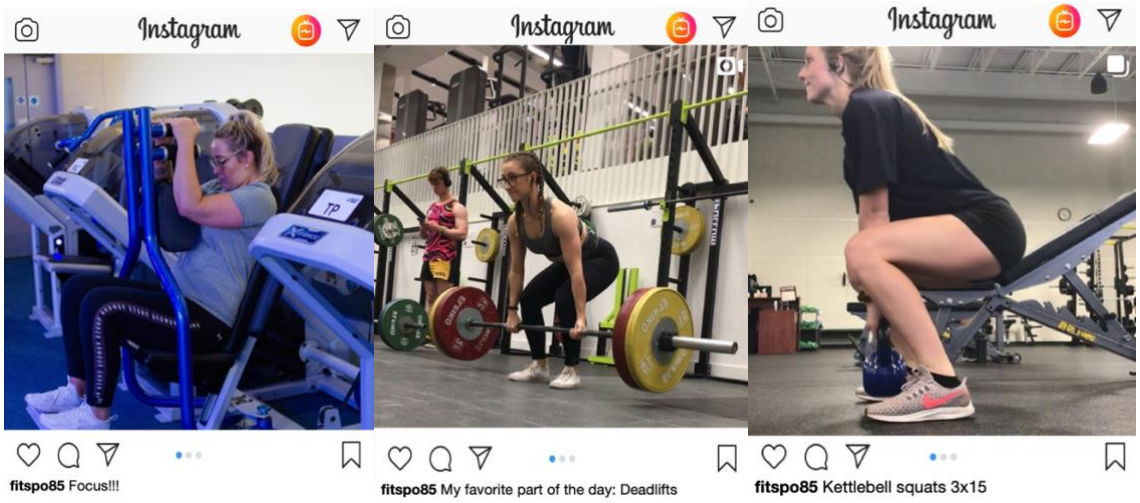


fitspo85 Want to be a happier version of you? Workout, get strong, and let the endorphins flow. You can definitely do it!

fitspo85 Speaking as someone who used to be obese, stop doubting yourself. It can be done! You just have to start.

fitspo85 I've seen myself grow in so many ways since starting 2 years ago. Believe in yourself, start working out, and reap the results!

Portrayed Action (Exercising) x Caption Type (Non-social persuasion)




Instagram
fitspo85 Brushing up on the guns for tank weather


Instagram
fitspo85 Hammer curls 4x12


Instagram
fitspo85 Personal best: 405lbs!

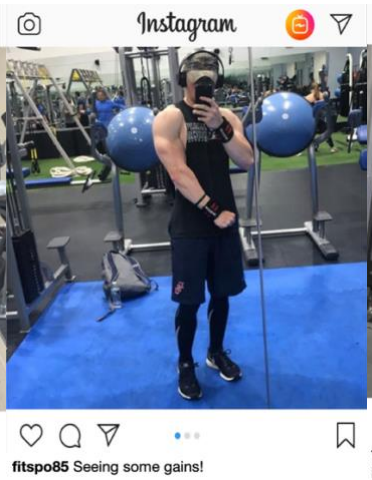

Instagram
fitspo85 dumbbell rows for a thicker back, they said.

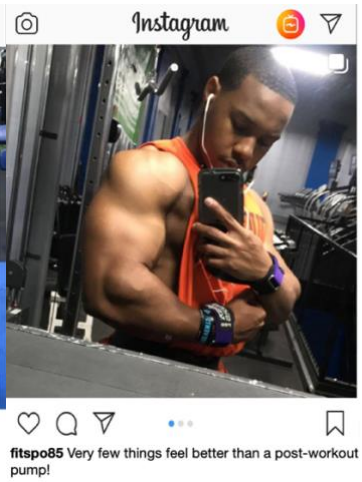

Instagram
fitspo85 Some meditate to relax. I lift.


Instagram
fitspo85 Tricep kickbacks 3x15. Slowwww. The burn.

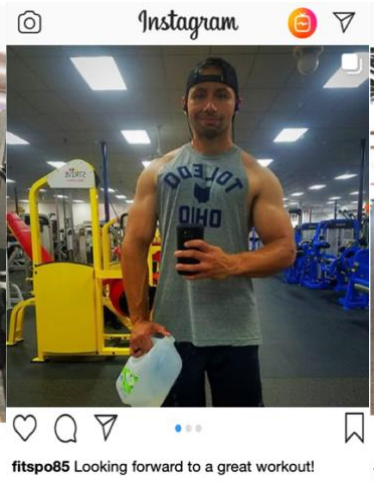
Portrayed Action (Posing) x Caption Type (Non-social persuasion)


Instagram
fitspo85 Definitely gotta step up my leg game.


Instagram
fitspo85 Seeing some gains!


Instagram
fitspo85 Very few things feel better than a post-workout pump!


Instagram
fitspo85 Selfie-break!


Instagram
fitspo85 Looking forward to a great workout!


Instagram
fitspo85 I've come a long way!

Distractor Images

APPENDIX D. REGRESSION TABLES - MEDIATION ANALYSIS

Table D.1. Regression coefficients, standard errors, and model summary information for the simple mediation model: Task self-efficacy – physical outcome expectations.

		Consequent								
		***M* (Physical Outcome Expectations)**					***Y* (Proximal Goals)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Task Self-efficacy)	*a*	0.005	0.268	0.001	< .001	*c'*	0.029	0.418	0.004	< .001
M (Physical Outcome Expectations)		--	--	--	--	*b*	0.505	0.144	0.177	.005
Covariate: Sex		0.151	0.138	0.062	.016		-0.157	-0.041	0.195	.420
Covariate: Perceived Similarity		0.121	0.185	0.037	.001		0.323	0.140	0.117	.006
Constant		3.606	--	0.113	< .001		-1.975	--	0.728	.007
		$R^2 = 0.124$					$R^2 = 0.312$			
		$F(3, 310) = 14.592$, $p < .001$					$F(4, 309) = 35.011$, $p < .001$			

Table D.2. Regression coefficients, standard errors, and model summary information for the simple mediation model: Task self-efficacy – social outcome expectations.

		Consequent								
		***M* (Social Outcome Expectations)**					***Y* (Proximal Goals)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Task Self-efficacy)	*a*	0.003	0.072	0.002	.229	*c'*	0.031	0.445	0.004	< .001
M (Social Outcome Expectations)		--	--	--	--	*b*	0.294	0.154	0.095	.002
Covariate: Sex		-0.439	-0.219	0.115	< .001		0.048	0.013	0.197	.808
Covariate: Perceived Similarity		0.179	0.149	0.068	.009		0.332	0.144	0.116	.004
Constant		2.823	--	0.209	< .001		-0.983	--	0.442	.027
		$R^2 = 0.103$					$R^2 = 0.315$			
		$F(3, 310) = 11.882$, $p < .001$					$F(4, 309) = 35.504$, $p < .001$			

Table D.3. Regression coefficients, standard errors, and model summary information for the simple mediation model: Coping self-efficacy – physical outcome expectations.

		Consequent								
		***M* (Physical Outcome Expectations)**					***Y* (Proximal Goals)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Coping Self-efficacy)	*a*	0.004	0.228	0.001	< .001	*c'*	0.034	0.501	0.003	< .001
M (Physical Outcome Expectations)		--	--	--	--	*b*	0.490	0.140	0.167	.004
Covariate: Sex		0.118	0.108	0.061	.054		-0.211	-0.055	0.180	.244
Covariate: Perceived Similarity		0.123	0.187	0.038	.001		0.229	0.099	0.113	.043
Constant		3.770	--	0.100	< .001		-1.268	--	0.694	.069
		$R^2 = 0.109$					$R^2 = 0.378$			
		$F(3, 310) = 12.611$, $p < .001$					$F(4, 309) = 46.916$, $p < .001$			

Table D.4. Regression coefficients, standard errors, and model summary information for the simple mediation model: Coping self-efficacy – social outcome expectations.

		Consequent								
		***M* (Social Outcome Expectations)**					***Y* (Proximal Goals)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Coping Self-efficacy)	*a*	0.004	0.126	0.002	.033	*c'*	0.035	0.517	0.003	< .001
M (Social Outcome Expectations)		--	--	--	--	*b*	0.235	0.123	0.091	.011
Covariate: Sex		-0.427	-0.213	0.112	< .001		-0.053	-0.014	0.184	.776
Covariate: Perceived Similarity		0.155	0.129	0.069	< .001		0.252	0.110	0.112	.025
Constant		2.845	--	0.183	< .001		-0.089	--	0.393	.821
		$R^2 = 0.112$					$R^2 = 0.374$			
		$F(3, 310) = 13.039$, $p < .001$					$F(4, 309) = 46.118$, $p < .001$			

Table D.5. Regression coefficients, standard errors, and model summary information for the simple mediation model: Scheduling self-efficacy – physical outcome expectations.

		Consequent								
		***M* (Physical Outcome Expectations)**					***Y* (Proximal Goals)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Scheduling Self-efficacy)	*a*	0.006	0.354	0.001	< .001	*c'*	0.039	0.632	0.003	< .001
M (Physical Outcome Expectations)		--	--	--	--	*b*	0.157	0.045	0.159	.324
Covariate: Sex		0.164	0.150	0.060	.006		0.020	0.005	0.169	.907
Covariate: Perceived Similarity		0.101	0.153	0.036	.006		0.214	0.093	0.103	.038
Constant		3.625	--	0.101	< .001		-0.721	--	0.643	.264
		$R^2 = 0.168$					$R^2 = 0.471$			
		$F(3, 310) = 20.911$, $p < .001$					$F(4, 309) = 68.71$, $p < .001$			

Table D.6. Regression coefficients, standard errors, and model summary information for the simple mediation model: Scheduling self-efficacy – social outcome expectations.

		Consequent								
		***M* (Social Outcome Expectations)**					***Y* (Proximal Goals)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Scheduling Self-efficacy)	*a*	0.004	0.137	0.002	.022	*c'*	0.039	0.634	0.365	< .001
M (Social Outcome Expectations)		--	--	--	--	*b*	0.199	0.104	0.084	.018
Covariate: Sex		-0.411	-0.205	0.113	< .001		0.127	0.033	0.169	.453
Covariate: Perceived Similarity		0.154	0.128	0.068	.026		0.199	0.087	0.102	.051
Constant		2.777	--	0.192	< .001		-0.703	--	0.365	.055
		$R^2 = 0.114$					$R^2 = 0.479$			
		$F(3, 310) = 13.320$, $p < .001$					$F(4, 309) = 70.921$, $p < .001$			

Table D.7. Regression coefficients, standard errors, and model summary information for the multiple mediator model: Task self-efficacy – physical outcome expectations.

		Consequent												
		***M*$_1$ (Physical Outcome Expectations)**					***M*$_2$ (Proximal Goals)**					***Y* (Behavior)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Task Self-efficacy)	a_1	0.006	0.282	0.001	< .001	a_2	0.029	0.421	0.005	< .001	c'	0.009	0.124	0.004	.040
M_1 (Physical Outcome Expectations)		--	--	--	--	d_{21}	0.220	0.063	0.219	.318	b_1	0.155	0.044	0.182	.395
M_2 (Proximal Goals)		--	--	--	--		--	--	--	--	b_2	0.591	0.581	0.058	< .001
Covariate: Sex		0.080	0.074	0.075	.284		-0.284	-0.075	0.235	.230		-0.593	-0.154	0.196	.003
Covariate: Perceived Similarity		0.109	0.172	0.044	.013		0.337	0.153	0.139	.016		0.057	0.025	0.117	.627
Constant		3.653	--	0.133	< .001		-0.614	--	0.903	.498		-0.776	--	0.747	.301
		R^2 = 0.130 F(3, 206) = 10.287, p < .001					R^2 = 0.297 F(4, 205) = 21.633, p < .001					R^2 = 0.535 F(5, 204) = 47.001, p < .001			

Table D.8. Regression coefficients, standard errors, and model summary information for the multiple mediator model: Task self-efficacy – social outcome expectations.

		Consequent												
		***M*$_1$ (Social Outcome Expectations)**					***M*$_2$ (Proximal Goals)**					***Y* (Behavior)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Task Self-efficacy)	a_1	0.002	0.060	0.003	.417	a_2	0.030	0.437	0.004	< .001	c'	0.009	0.132	0.004	.025
M_1 (Social Outcome Expectations)		--	--	--	--	d_{21}	0.064	0.034	0.116	.581	b_1	0.129	0.068	0.096	.179
M_2 (Proximal Goals)		--	--	--	--		--	--	--	--	b_2	0.591	0.582	0.058	< .001
Covariate: Sex		-0.510	-0.253	0.141	< .001		-0.233	-0.061	0.243	.338		-0.514	-0.133	0.201	.011
Covariate: Perceived Similarity		0.120	0.102	0.082	.146		0.353	0.160	0.138	.011		0.058	0.026	0.115	.615
Constant		3.056	--	0.251	< .001		-0.008	--	0.549	.988		-0.605	--	0.453	.183
		R^2 = 0.097 F(3, 206) = 7.406, p < .001					R^2 = 0.294 F(4, 205) = 21.386, p < .001					R^2 = 0.538 F(5, 204) = 47.468, p < .001			

Table D.9. Regression coefficients, standard errors, and model summary information for the multiple mediator model: Coping self-efficacy – physical outcome expectations.

		Consequent												
		***M*$_1$ (Physical Outcome Expectations)**					***M*$_2$ (Proximal Goals)**					***Y* (Behavior)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Coping Self-efficacy)	a_1	0.004	0.185	0.001	.012	a_2	0.034	0.505	0.004	< .001	c'	0.010	0.143	0.004	.021
M_1 (Physical Outcome Expectations)		--	--	--	--	d_{21}	0.291	0.084	0.204	.154	b_1	0.193	0.054	0.178	.281
M_2 (Proximal Goals)		--	--	--	--		--	--	--	--	b_2	0.567	0.560	0.061	< .001
Covariate: Sex		0.033	0.030	0.075	.659		-0.352	-0.093	0.218	.108		-0.634	-0.164	0.191	.001
Covariate: Perceived Similarity		0.121	0.192	0.045	.008		0.216	0.098	0.134	.110		0.037	0.016	0.118	.755
Constant		3.847	--	0.119	< .001		-0.252	--	0.858	.770		-0.684	--	0.747	.361
		R^2 = 0.094					R^2 = 0.366					R^2 = 0.538			
		$F(3, 206) = 7.136$, $p < .001$					$F(4, 205) = 29.642$, $p < .001$					$F(5, 204) = 47.487$, $p < .001$			

Table D.10. Regression coefficients, standard errors, and model summary information for the multiple mediator model: Coping self-efficacy – social outcome expectations.

		Consequent												
		***M*$_1$ (Social Outcome Expectations)**					***M*$_2$ (Proximal Goals)**					***Y* (Behavior)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Coping Self-efficacy)	a_1	0.001	0.026	0.003	.725	a_2	0.035	0.519	0.004	< .001	c'	0.010	0.150	0.004	.014
M_1 (Social Outcome Expectations)		--	--	--	--	d_{21}	0.086	0.045	0.111	.440	b_1	0.138	0.072	0.096	.150
M_2 (Proximal Goals)		--	--	--	--		--	--	--	--	b_2	0.570	0.561	0.060	< .001
Covariate: Sex		-0.535	-0.265	0.138	< .001		-0.296	-0.078	0.226	.192		-0.553	-0.143	0.197	.005
Covariate: Perceived Similarity		0.130	0.111	0.084	.121		0.240	0.109	0.133	.073		0.042	0.019	0.116	.720
Constant		3.144	--	0.220	< .001		0.600	--	0.493	.225		-0.379	--	0.428	.376
		R^2 = 0.095					R^2 = 0.362					R^2 = 0.540			
		$F(3, 206) = 7.208$, $p < .001$					$F(4, 205) = 29.078$, $p < .001$					$F(5, 204) = 47.884$, $p < .001$			

Table D.11. Regression coefficients, standard errors, and model summary information for the multiple mediator model: Scheduling self-efficacy – physical outcome expectations.

		Consequent												
		***M*$_1$ (Physical Outcome Expectations)**					***M*$_2$ (Proximal Goals)**					***Y* (Behavior)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Scheduling Self-efficacy)	a_1	0.006	0.334	0.001	< .001	a_2	0.039	0.640	0.004	< .001	c'	0.015	0.237	0.004	.001
M_1 (Physical Outcome Expectations)		--	--	--	--	d_{21}	-0.062	-0.018	0.195	.753	b_1	0.071	0.020	0.181	.694
M_2 (Proximal Goals)		--	--	--	--		--	--	--	--	b_2	0.505	0.497	0.065	< .001
Covariate: Sex		0.093	0.085	0.074	.207		-0.069	-0.018	0.206	.738		-0.541	-0.140	0.191	.005
Covariate: Perceived Similarity		0.095	0.150	0.043	.029		0.212	0.096	0.122	.085		0.041	0.018	0.114	.723
Constant		3.694	--	0.122	< .001		0.351	--	0.796	.660		-0.465	--	0.739	.530
		R^2 = 0.155					R^2 = 0.461					R^2 = 0.552			
		$F(3, 206) = 12.619$, $p < .001$					$F(4, 205) = 43.742$, $p < .001$					$F(5, 204) = 50.241$, $p < .001$			

Table D.12. Regression coefficients, standard errors, and model summary information for the multiple mediator model: Scheduling self-efficacy – social outcome expectations.

		Consequent												
		***M*$_1$ (Social Outcome Expectations)**					***M*$_2$ (Proximal Goals)**					***Y* (Behavior)**			
Antecedent		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***		***B***	**β**	***SE***	***p***
X (Scheduling Self-efficacy)	a_1	0.002	0.055	0.002	.460	a_2	0.038	0.633	0.003	< .001	c'	0.015	0.242	0.004	< .001
M_1 (Social Outcome Expectations)		--	--	--	--	d_{21}	0.051	0.027	0.102	.619	b_1	0.130	0.068	0.094	.168
M_2 (Proximal Goals)		--	--	--	--		--	--	--	--	b_2	0.501	0.493	0.065	< .001
Covariate: Sex		-0.515	-0.255	0.141	< .001		-0.049	-0.013	0.212	.818		-0.467	-0.121	0.196	.018
Covariate: Perceived Similarity		0.120	0.103	0.083	.147		0.200	0.090	0.121	.101		0.032	0.014	0.113	.774
Constant		3.093	--	0.233	< .001		-0.033	--	0.463	.943		-0.604	--	0.428	.160
		R^2 = 0.097					R^2 = 0.461					R^2 = 0.556			
		$F(3, 206) = 7.364$, $p < .001$					$F(4, 205) = 43.811$, $p < .001$					$F(5, 204) = 51.026$, $p < .001$			

APPENDIX E. REGRESSION TABLES - MODERATION ANALYSIS

Table E.1. Results of multiple regression analysis of predictors of task self-efficacy (n = 314).

Predictor Variables	***B***	***SE***	**β**	***t***	***p***
Intercept	76.935	5.439		14.146	< .001
Sex *(0 = Male, 1 = Female)*	-19.988	6.221	-0.361	-3.213	.001
Perceived Similarity	1.606	7.733	0.048	0.208	.836
Portrayed Action *(0 = Posing, 1 = Exercising)*	-2.157	7.045	-0.041	-0.306	.76
Caption Type *(0 = No SP, 1 = SP)*	-10.307	6.884	-0.198	-1.497	.135
Int 1: Sex x Portrayed Action	2.378	8.571	0.043	0.277	.782
Int 2: Sex x Caption Type	9.22	8.256	0.166	1.117	.265
Int 3: Sex x Perceived Similarity	10.916	8.693	0.249	1.256	.210
Int 4: Portrayed Action x Caption Type	5.421	9.943	0.089	0.545	.586
Int 5: Portrayed Action x Perceived Similarity	3.954	9.199	0.087	0.43	.668
Int 6: Caption Type x Perceived Similarity	10.351	9.384	0.222	1.103	.271
Int 7: Sex x Portrayed Action x Caption Type	-8.822	12.03	-0.128	-0.733	.464
Int 8: Sex x Portrayed Action x Perceived Similarity	-6.17	11.295	-0.098	-0.546	.585
Int 9: Sex x Caption Type x Perceived Similarity	-3.525	11.349	-0.054	-0.311	.756
Int 10: Portrayed Action x Caption Type x Perceived Similarity	-6.572	11.748	-0.106	-0.559	.576
Int 11: Sex x Portrayed Action x Caption Type x Perceived Similarity	-6.994	15.022	-0.081	-0.466	.642
		R^2 = .226, R^2 (adj) = .187, $F(15,298) = 5.789$, $p < .001$			

Notes. Int is interaction term. Task self-efficacy was measured on a scale of 0 to 100.

Table E.2. Results of multiple regression analysis of predictors of coping self-efficacy (n = 314).

Predictor Variables	*B*	*SE*	β	*t*	*p*
Intercept	48.35	5.636		8.579	< .001
Sex *(0 = Male, 1 = Female)*	-9.913	6.447	-0.174	-1.538	.125
Perceived Similarity	18.505	8.014	0.542	2.309	.022
Portrayed Action *(0 = Posing, 1 = Exercising)*	5.188	7.3	0.097	0.711	.478
Caption Type *(0 = No SP, 1 = SP)*	-1.485	7.134	-0.028	-0.208	.835
Int 1: Sex x Portrayed Action	-9.189	8.882	-0.16	-1.034	.302
Int 2: Sex x Caption Type	-0.252	8.555	-0.004	-0.029	.977
Int 3: Sex x Perceived Similarity	-8.776	9.009	-0.195	-0.974	.331
Int 4: Portrayed Action x Caption Type	-6.469	10.304	-0.104	-0.628	.531
Int 5: Portrayed Action x Perceived Similarity	-10.521	9.532	-0.226	-1.104	.271
Int 6: Caption Type x Perceived Similarity	-7.061	9.724	-0.148	-0.726	.468
Int 7: Sex x Portrayed Action x Caption Type	8.645	12.467	0.122	0.693	.489
Int 8: Sex x Portrayed Action x Perceived Similarity	9.019	11.705	0.139	0.771	.442
Int 9: Sex x Caption Type x Perceived Similarity	21.527	11.761	0.324	1.83	.068
Int 10: Portrayed Action x Caption Type x Perceived Similarity	12.682	12.175	0.199	1.042	.298
Int 11: Sex x Portrayed Action x Caption Type x Perceived Similarity	-34.578	15.567	-0.389	-2.221	.027
		R^2 = .212, R^2 (adj) = .172, $F(15,298) = 5.338$, $p < .001$			

Notes. Int is interaction term. Coping self-efficacy was measured on a scale of 0 to 100.

Table E.3. Results of PROCESS Model 3 regression: Predictors of coping self-efficacy for male participants (n = 104).

Predictor Variables	*B*	*SE*	*t*	*p*
Intercept	48.350	6.139	7.876	< .001
Portrayed Action *(0 = Posing, 1 = Exercising)*	5.188	7.952	0.652	.516
Caption Type *(0 = No SP, 1 = SP)*	-1.485	7.771	-0.191	.849
Perceived Similarity	18.505	8.729	2.12	.037
Int 1: Portrayed Action x Caption Type	-6.469	11.224	-0.576	.566
Int 2: Portrayed Action x Perceived Similarity	-10.521	10.383	-1.013	.313
Int 3: Caption Type x Perceived Similarity	-7.061	10.592	-0.667	.507
Int 4: Portrayed Action x Caption Type x Perceived Similarity	12.682	13.261	0.956	.341
	R^2 = .154 $F(7, 96) = 2.501$, $p = .021$			

Notes. Int is interaction term. Coping self-efficacy was measured on a scale of 0 to 100.

Table E.4. Results of PROCESS Model 3 regression: Predictors of coping self-efficacy for female participants (n = 210).

Predictor Variables	*B*	*SE*	*t*	*p*
Intercept	38.437	2.989	12.861	< .001
Portrayed Action *(0 = Posing, 1 = Exercising)*	-4.0	4.830	-0.828	.409
Caption Type *(0 = No SP, 1 = SP)*	-1.737	4.508	-0.385	.700
Perceived Similarity	9.728	3.929	2.476	.014
Int 1: Portrayed Action x Caption Type	2.177	6.699	0.325	.746
Int 2: Portrayed Action x Perceived Similarity	-1.502	6.485	-0.232	.817
Int 3: Caption Type x Perceived Similarity	14.465	6.315	2.290	.023
Int 4: Portrayed Action x Caption Type x Perceived Similarity	-21.896	9.261	-2.364	.019
		$R^2 = .146$ $F(7, 202) = 4.932$, $p < .001$		

Notes. Int is interaction term. Coping self-efficacy was measured on a scale of 0 to 100.

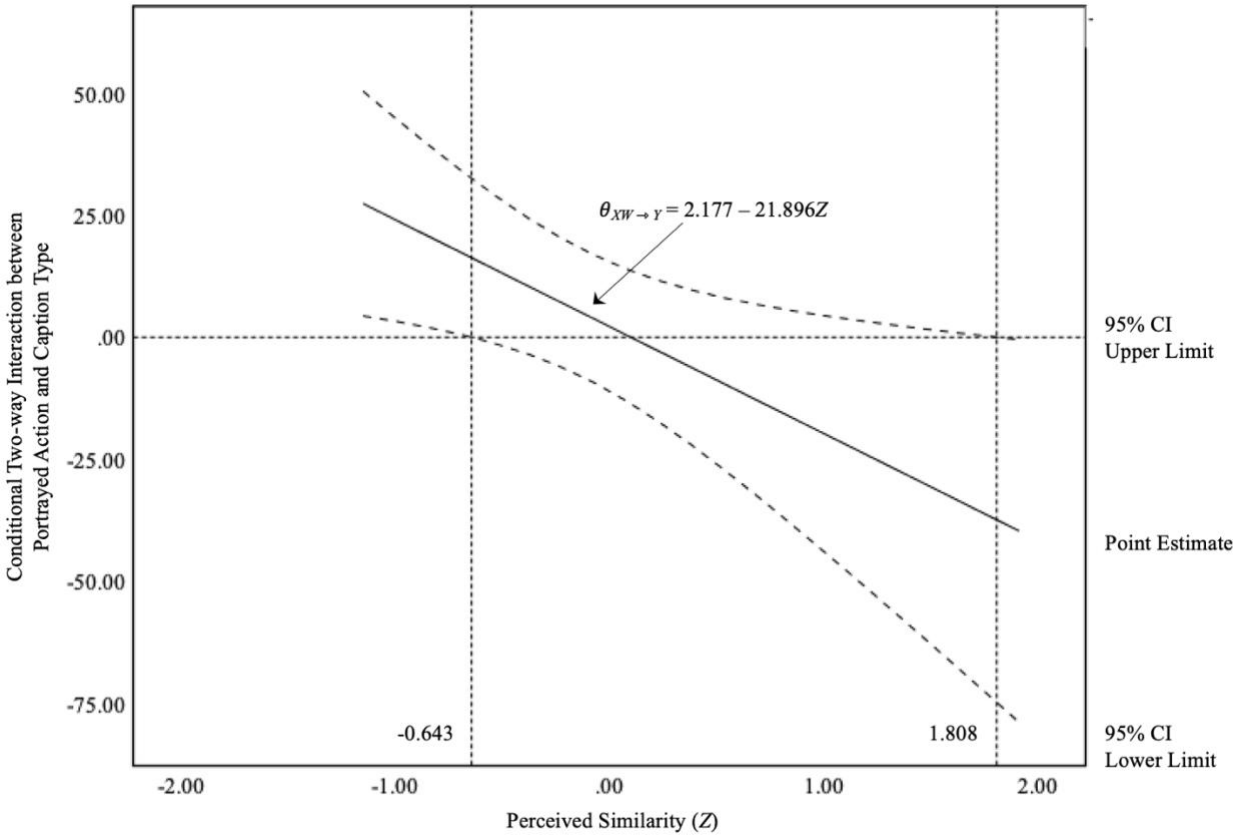


Figure E.1. The Conditional two-way interaction between portrayed action and caption type ($\theta_{XW \to Y}$) as a function of perceived similarity (Z).

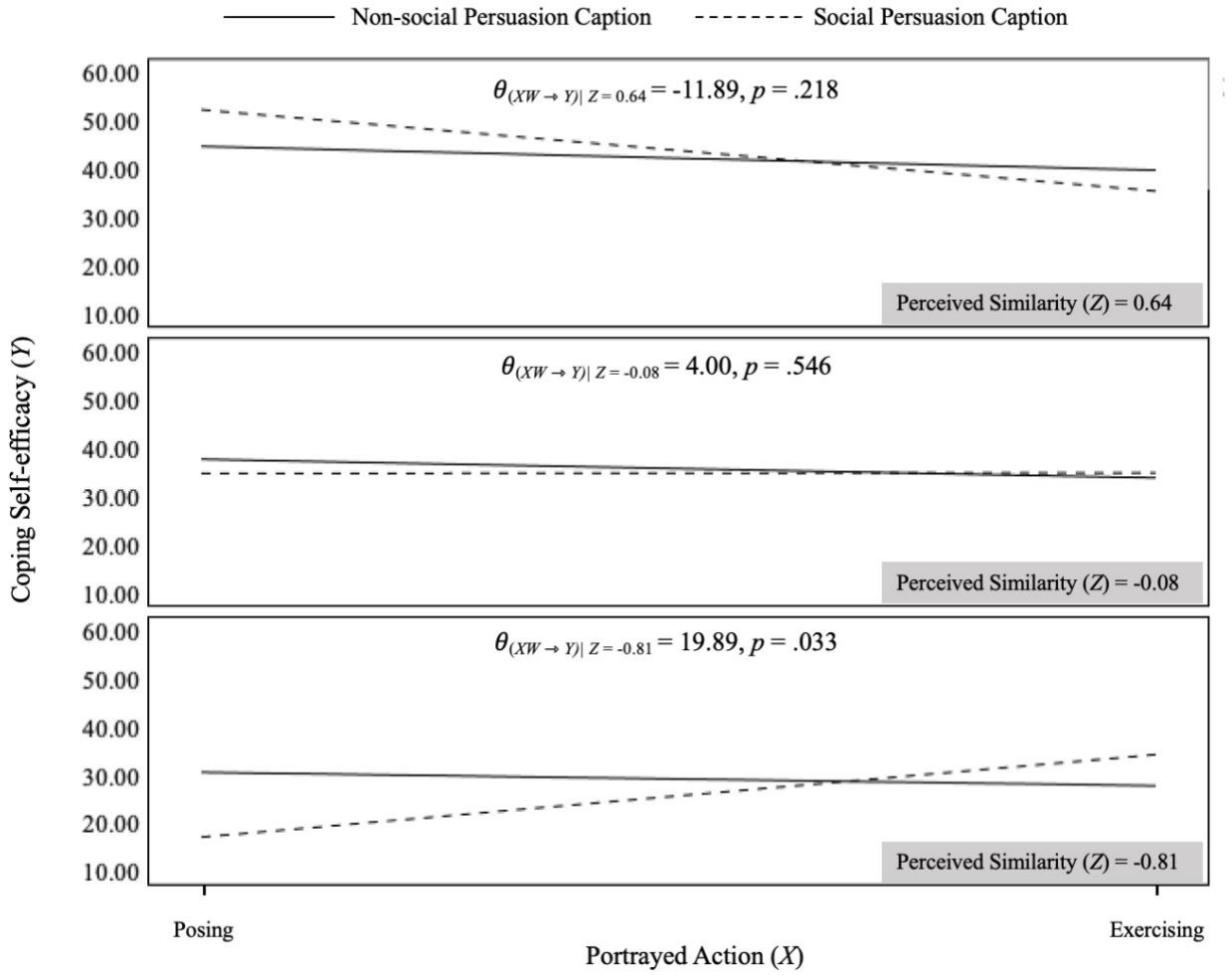


Figure E.2. The conditional effect of portrayed action on coping self-efficacy as a function of caption type and perceived similarity from a moderated moderation model.

Table E.5. Results of multiple regression analysis of predictors of scheduling self-efficacy (n = 314).

Predictor Variables	***B***	***SE***	**β**	***t***	***p***
Intercept	66.349	6.159		10.772	< .001
Sex *(0 = Male, 1 = Female)*	-13.96	7.046	-0.224	-1.981	.048
Perceived Similarity	8.541	8.758	0.228	0.975	.33
Portrayed Action *(0 = Posing, 1 = Exercising)*	5.512	7.978	0.094	0.691	.49
Caption Type *(0 = No SP, 1 = SP)*	-4.665	7.796	-0.079	-0.598	.55
Int 1: Sex x Portrayed Action	-10.169	9.707	-0.162	-1.048	.296
Int 2: Sex x Caption Type	3.934	9.35	0.063	0.421	.674
Int 3: Sex x Perceived Similarity	7.859	9.845	0.159	0.798	.425
Int 4: Portrayed Action x Caption Type	-5.932	11.261	-0.087	-0.527	.599
Int 5: Portrayed Action x Perceived Similarity	-0.684	10.418	-0.013	-0.066	.948
Int 6: Caption Type x Perceived Similarity	4.909	10.627	0.094	0.462	.645
Int 7: Sex x Portrayed Action x Caption Type	3.779	13.624	0.049	0.277	.782
Int 8: Sex x Portrayed Action x Perceived Similarity	-6.46	12.792	-0.091	-0.505	.614
Int 9: Sex x Caption Type x Perceived Similarity	0.544	12.853	0.007	0.042	.966
Int 10: Portrayed Action x Caption Type x Perceived Similarity	-2.012	13.305	-0.029	-0.151	.88
Int 11: Sex x Portrayed Action x Caption Type x Perceived Similarity	-9.769	17.013	-0.1	-0.574	.566
		R^2 = .218, R^2 (adj) = .179, $F(15,298) = 5.547$, $p < .001$			

Notes. Int is interaction term. Scheduling self-efficacy was measured on a scale of 0 to 100.

Table E.6. Results of multiple regression analysis of predictors of physical outcome expectations (n = 314).

Predictor Variables	***B***	***SE***	**β**	***t***	***p***
Intercept	4.317	0.117		36.773	< .001
Sex *(0 = Male, 1 = Female)*	0.01	0.134	0.009	0.072	.943
Perceived Similarity	0.096	0.167	0.145	0.572	.568
Portrayed Action *(0 = Posing, 1 = Exercising)*	-0.104	0.152	-0.101	-0.683	.495
Caption Type *(0 = No SP, 1 = SP)*	-0.103	0.149	-0.1	-0.695	.487
Int 1: Sex x Portrayed Action	0.02	0.185	0.018	0.108	.914
Int 2: Sex x Caption Type	0.123	0.178	0.112	0.693	.489
Int 3: Sex x Perceived Similarity	0.035	0.188	0.04	0.186	.853
Int 4: Portrayed Action x Caption Type	0.1	0.215	0.083	0.467	.641
Int 5: Portrayed Action x Perceived Similarity	0.088	0.199	0.098	0.442	.659
Int 6: Caption Type x Perceived Similarity	0.167	0.203	0.182	0.824	.411
Int 7: Sex x Portrayed Action x Caption Type	-0.05	0.26	-0.037	-0.193	.847
Int 8: Sex x Portrayed Action x Perceived Similarity	-0.062	0.244	-0.05	-0.255	.799
Int 9: Sex x Caption Type x Perceived Similarity	-0.14	0.245	-0.109	-0.57	.569
Int 10: Portrayed Action x Caption Type x Perceived Similarity	-0.133	0.254	-0.108	-0.524	.601
Int 11: Sex x Portrayed Action x Caption Type x Perceived Similarity	0.097	0.324	0.056	0.298	.766
		R^2 = .075, R^2 (adj) = .029, $F(15,298) = 1.620$, p = .067			

Notes. Int is interaction term. Physical outcome expectations was measured on a scale of 1 to 5.

Table E.7. Results of multiple regression analysis of predictors of social outcome expectations (n = 314).

Predictor Variables	***B***	***SE***	**β**	***t***	***p***
Intercept	3.477	0.207		16.771	< .001
Sex *(0 = Male, 1 = Female)*	-0.488	0.237	-0.244	-2.059	.04
Perceived Similarity	0.224	0.295	0.186	0.758	.449
Portrayed Action *(0 = Posing, 1 = Exercising)*	-0.19	0.269	-0.1	-0.706	.481
Caption Type *(0 = No SP, 1 = SP)*	-0.023	0.262	-0.012	-0.089	.929
Int 1: Sex x Portrayed Action	0.113	0.327	0.056	0.345	.731
Int 2: Sex x Caption Type	-0.341	0.315	-0.169	-1.083	.28
Int 3: Sex x Perceived Similarity	0.027	0.331	0.017	0.082	.934
Int 4: Portrayed Action x Caption Type	0.015	0.379	0.007	0.04	.968
Int 5: Portrayed Action x Perceived Similarity	-0.07	0.351	-0.043	-0.199	.842
Int 6: Caption Type x Perceived Similarity	0.102	0.358	0.061	0.286	.775
Int 7: Sex x Portrayed Action x Caption Type	0.455	0.459	0.182	0.992	.322
Int 8: Sex x Portrayed Action x Perceived Similarity	-0.061	0.431	-0.027	-0.141	.888
Int 9: Sex x Caption Type x Perceived Similarity	-0.604	0.433	-0.258	-1.396	.164
Int 10: Portrayed Action x Caption Type x Perceived Similarity	0.05	0.448	0.022	0.111	.911
Int 11: Sex x Portrayed Action x Caption Type x Perceived Similarity	0.757	0.573	0.241	1.322	.187
		R^2 = .142, R^2 (adj) = .099, $F(15,298) = 3.284$, $p < .001$			

Notes. Int is interaction term. Social outcome expectations was measured on a scale of 1 to 5.