

Breaking the Muscular Mold: The Application of Homophily, Credibility, and Physical Attractiveness within Attitude and Perceived Behavioral Control towards Weight Lifting

Jessica C. Hotter

Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University
in partial fulfillment of the requirement for the degree of

Master of Arts
In
Communication

Daniel J. Tamul, Chair
James D. Ivory
Beth M. Waggenpack

May 1, 2018
Blacksburg, Virginia

Keywords: muscle mass; gender roles; homophily; credibility; physical attractiveness

Breaking the Muscular Mold: The Application of Homophily, Credibility, and Physical Attractiveness within Attitude and Perceived Behavioral Control towards Weight Lifting

Jessica C. Hotter

Abstract

This study extends the Theory of Planned Behavior by drawing on research investigating the “halo effect,” which posits that physically attractive people are more likely to be hired, get a raise, perceived positively, and/or live happily within certain professions. Extant work has shown this trend is not generalizable across all fields. For example, scientists who are viewed as relatively unattractive and unsociable are perceived as producing higher quality research compared to their more attractive and sociable counterparts. The fitness industry, and the bodybuilding community in particular, presents an interesting issue where muscularity is an indicator of expertise and credibility, however, for female bodybuilders a muscular physique may diminish her perceived attractiveness and diminish such evaluations. Drawing on the Theory of Planned Behavior, this study examines how muscularity influences assessments of attractiveness, credibility, and homophily and indirectly influences participants’ attitudes and perceived control over their own weight lifting behavior. Though the hypothesized model was not a good fit, an exploratory respecification of the proposed model shows physical attractiveness plays a central role in assessments of homophily, credibility, and attitude.

Breaking the Muscular Mold: The Application of Homophily, Credibility, and Physical Attractiveness within Attitude and Perceived Behavioral Control towards Weight Lifting

Jessica C. Hotter

General Audience Abstract

There has been a recent increased focus on the fitness and health industries over the past decade. With the expansion of photo-based social media platforms like Instagram and Facebook, there has been an emphasis on individuals representing more physically fit and athletic body types. Many of these female “fitness models” and social media influencers break typical gender norms and are depicted as more muscular than the traditional female thin ideal. These social media influencers are arguably judged on their physical attractiveness, homophily, and credibility with regards to exercise and nutrition. This online experiment looks to identify if muscularity plays a role in how participants perceive two of these female bodybuilders on physical attractiveness, credibility, and homophily, and indirectly perceives their attitudes and perceived control to weight lift. This is accomplished by using a questionnaire consisting of 68 questions pertaining to the thin ideal, muscular ideal, physical attractiveness, credibility, homophily, attitude, and perceived behavioral control. Physical attractiveness was found to be a driving force for attitude and perceived behavioral control to weight lift. These results provide practical implications for society as we continue to judge women based on their physical attractiveness.

Table of Contents

| | |
|---|-----------|
| Chapter 1 Introduction | 1 |
| Justification | 2 |
| Chapter 2 Literature Review | 3 |
| Structuration Theory | 3 |
| Gender as a social structure. | 4 |
| Gender Influences Body Ideals | 5 |
| Body Ideals are Socially Structured and Therefore Fluid | 6 |
| Body ideals are culturally specific. | 6 |
| Body ideals change over time. | 7 |
| Body Ideals Represented in the Media | 8 |
| Theory of Planned Behavior and Its Application within Health Communication | 9 |
| Attitude. | 10 |
| Subjective norms. | 11 |
| Descriptive norms. | 11 |
| Injunctive norms. | 12 |
| Perceived behavioral control. | 12 |
| Homophily. | 13 |
| Credibility. | 15 |
| Attractiveness. | 16 |
| Chapter 3 Proposed Model | 18 |
| Chapter 4 Methods..... | 19 |
| Research Setting..... | 19 |
| Study Design | 19 |
| Participants | 19 |
| Procedure and Design | 20 |
| Stimulus Materials | 20 |
| Measures | 21 |
| Thin ideal internalization. | 21 |
| Muscular ideal internalization. | 22 |
| Homophily. | 22 |
| Credibility. | 23 |
| Physical attractiveness. | 23 |
| Attitude. | 24 |
| Perceived behavioral control. | 25 |
| Chapter 5 Results..... | 25 |
| Differences Among the Models | 25 |
| Muscle Mass Influence | 26 |
| Attitude and Perceived Behavioral Control Towards Weight Lifting | 26 |
| Halo Effect | 27 |
| Path Analysis..... | 27 |
| Correlations | 29 |
| Exploratory Analyses | 29 |
| Exploratory path analysis..... | 30 |

| | |
|----------------------------------|-----------|
| Indirect effects..... | 31 |
| Multiple group analysis..... | 31 |
| Chapter 6 Discussion..... | 31 |
| Summary of Findings..... | 31 |
| Limitations..... | 33 |
| Future Research..... | 34 |
| Chapter 7 Conclusion..... | 35 |
| References..... | 36 |
| Appendix A..... | 44 |
| Appendix B..... | 45 |
| Appendix C..... | 54 |
| Appendix D..... | 58 |
| Appendix E..... | 65 |

Chapter 1 Introduction

Body ideals are socially constructed and are represented through media and art of that time and place (Shilling, 1991). Looking at media and art from different eras can be good indicators of customs and ideals of that time. Art and media have the ability to transport viewers to that time and place, drawing upon past settings, practices, and norms. The muscular male form that is often associated with muscularity, masculinity, and the male ideal (Grossbard, Neighbors, & Larimer, 2011; McCreary, Sasse, Saucier, & Dorsch, 2004; Smolak & Stein, 2006), is sculpted in marble and survives to this day. It is through these examples that we are able to see how these anecdotes from the past influence today's society.

Body ideals are a reflection of what a society views as healthy or attractive at that time for each gender (Dworkin & Wachs, 2009). These ideals are represented through traditional media, art, and more recently, social media (Talbot, Gavin, Steen, & Morey, 2017). Research shows that media acts as a "super peer," potentially making the information more powerful and influential than other sources of information (Elmore, Scull, & Kupersmidt, 2017; Strasburger & Wilson, 2002).

These ideals are perpetuated through media, often causing an upward comparison (Botta, 1999; Tylka, 2010). These upward comparisons influence a variety of psychological processes including behaviors like pathogenic weight control methods (Ridolfi, Myers, Crowther, & Ciesla, 2011), as well as gender norms. Historically, men and women have performed differing physical exercises to achieve the ideal body for each gender. The changing exercise and health trends of a society over time represent the fluidity of body ideals. Research posits that social media establishes hetero-normative gender roles (T. Shepherd, 2013).

These hetero-normative gender roles can influence social norms throughout society and lifespans (Linos, Slopen, Subramanian, Berkman, & Kawachi, 2013). Gender roles impact the manner in which we choose to participate in social normative behavior (C. B. Shepherd & Rickard, 2012). How do individuals act when the expectations established by social norms do not align with body ideals? This study looks to address how social norms influence credibility, homophily, and physical attractiveness within the Theory of Planned Behavior.

This thesis uses a 2x2 online experiment with 824 participants, examining the effects of muscle mass on two female models on the perception of homophily, credibility, and physical attractiveness of the model, and attitude and perceived behavioral control to perform weight lifting exercises.

Justification

Research has shown that physically attractive individuals are more likely to be hired, get a raise, or live happily (Hamermesh, 2011). However, there is a growing amount of research that suggests that this is not true across all fields and professions. Studies conducted by Georghiu, Callan, and Skylark (2017) revealed that scientists who were viewed as relatively unattractive and unsociable were perceived as conducting higher quality research compared to their attractive and more sociable counterparts (Gheorghiu, Callan, & Skylark, 2017). However, this claim may not be generalizable across all fields, especially in those vocations where physical appearance is often stereotyped and stigmatized. This statement may also like validate in areas where physical appearance is central to expertise in the field and that physical appearance conflicts with gender norms.

The fitness industry presents an interesting issue with regards to this research situation as the industry emphasizes physical appearance immensely. The importance of gender roles, body

ideals, and its violations need to be explored within an industry that extensively stresses the importance of outward appearance. The fitness industry, and the bodybuilding community in particular, has recently increased in popularity within the last few decades (*Critical readings in bodybuilding*, 2012). This growth in the industry has spilled over into popular social media channels like Pinterest and Instagram (Holland & Tiggemann, 2017; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2015). With large muscular frames on both males and females, traditional gender roles and body ideals are being shattered within this community (Worthen & Baker, 2016).

How these roles and ideals influence the perceived credibility of the industry's leaders and experts could have significant impact on how the general population view their knowledge. This industry is particularly important to study because of its rapid growth and health implications including rapid weight loss and gain, menstrual cycle reduction and prolongation, and fluctuation in energy levels (Walberg-Rankin, Edmonds, & Gwazdauskas, 1993) With a recent increase in attention to overall health, the public looks towards industry influencers and leaders for their information. Findings within this study could be applied to other areas and professions outside the health and fitness arena. To better understand the rationale of this study, it's important to have a firm understanding of how social norms and gender roles are formed through avenues like the Theory of Structuration and the Theory of Planned Behavior.

Chapter 2 Literature Review

Structuration Theory

Anthony Giddens' Theory of Structuration stems from researching theories that focused on both the individual and the collective (Giddens, 1984). Giddens claims that his theory does not favor individual agency over social structure or vice versa, but that they work together

cohesively (M. R. Jones & Karsten, 2008). The foundation of the Theory of Structuration involves identifying relationships between individuals and social forces that act upon them (Lamsal, 2012). “Social structures shape individuals, but simultaneously, individuals shape the social structure” (Risman, 2004, p. 432). Human agents draw on social structures in their actions while simultaneously creating and recreating those same social structures.

In his theory, Giddens suggests that individuals do not have the rationale as to why they act in the way that they do, but that this factor has the capability of reconstructing social structure and producing social change unbeknownst to them (Craib, 2011). Agency allows for a sense of individuality while concurrently propagating the same social structures. These changes transform over time and become normative behaviors. Smelser proposed that social structures and social norms exist outside personal desires or motivations and that they can explain human action to an extent (Smelser, 1988). The Theory of Structuration, and its components, are evident through the social and gender norms that the stimulus of this study intends to look at.

Gender as a social structure.

Gender is constructed through “human interaction, out of social life, and the texture and order of that social life” (Lorber & Farrell, 1991, p. 112). The structure of gender is a human production that relies on the continuation of society “doing gender” (West & Zimmerman, 1987). Risman posits that gender is a social structure based on Giddens’ Theory of Structuration (Risman, 2004). Based on the definition of the Theory of Structuration, gender is created by individuals, perpetuated by society, and finally propagated by individuals once again. Many feminist, philosophical, and sociological researchers believe that gender is a social construct or structure (Bussey & Bandura, 1999; Martin, Ruble, & Szkrybalo, 2004; Morrison, 2014; Risman,

2004; West & Zimmerman, 1987). With a large majority of society “doing gender,” gender plays a role in the creation of body ideals.

Gender Influences Body Ideals

Knowing that gender is a social structure, research suggests that body ideals are influenced by gender. Body ideals are considered to be the ideal attractiveness which exist within a sociocultural environment (Swami & Furnham, 2008). Comparatively, body image is described as the subjective mental picture of one’s own body (Barlett, Vowels, & Saucier, 2008; Bergstrom & Neighbors, 2006; Grabe, Ward, & Hyde, 2008; Grogan & Richards, 2002). Research posits that body image is a gendered construct and that the meaning of body image differs for men and women and are gender specific (McCreary et al., 2004; Smolak, Levine, & Thompson, 2001; Smolak & Murnen, 2008; Smolak & Stein, 2006). Attractiveness of a female is found to be related to the perceived health of that female and her reproductive capabilities which are often characterized as feminine attributes (Murnen, Poinsette, Huntsman, Godfarb, & Glaser, 2015) such as the waist-to-hip ratio and large breasts for producing ample amounts of milk. Furthermore, attractiveness of a male is related to the perceived ability of that male to provide resources (Murnen et al., 2015) including masculine attributes like a broad chest and shoulders to perform physical labor.

Research suggests that body image and body ideals are a gendered construct (Grogan & Richards, 2002; Smolak & Stein, 2006). For example, the male ideal is typically perceived as the muscular mesomorph, focusing largely on muscle mass and physical bulk (Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986). This ideal physique for males is characterized by a well-developed chest, arm muscles, wide shoulders, and narrow waist that resemble an inverted triangle (Grogan & Richards, 2002; McCreary et al., 2004; Mishkind et al., 1986; Smolak &

Stein, 2006). Comparatively, the ideal physique for females is mostly characterized by being thin and low in body fat (Knauss, Paxton, & Alsaker, 2007; Knobloch-Westerwick & Romero, 2011; Murnen et al., 2015; Strandbu & Kvalem, 2014). These gender roles create social norms and expectancies that individuals would prefer to follow and observe.

Gender roles have been linked with the aspiration to accomplish a particular body ideal by both men and women (Smolak & Stein, 2006). For example, men have been known to participate in exercise and weightlifting in hopes of achieving a more muscular frame and definition, compared to women who often diet to achieve the thin ideal (Smolak & Stein, 2006). Additionally, men and women invest substantial amounts of time, energy, emotional, and financial resources in hopes of conforming to these idealized standards (Forbes, Collinsworth, Jobe, Braun, & Wise, 2007). If gender is believed to be a social structure and it influences body ideals, it is fair to say that body ideals are socially structured and indefinite.

Body Ideals are Socially Structured and Therefore Fluid

Body ideals are described as the ideal attractiveness which exists within a society during a specific time and place (Swami & Furnham, 2008). Gender roles, norms, body ideals, and expectations can change throughout an individual's life and across cultures (Kaliyath, 2016). For purposes of this, I will only be looking at gender as binary as I am mainly interested in how gender norms are deviated by female weight lifters and bodybuilders and how their deviations affect their ability to inspire others to weight lift.

Body ideals are culturally specific.

Lorber & Martin (2011) argue that body ideals are a product of a society's gender ideology, practices, and stratification system. "Social practices exaggerate and minimize differences and similarities among people, creating, through physical labor, exercise, sports, and

surgery, the various masculine and feminine attributes for male and female bodies that social groups admire” (Lorber & Martin, 2001). For example, some western societies like much of the United States, believe men should be aggressive within the society and protective over women and children (Lorber & Martin, 2011). Therefore, men’s bodies should reflect this by being muscular and strong. Furthermore, women are expected to be both nurturing towards children and both submissive and sexual towards men (Lorber & Martin, 2011). Contrarily, women’s bodies should reflect this by being sexual and yielding when younger and rounder and when older. However, this varies by culture. For purposes of this study, the body ideals represented here will reflect Western society standards since the participants and stimuli come from the United States. Several studies related to body ideals draw from popular media and entertainment sources to depict cultural ideals (Brown, 1990; Strandbu & Kvalem, 2014; Sypeck et al., 2006).

Body ideals change over time.

Body ideals have changed just within the past century. In the 1920’s, the ideal woman was slender, flat chested, with thin hips and legs (Forbes et al., 2007; Saltzberg & Chrisler, 1995). During the 1940’s and 1950’s, the ideal moved towards the voluptuous, hourglass shape that are most often associated with the Hollywood “sweater girls” (Forbes et al., 2007; Saltzberg & Chrisler, 1995). The 1960’s and 1970’s brought back the ideal of the thin, lean, youthful woman (Saltzberg & Chrisler, 1995). The beauty ideals of the 1980’s emphasized thinness but praised a more toned, physically fit figure than previous decades (Saltzberg & Chrisler, 1995). The end of the century idealized the curvaceously thin supermodels of the time (Forbes et al., 2007). A content analysis of women’s magazines from 1959 to 1999 revealed that models have become increasingly thinner over time (Sypeck, Gray, & Ahrens, 2004).

Today, it is accepted in the body ideals field that males are generally invested in high muscle mass and low body fat while females have the desire to be thin and toned (Smolak & Murnen, 2008; J. Kevin Thompson & Cafri, 2007). Coincidentally, a majority of men do not wish to be as muscular as a bodybuilder and most women do not aspire to be anorexic thin (Elliot et al., 2008; Ridgeway & Tylka, 2005; Smolak & Murnen, 2008). However, body ideals do not represent the majority of males and females. This dissonance between the ideal and the actual creates many of the body ideals that are perpetuated and unattainable for a large percentage of society (Garner, Garfinkel, Schwartz, & Thompson, 1980; Rodin, Silberstein, & Striegel-Moore, 1985). These body ideals are represented incessantly through media and can trigger upward comparisons by viewers (Knobloch-Westerwick & Romero, 2011).

Body Ideals Represented in the Media

Media is a key proponent of conveying health information that motivates viewers to participate in healthy behaviors (Duffy & Jackson, 1998) such as exercise. Research shows that media have a profound effect on how individuals perceive body ideals, regardless of attainability (Bandura, 2001; Knobloch-Westerwick & Romero, 2011). Lean ideals are often portrayed in the media with regards to both binary genders. Media portrayals of obese individuals are often stigmatized, stereotyped, and represented negatively (Pearl, Dovidio, Puhl, & Brownell, 2015). Millennials and Generation X are large consumers of media and it's important to have an understanding of how media content influence attitudes surrounding public health and stigmatized and idealized groups. Time spent on social networking sites has been positively associated with thin ideal internalization, body surveillance, dieting, and lower body self-esteem in women (Tiggemann & Slater, 2014). These behaviors are represented through fitness and health accounts.

In recent years, there has been a growing trend in the fitness industry, media, and social networking sites, known as “fitspiration.” Fitspiration, the combination of “fitness” and “inspiration” typically consists of images and text that are designed to encourage viewers to participate in healthy lifestyles through eating well and exercise (Holland & Tiggemann, 2017). This new trend has been promoted as a healthy alternative to “thinspiration” (images and text inspiring weight loss, restricted eating, excessive physical activity, and an eating disorder lifestyle) but appears to have similar imagery and motivations behind it (Holland & Tiggemann, 2017; Tiggemann & Zaccardo, 2015). Common themes surrounding these images and text include a heavy emphasis on physical appearance (always lean, toned, and with defined muscles) and an extreme attitude towards exercise (Holland & Tiggemann, 2017) with things like the “no rest days” and “more is always better” mentality with regards to physical activity. This growing trend has shown a shift from the traditional thin ideal to a more muscular one for women. For example, Tiggemann and Zaccardo (2015) searched the hashtag “fitspiration” on the social media network Instagram and reported a return of over 3.3 million images. A search using the same hashtag in November of 2017 returned over 13.7 million images. Young adult women have recently been reporting a desire for broader shoulders and more muscular arms (Simpson & Mazzeo, 2017; Joel Kevin Thompson, Berg, Roehrig, & Heinberg, 2004). These ideals likely influence the way in which men and women choose to exercise based on popular exercises represented within media.

Theory of Planned Behavior and Its Application within Health Communication

This research seeks to analyze the ways in which muscle mass on a female influence the perceived credibility, homophily, and physical attractiveness, as well as its relationship to attitude and perceived behavioral control. The Theory of Planned Behavior (TPB) offers a useful

framework in which to conduct this analysis because it accounts for attitude, social norms, and perceived control. The TPB builds on the Theory of Reasoned Action (TRA) which looked to understand attitudes and predict social behavior (Ajzen & Fishbein, 1980). The TRA originally focused on the relationship between attitude and human performance or actions. The TPB attempts to understand and predict human behavior, relying heavily on the TRA's focus on attitude and subjective norms (Ajzen, 1985). The TPB posits that there are three factors to consider when determining behavioral intent: attitude, subjective norms, and perceived behavioral control. In the TRA, the amount of control to which individuals felt they had about a particular behavior was not acknowledged (Ajzen, 1991). The TPB was developed due to this limitation of perceived behavioral control that is not addressed by its predecessor (Ajzen, 1991).

A majority of the research related to the behavioral intent to exercise using the TPB touches on older adults (Ahmad et al., 2014; Conn, Tripp-Reimer, & Maas, 2003; J. Park, Chiu, & Won, 2017), children (Armitage & Sprigg, 2010; Wang & Wang, 2015), and young adults (L. W. Jones, Sinclair, & Courneya, 2003; Zhang et al., 2015) performing an array of different types of physical activity. The TPB has been found to successfully predict health behavior, such as physical activity, among differing age groups and genders (Johnston, French, Bonetti, & Johnston, 2004). It is now considered a well-established social-psychological model within the communication field (Mou, 2015; Neuwirth & Frederick, 2004; H. Park, 2007).

Attitude.

Attitude is described as the “degree to which a person has a favorable or unfavorable evaluation of the behavior in question” (Ajzen, 1991, p. 188). The attitude contains judgment of whether the intention is inherently good or bad and whether the person wants to perform the behavior (Leonard, Graham, & Bonacum, 2004; Paul, Modi, & Patel, 2016). Kotchen and

Reiling (2000) posit that attitude is the most important predictor of behavioral intention. This study looks to address how body type norms impact attitude.

Subjective norms.

Subjective norms are a component of the TPB. They are assumed to be a function of beliefs, specifically the beliefs that individuals or groups think the subject should or should not perform the specific behavior (Ajzen, 1985, 1991). It is often believed that when individuals are behaving in a way that aligns with social norms, that will motivate another individual to comply and perform the behavior using social pressure (Ajzen, 1985). Social norms among peer groups have been known to influence behavioral intent (Eisenbery, Neumark-Sztainer, Story, & Perry, 2004; Mackey & LaGreca, 2008). There are two types of subjective norms: descriptive norms and injunctive norms. The importance of differentiating between these norms has been emphasized in the literature as they are approached using differing methods (Cialdini, Kallgren, & Reno, 1990; H. Park, 2007; Priebe & Spink, 2012). Approaching each method individually ensures that the correct process will elicit the correct corresponding effect.

Descriptive norms.

Descriptive norms are defined as a “behavioral rule that individuals follow when their empirical expectations of others following the same rule are met” (Muldoon, Lisciandra, Bicchieri, Hartmann, & Sprenger, 2014). These are the norms that are often viewed as hiding in plain sight as they are easily seen but not always easy to identify. An example of a descriptive norm would be overestimating the amount of people who participate in physical activity. If those in your friend group exercise routinely, you are more inclined to believe that society as a whole does the same. Descriptive norms are how an individual perceives how other people (or people similar to them) normally behave in a particular situation (Burger, LaSalvia, Hendricks,

Mehdipour, & Neudeck, 2011). Research conducted by Rimal and Real revealed that a positive relationship existed between messages about the popularity of yoga (i.e., a descriptive norm) and the intention to practice yoga (when participants believed there were benefits to participating in yoga) (Rimal & Real, 2005). Additionally, research shows that descriptive norms for both thinness and muscularity among females and males exist (Bergstrom & Neighbors, 2006; Grossbard et al., 2011).

Injunctive norms.

Though these descriptive norms are often identifiable extrinsically, injunctive norms are intrinsic and therefore less observed. Injunctive norms, on the other hand, is the concern for others' social approval or disapproval for that individual to perform the behavior (Dunleavy, 2008; Lapinski & Rimal, 2005; Rimal & Real, 2005). It is possible for people to believe a behavior is being performed by majority of the population (the descriptive norm) but still feel as though they should not perform the same behavior (the injunctive norm) (Cialdini et al., 1990). For example, Giles, et al., found that peer thinness and peer accessibility (injunctive norms) influenced disordered eating intentions among incoming female college freshmen (Giles, Helme, & Krcmar, 2007).

Perceived behavioral control.

Perceived behavioral control is the perceived level of difficulty in doing the particular behavior, as well as any previous experience with carrying out the specific behavior (Ajzen, 1991). Perceived behavioral control takes into account any actual or perceived obstacles, hindrances, and resistance that may be encountered during the behavior (Ajzen, 1985, 1991). The resources that it would take to carry out the specific behavior would be an example of an obstacle or hindrance. For example, if you would like to build muscle mass and decrease your

body fat percentage, not having a gym membership would be an obstacle you would need to overcome in order to perform weightlifting exercises.

The TPB will act as the theoretical framework for the study; however, there are other elements that this study wishes to address including homophily, credibility, and attractiveness.

Homophily.

Homophily refers to the extent to which an individual perceives a subject as similar to themselves in terms of shared experiences and shared beliefs, attitudes, and values (McCroskey, McCroskey, & Richmond, 2006). Homophily is often associated with motivating factors such as participation in activities (Myers et al., 2009). For example, in Myers et al. study (2009) students were more inclined to participate in class discussion if they perceived their instructor to be homophilous to themselves. Early research focused on homophily as an objective variable that people shared (Daley, McCroskey, & Richmond, 1977). However, more recent research argues that perceptions of similarity may be more important than real, objective similarities (McCroskey et al., 2006). This study hopes to use these perceived similar characteristics to elicit stronger feelings of perceived behavioral control. The most recent research states that homophily is composed of two dimensions: background and attitude. This study looks to explore how homophilous participants feel towards the stimulus that is less muscular in stature based on the current body ideal that women should be thin and toned rather than muscular in stature.

H1: Participants in the low muscle mass stimulus will report significantly lower levels of homophily to the model than those in the high muscle mass stimulus.

The relationship between homophily and the TPB, specifically the perceived behavioral control within the TPB, can be explained through the Social Learning Theory and Homophily Theory. Albert Bandura's Social Learning Theory (or the Social Cognitive Theory) offers an

explanation as to why homophily may play a role in perceived behavioral control. Social Cognitive Theory emphasizes the importance of self-efficacy or perceived behavioral control. Self-efficacy is the belief that an individual can perform the expected behavior (Anderson, Winett, & Wojcik, 2007). The theory also holds that behavior is established by expectancies and incentives (Bandura, 1977). Incentives are the values of particular objects or outcomes (Rosenstock, Strecher, & Becker, 1988). Expectancies can be divided into three types: expectancies about environmental cues, about the consequences of one's own actions, and about one's own competence to perform the behavior (self-efficacy) (Rosenstock et al., 1988). For purposes of this study, self-efficacy will be referred to as perceived behavioral control. The theory also suggests that learning and the adoption of new behaviors takes place through modeling, social reward and punishment, and vicarious reinforcement of valued peers (Bandura, 1986).

Furthermore, Homophily Theory suggests that people have the tendency to befriend people who possess similar behavioral proclivities and like-minded attitudes as themselves (Brechwald & Prinstein, 2011). By associating with others who are like them, selection effects take place where similar ideas, attitudes, and opinions are continually regurgitated, making those beliefs stronger (Brechwald & Prinstein, 2011). M. H. Jones and Ford (2013) showed that children who perceived themselves as homophilous to their peers, showed higher levels of self-efficacy to perform better academically. If peers have been shown to influence each other, a stimulus that is perceived as more homophilous to the participant should result in higher feelings of perceived behavioral control to participate in weight lifting exercises based on the concept of modeling.

H2: Homophily will be positively correlated with perceived behavioral control to weight lift.

Credibility.

Credibility has been shown to play a role in research including the economics, communication, psychology, and political fields. Within communication, credibility has been assessed in correlation with perceived caring (Teven & McCroskey, 1997), effective communication (Hovland & Weiss, 1951), and crises (vanZoonen & vanderMeer, 2015). Individuals and companies who were perceived as more credible, were more positively evaluated by participants (Teven & McCroskey, 1997; vanZoonen & vanderMeer, 2015). Credibility refers to the degree to which someone perceives another as believable, competent, of high character, and caring towards others (McCroskey et al., 2006; Myers et al., 2009). Research posits that when source credibility is perceived as low, an individual tends to discount the claims being made within the message. On the other hand, when source credibility is perceived as high, individuals tend to challenge the claim less often and are more easily swayed by it (Grewal, Gotlieb, & Marmorstein, 1994)

Research shows that there is a positive correlation between perceived credibility of a source and attitudes about that source (Bhatt, Jayswal, & Patel, 2013; Esmaeilpour & Aram, 2016). Much of this research comes from marketing and communication fields, looking to explore the connection between how the audience perceives the source (whether it be the media or a brand) as credible and their attitudes towards them (Plax & Rosenfeld, 1980; Touhey, 1975). Research suggests that a highly credible source is more effective than a less credible source in affecting attitude change and behavioral intent (Gotlieb & Sarel, 1991; Ward & McGinnies,

1974; Yoon, Kim, & Kim, 1998). With the advancement of social media, it is now prevalent more than ever that individuals are a “brand.”

Commercial marketers have been shown to focus heavily on physical appearance within their health and exercise equipment advertisements (Maibach, 2007). Exercise advertisements that emphasize physical appearance may play a role in forming expectations regarding appearance and the exercise itself (Dworkin & Wachs, 2009). Using evidence, such as a well-built body, can increase source credibility (Pornpitakpan, 2004).

H3a: Participants in the high muscle mass stimulus will report significantly higher levels of credibility of the model than those in the low muscle mass stimulus.

H3b: Participants in the low muscle mass stimulus will report significantly higher levels of credibility of the model than those in the high muscle mass stimulus.

Little research has been done that looks at how credibility influences attitude within health-related messages. Berry, Jones, McLeod, and Spence (2011) found that believability was not significantly related to attitude to exercise. However, higher levels of expertise and credibility have been found to lead to positive attitudes within a commercial setting (Pornpitakpan, 2004). This study hopes to address a gap in the health communication literature by determining if there is a correlation between credibility and attitude.

H4: Credibility will be positively correlated with attitude toward weight lifting.

Attractiveness.

Perceptions of attractiveness have the capability of altering impressions and how engagement takes place between two subjects (Lorenzo, Biesanz, & Human, 2010). In American society, beauty is often associated with “goodness” while ugliness is often associated with “badness” (Eagly, Mladinic, & Otto, 1991). Further research shows that “relative to unattractive

targets, attractive targets depicted in photographs were perceived as more sociable, interpersonally warm, trustworthy, and kind” (Lemay, Clark, & Greenberg, 2010). This concept, the *attractiveness halo effect*, is a physical-attractiveness stereotype that is common throughout psychology and communication research (Lorenzo et al., 2010). Individuals who are perceived as physically attractive are believed to possess positive personal qualities compared to those who are perceived as less physically attractive (Dion, Berscheid, & Walster, 1972; Eagly, Makhijani, Ashmore, & Longo, 1991). This study looks at how physical attractiveness influences attitude.

H5: Participants in the low muscle mass stimulus will report significantly higher levels of physical attractiveness of the model than those in the high muscle mass stimulus.

H6: Physical attractiveness will be positively correlated with credibility.

H7: Physical attractiveness will be positively correlated with attitude toward weight lifting.

The proposed model below shows the path of hypotheses that this study looks to explore. This study looks at the intricate relationships between muscle mass in women, their perceived credibility and physical attraction, as well as any homophily felt by the participants. Perceived behavioral control and attitude are only two of the three antecedents within the TPB. Attitude, perceived behavioral control, and subjective norms are predicted to influence behavioral intention, and then behavior. For purposes of this study, I will only be looking at how these factors influence perceived behavioral control and attitude. Figure 1 below represents the proposed model and hypotheses.

Chapter 3 Proposed Model

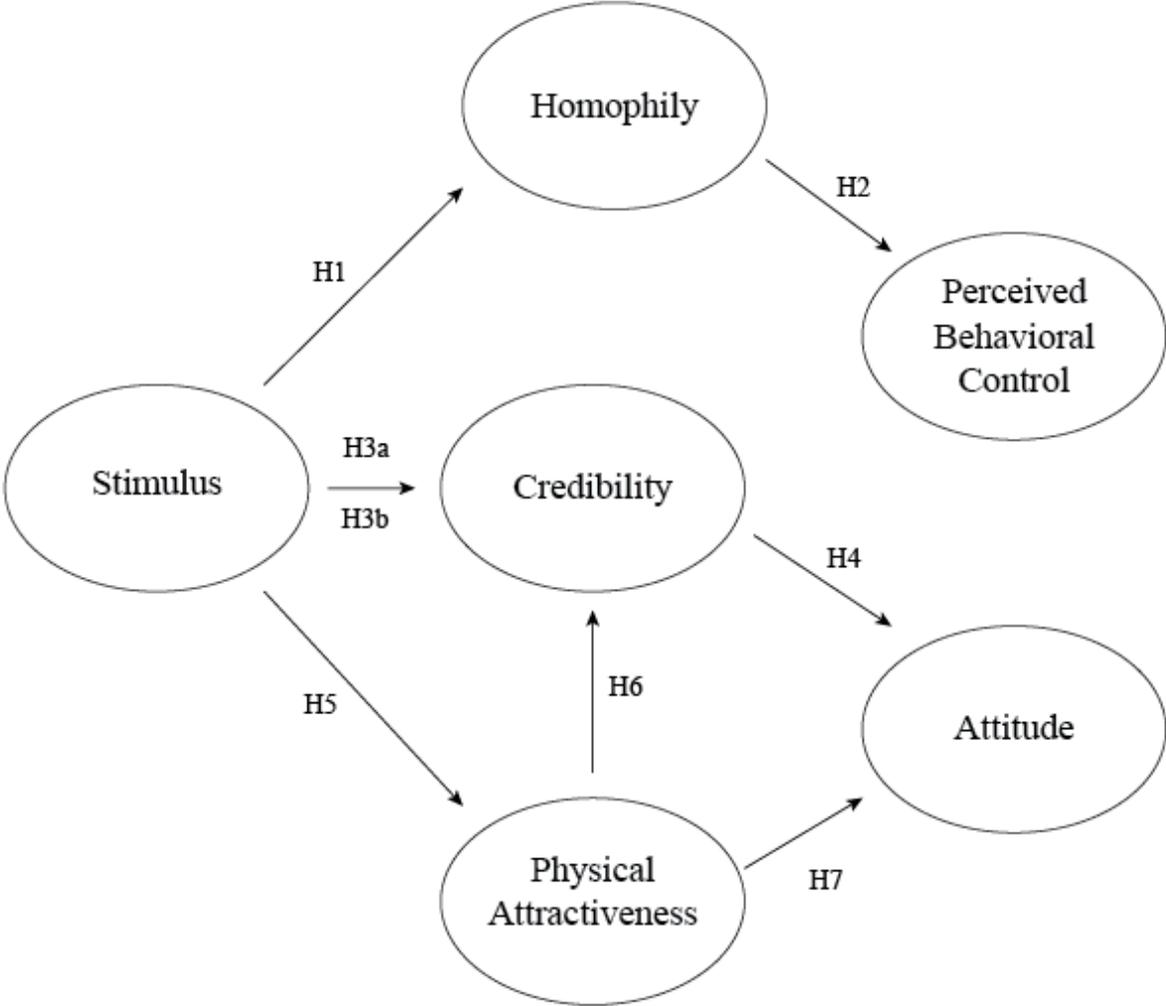


Figure 1 Proposed Model. This figure illustrates the hypothesized path model.

Chapter 4 Methods

Research Setting

The focus of this study is on the participants' perceptions of physical attractiveness, homophily, and credibility of four stimuli. The Western Institutional Review Board (WIRB) approved this study prior to the beginning of data collection. The WIRB approval letter can be found in Appendix A.

Study Design

This study used a 2 (two female models) X 2 (high and low muscle mass) factorial design to investigate the effects of homophily, credibility, and physical attractiveness on attitude and perceived behavioral control to weight lift. An experimental design was used to determine how and if homophily, credibility, and physical attractiveness are moderators within a specific portion of the TPB.

Participants

According to an a priori power analysis for the most restrictive test, 875 participants would be needed to adequately test if the model was a good fit. The degree of freedom is eight, with an alpha of 0.5, power of 0.8 null of 0.05, and an alternative RMSA of 0.01.

A total of 824 participants agreed to participate in the study. Of those 824 participants, 208 participants were from the Virginia Tech SONA system while 536 participants were sourced from the Amazon Mechanical Turk system (MTurk).

The questionnaire asked demographic questions such as sex and age. Participants who identified as a legal minor (below the age of 18) were excluded from participating. Two questions were included within the study as attention checks. Participants who did not select the correct answers for these two questions or who did not complete the questionnaire were

eliminated. This left a total of 705 participants (85.6% of the original sample). A chi-squared test was run in order to determine whether or not what was being observed was due to chance. The chi-squared test was non-significant. The final sample was 58% female and ranged in age from 18-61 and older ($M = 32.57$, $SD = 12.999$).

Procedure and Design

The questionnaire was designed using Qualtrics online survey software. Participants were randomly assigned to one of four conditions in a 2 (model 1 and model 2) X 2 (low muscle mass and high muscle mass) study. Participants were asked to read a brief biography and view an image of one of two female bodybuilders. The questionnaire can be seen within Appendix B.

Stimulus Materials

Participants were randomly assigned to view one of four versions of an Instagram post that varied across two factors: (muscle mass; high, low) and model depicted. Muscle mass was manipulated by showing a model from earlier in her weight lifting career where she appears athletic but not noticeably muscular or later in her career where she appears noticeably muscular. I included a second model in my manipulation to help decrease the likelihood that idiosyncratic qualities in our first model would influence outcomes. All images are black and white with similar dimensions. A brief, fictitious biography remained constant among all four images.

The fitness models were chosen as representatives as they contained images of their fitness journeys from the beginning of their transformations to their current aesthetics. Both fitness models had competed in bikini and figure bodybuilding competitions during their careers. Though facial characteristics differ among the models, both models are of Caucasian decent and have long, light hair. The stimuli can be seen within Appendix C.

Measures

Exploratory factor analyses were conducted using principal axis factoring and promax rotation. Items that poorly loaded below .60 on a single factor or cross loaded on more than two factors above .40 were removed. Scales for homophily, credibility, physical attractiveness, attitude, and perceived behavioral control were built by averaging their items together. The measures, as well as the exact wording for each scale, can be seen within Appendix D.

Thin ideal internalization.

Thin ideal internalization was measured using the Internalization: Thin/Low Body Fat subscale of the Sociocultural Attitudes Toward Appearance Questionnaire-4 (SATAQ-4) (Fitzsimmons-Craft et al., 2016; Schaefer et al., 2015). The SATAQ-4 was developed from a previous version to assess societal and interpersonal aspects of appearance ideals. The scale is composed of five factors: Internalization: Thin/Low Body Fat, Internalization: Muscular/Athletic, Pressures: Family, Pressures: Media, Pressures: Peers (Schaefer et al., 2015). The Internalization: Thin/Low Body Fat subscale is composed of five items (I want women's bodies to look very thin, I want women's bodies to look like they have little fat, I think a lot about women looking thin, I want women's bodies to look very lean, I think a lot about women having very little body fat) rated on a 5-point Likert-type scale ranging from 1 (definitely disagree) to 5 (definitely agree) ($M = 4.47$, $SD = 1.27$, Cronbach's $\alpha = .86$). The language has been modified to reflect the internalization the participant feels towards the thin ideal and women to reflect the established body ideal of that gender. However, this measure was not used within this study.

Muscular ideal internalization.

Muscular ideal internalization was measured using the Internalization: Muscular/Athletic subscale of the Sociocultural Attitudes Toward Appearance Questionnaire-4 (SATAQ-4) (Schaefer et al., 2015). The subscale is composed of five items (it is important for men to look athletic, I think a lot about men looking muscular, I think men should spend a lot of time doing things to look more athletic, I think a lot about men looking athletic, I think men should spend a lot of time doing things to look more muscular) rated on a 5-point Likert-type scale ranging from 1 (definitely disagree) to 5 (definitely agree) ($M = 4.61$, $SD = 1.66$, Cronbach's $\alpha = .89$). The language has been modified to reflect the internalization the participant feels towards the muscular ideal and men to reflect the established body ideal of that gender. However, this measure was not used within this study.

Homophily.

I used McCroskey, McCroskey, & Richmond's (2006) Attitude Homophily scale which is a 15-item Likert-type scale ranging from "strongly disagree" to "strongly agree." Several items were reverse coded.

An exploratory factor analysis using a promax rotation was conducted in order to identify any items that co-varied. Items (this person treats people like I do, this person doesn't think like me, this person doesn't share my values, this person is unlike me, this person doesn't treat people like I do) in the homophily scale loaded poorly and were removed. The remaining items (this person thinks like me, this person doesn't behave like me, this person is different from me, this person shares my values, this person is like me, person is similar to me, this person behaves like me, this person has thoughts and ideas that are similar to mine, this person expresses attitudes different from mine, this person has a lot in common with me) loaded on a single factor ($M =$

3.03, $SD = .75$, Cronbach's $\alpha = .93$). The final factor structure consisted of one factor that accounted for 61.31% of the variance in the items.

Credibility.

Credibility was measured using McCroskey's source credibility scale (1997). The credibility scale is a semantic experiential source credibility scale composed of 18-items. Numbers 1 and 7 indicate a very strong feeling. Numbers 2 and 6 indicate a strong feeling. Numbers 3 and 5 indicate a fairly weak feeling. Number 4 indicates you are undecided.

Several items (e.g. intelligent-unintelligent, honest-dishonest) were reverse coded so all positive attributes were on the higher end of the scale. The factor analysis resulted in one item being dropped due to a low commonality (not self-centered) and several more items were dropped because they either cross loaded or poorly loaded (trained, sensitive, expert). The final factor structure consisted of two factors that accounted for 62.29% of the variance in the remaining items. The first factor consisted of (intelligent, honest, trustworthy, honorable, informed, moral, competent, ethical, bright, genuine, understanding) and was labeled as "ethical capability" ($M = 5.16$, $SD = .97$, Cronbach's $\alpha = .93$). The second factor consisted of (cares about me, has my interests at heart, concerned with me) and was labeled as "concern" ($M = 4.00$, $SD = 1.32$, Cronbach's $\alpha = .85$).

Physical attractiveness.

The interpersonal attractiveness scale was adapted from McCroskey and McCain's (1974) "Interpersonal Attraction" scale. The original scale was composed of three measures: social attraction, physical attraction and task attraction. Since its origin, the scale has been amended over time by McCroskey. For purposes of this study, I will only be using the subscale

for physical attraction. The physical attraction subscale is a 12-item Likert-type scale ranging from 1 “strongly disagree” to 5 “strongly agree.”

Several items (I don’t like the way this person looks, this person is ugly, this person is not good looking, I don’t like the way this person looks, this person is not physically attractive) were reverse coded so all positive attributes were on the higher end. The items (I think this person is pretty, this person is sexy looking, I find this person attractive physically, this person looks appealing, this person is nice looking, this person has an attractive face, this person is good looking) were averaged and run as an uni-dimensional scale with an excellent reliability assessment ($M = 3.76$, $SD = .71$, Cronbach’s $\alpha = .94$).

Attitude.

Attitude was measured using Ajzen’s (2002) semantic differential scale. The scale is used to determine the “person’s overall evaluation of performing the behavior in question” (Ajzen, 2002, p. 5). The scale is composed of five bipolar items. Participants were asked to:

“Please indicate [their] impression of weightlifting by selecting the number between the pairs of adjectives below. The closer the number is to an adjective, the more certain you are of your evaluation. For me to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month is:”

The seven-point scale consisted of five items (harmful-beneficial, pleasant-unpleasant, good-bad, worthless-valuable, enjoyable-unenjoyable). For purposes of this study, the scale has been modified to reflect attitude toward weight lifting rather than walking on a treadmill.

Several items (pleasant-unpleasant, good-bad, enjoyable-unenjoyable) were reverse coded so that all positive attributes were on the high right side. Attitude was run as an uni-dimensional scale with good reliability assessment ($M = 5.32$, $SD = 1.21$, Cronbach’s $\alpha = .86$).

Perceived behavioral control.

Perceived behavioral control was measured using Ajzen's (2002) semantic differential scale. The scale is designed to capture "people's confidence that they are capable of performing the behavior under investigation" (Ajzen, 2002, p. 6). Participants were asked to:

"Please indicate [their] impression of weightlifting by selecting the number between the pairs of adjectives below. The closer the number is to an adjective, the more certain you are of your evaluation. For me to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month is:"

The scale is composed of four word pairings (I have a high degree of control to regularly perform weight lifting exercises for at least 30 minutes each day in the forthcoming month, I have a high degree of control to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month, I have control over my ability to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month?, it is mostly up to me whether or not I perform weight lifting exercises for at least 30 minutes each day in the forthcoming month) and asked participants to report their impressions (impossible-possible, definitely true-definitely false, no control-complete control, strongly agree-strongly disagree). For purposes of this study, the scale has been modified to reflect attitude toward weight lifting rather than walking on a treadmill. Reliability assessments of perceived behavioral control were acceptable ($M = 4.91$, $SD = 1.42$, Cronbach's $\alpha = .76$).

Chapter 5 Results**Differences Among the Models**

A multivariate analysis of variance (MANOVA) shows the main effect of model manipulation on the outcome variables (homophily, credibility, and physical attractiveness). The

analysis on the data indicates no main effect of the model condition on the outcome variables $F(4, 700) = 2.26, p = .061$, Wilk's $\Lambda = .987, \eta_p^2 = .013$. We collapsed the two high muscle mass models together and did the same for the low muscle mass models. Because the multivariate main effect test approached significance, we also provide the univariate tests here, which indicated that the first model elicited significantly higher levels of ethical capability ($M = 5.25, WE = .05$) than the second model ($M = 5.07, SE = .05, F(1, 703) = 5.93, p = .015$). None of the other univariate tests were significant: concern, $F(1, 703) = 0.40, p = .526$; physical attractiveness, $F(1, 703) = 0.15, p = .699$; and homophily, $F(1, 703) = 0.61, p = .437$.

Muscle Mass Influence

Hypotheses 1, 3, and 5 predicted a main effect of the muscle mass stimulus on homophily, credibility, and physical attractiveness, respectively. The data showed a main multivariate effect $F(4, 700) = 2.26, p < .001$, Wilk's $\Lambda = .94, \eta_p^2 = .06$. The univariate tests showed that muscle mass had no effect on homophily $F(1, 703) = 2.73, p = .099$ or ethical capability, $F(1, 703) = 3.44, p = .064$ but was related to concern for the reader $F(4, 700) = 4.84, p = .028$ such that the high muscle mass model was rated as less concerned ($M = 3.89, SE = 0.07$) than the low muscle mass model ($M = 4.11, SE = 0.07$). The high muscle mass model was also seen as less physically attractive ($M = 3.60, SE = 0.04$) than the low muscle mass model ($M = 3.93, SE = 0.04, F(1, 703) = 39.23, p < .001$).

Attitude and Perceived Behavioral Control Towards Weight Lifting

Hypothesis 2 predicted that homophily would be positively related to perceived behavioral control to weight lift. Homophily significantly predicted the perceived behavioral control to weight lift ($\beta = .33, p < .001, F(1, 703) = 86.98, p < .001$).

Hypothesis 4 and 7 predicted that credibility and physical attractiveness would be positively related to attitude, respectively. Ethical capability significantly predicted attitude, ($\beta = .30, p < .001$). Concern did not significantly predict attitude, ($\beta = .04, p = .318$). Physical attractiveness did predict attitude ($\beta = .25, p < .001$), $F(3, 701) = 70.94, p < .001$.

Halo Effect

Hypothesis 6 predicted that physical attractiveness would be positively related to credibility. Physical attractiveness significantly predicted ethical capability, ($\beta = .46, p < .001$), $F(1, 703) = 191.83, p < .001$. Physical attractiveness also significantly predicted concern, ($\beta = .22, p < .001$), $F(1, 703) = 36.54, p < .001$.

Path Analysis

I tested the hypothesized model with a path analysis in AMOS. The model resulted in a poor fit to the data $\chi^2(10) = 352.35, p = .000$, CFI = .637, RMSEA = .221, 90% CI .201-.241, pclose = .000. Figure 2 represents the proposed model with the path weights whereas figure 3 shows the correlations between variables.

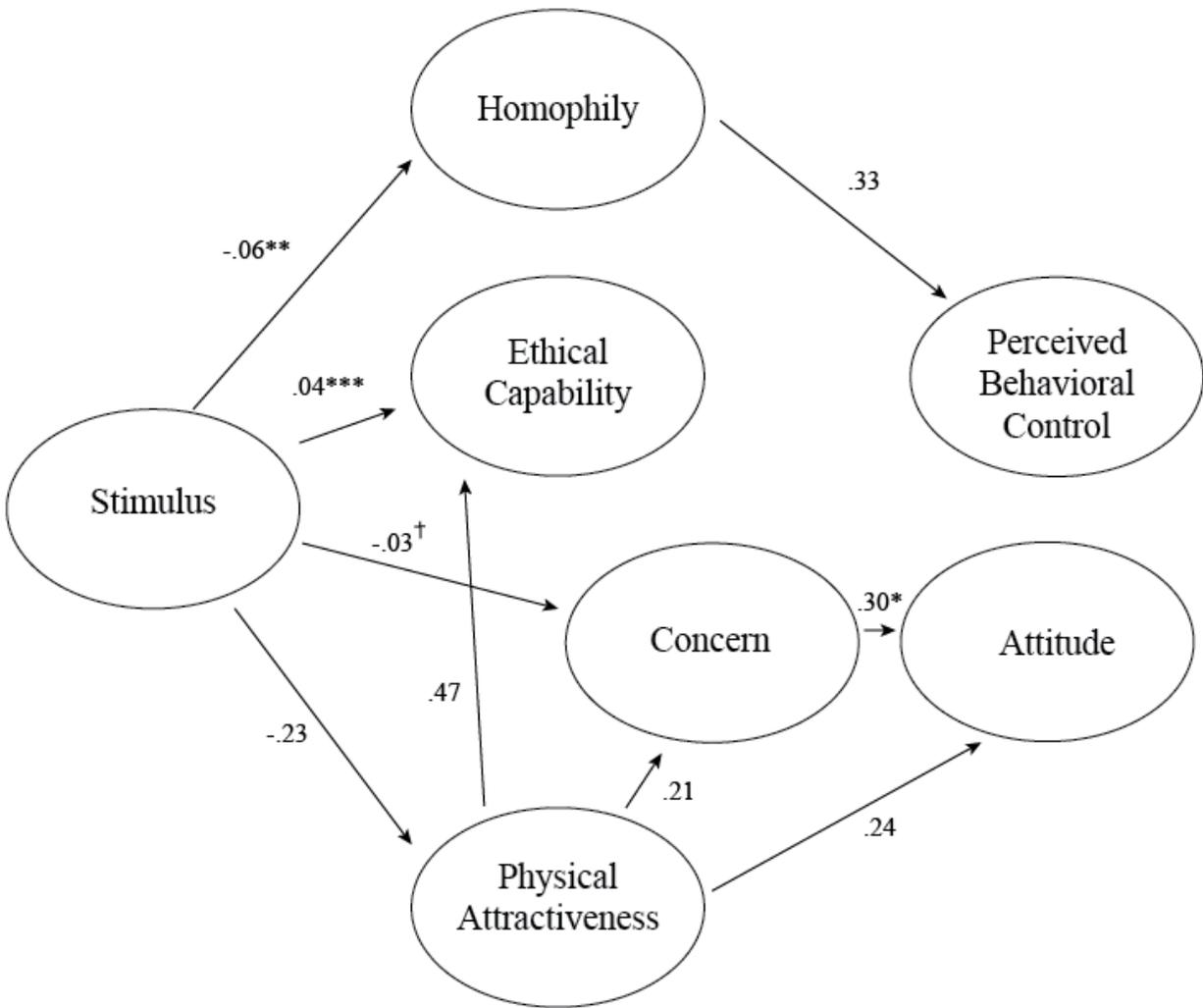


Figure 2. Hypothesized model with weights. This figure illustrates that the hypothesized model was not a good fit for the data. † $p = .377$, * $p = .317$, ** $p = .098$, *** $p = .259$. All other values are $p < .001$.

Correlations

Correlation Table

| Measure | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------|-------|-------|-------|--------|------|---|
| 1. Attractiveness | - | | | | | |
| 2. Homophily | 0.343 | - | | | | |
| 3. Ethical Capability | 0.463 | 0.378 | - | | | |
| 4. Concern | 0.222 | 0.377 | 0.409 | - | | |
| 5. Attitude | 0.392 | 0.424 | 0.429 | 0.214 | - | |
| 6. PBC | 0.212 | 0.332 | 0.248 | 0.118* | 0.46 | - |

Figure 3. Correlation Table. This figure illustrates the correlations from the previously listed regression tests.

All correlations with where $p = .002$ are indicated with *. All other correlations are significant at $p < .001$.

Exploratory Analyses

I re-specified the hypothesized model by dropping non-significant paths and variables on those paths, like concern. The analysis revealed that concern was not predicted by nor predictive of anything and therefore was dropped from the model. The path weights between the stimulus (muscle mass), homophily, and ethical capability credibility were eliminated as they were found to be not significant.

The stimulus was only predictive of physical attractiveness and therefore physical attractiveness was made to be a moderator. A path was created between physical attractiveness and homophily based on the notion that people are more attracted to those that are similar to themselves (Byrne, 1971; McCroskey et al., 2006). With that reasoning, if that path is significant to attitude, it may be equally as important to perceived behavioral control.

Prior research suggests that the path between attitude and perceived behavioral control may not be neatly delineated (Kothe & Mullan, 2015; Martinez & Lewis, 2016). It may be more likely that attitude and perceived behavioral control may influence one another. Because of this

unclear correlation, a path between homophily and attitude, and attitude and perceived behavioral control was constructed.

I tested the newly hypothesized model with a path analysis in AMOS. The model resulted in a good fit to the data $\chi^2(6) = 4.726, p = .579, CFI = 1.00, RMSEA = .000, 90\% CI .000-.043, pclose = .979$. Figure 4 below shows the newly hypothesized path and its corresponding weights.

Exploratory path analysis.

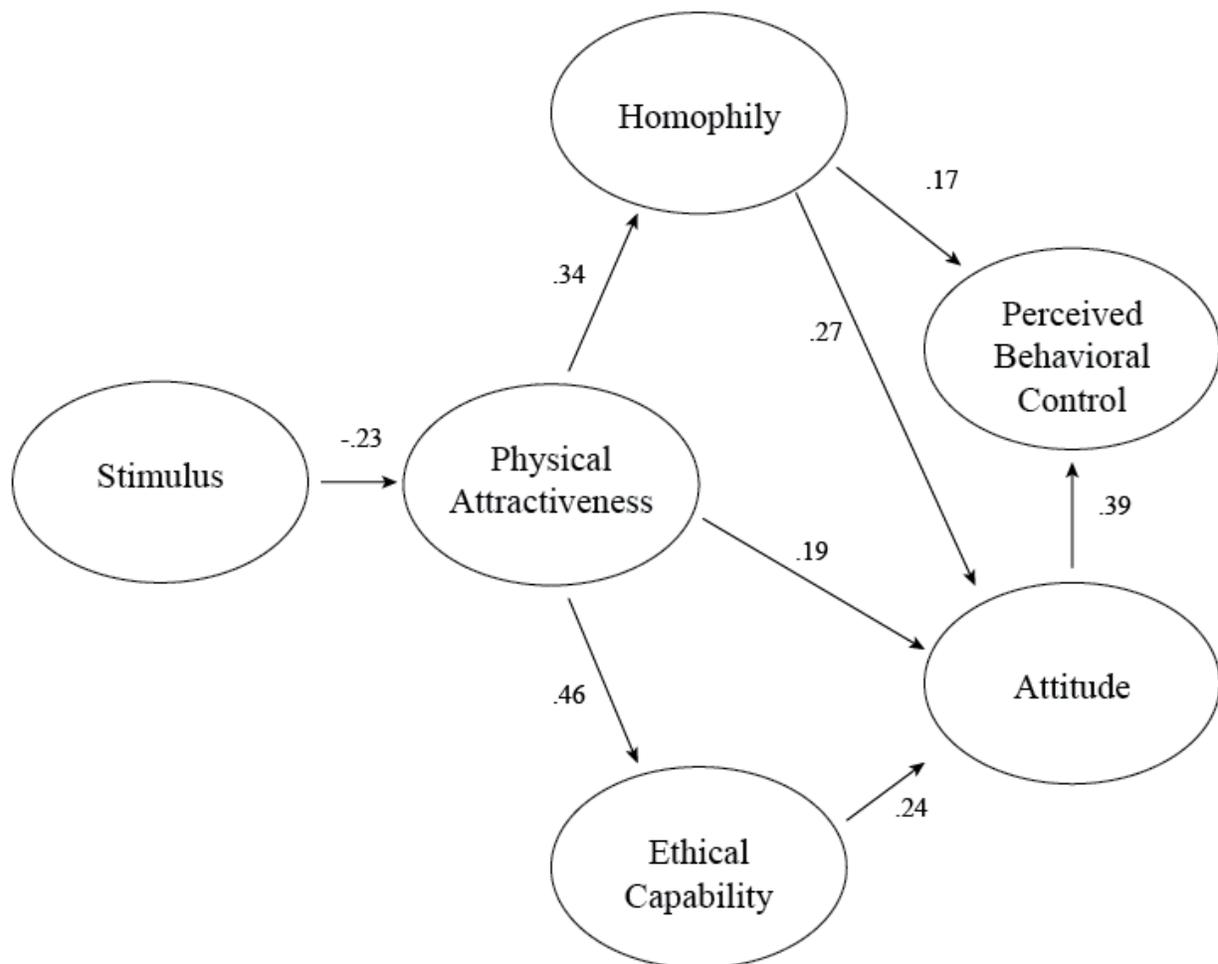


Figure 4. Exploratory Analysis Model. This figure illustrates the model that was created through the exploratory analysis.

Indirect effects.

The researcher used 5,000 bootstrapped samples to construct bias corrected confidence intervals to estimate the indirect effects of the muscle mass manipulation on perceived behavioral control. I examined the indirect effect of muscle mass on the outcome variables and there is a significant overall indirect effect ($\beta = -.048, p = .579$) and that homophily, ($\beta = -.022, p = .001$), physical attraction, ($\beta = -.017, p = .001$), and ethical capability, ($\beta = -.010, p = .001$) significantly mediated this effect.

Multiple group analysis.

To assess whether the path weights were invariant between men and women, I conducted a multiple group analysis in AMOS by constraining the regression paths between variables to be invariant between subject conditions. In the second, path weights were allowed to freely vary between the groups. This process showed that the model fit was not significantly worse by constraining the weights $\chi^2(8) = 7.04, p = .532$, which indicates that the path weights are invariant between groups.

Chapter 6 Discussion**Summary of Findings**

Participants in the low muscle mass condition perceived the model to be more homophilous to themselves. Homophily was found to significantly predict the perceived behavioral control to perform weight lifting exercises. Homophily may act as a mediator between the stimulus and the perceived behavioral control to perform the behavior within the TPB. The original credibility scale was turned into two constructs: ethical capability and concern. The ethical capability scale showed a main multivariate effect for both low and high muscle mass. The concern scale did not prove to be significant in either conditions. Ethical capability

significantly predicted attitude. The concern scale did not prove to be significant. Muscle mass was found to have a main multivariate effect on physical attractiveness. High and low muscle mass were found to be significant. Physical attractiveness was found to predict both ethical capability and concern, supporting the Halo Effect. Physical attractiveness significantly predicted attitude when credibility was used as a mediator. The stimulus was only predictive of physical attractiveness, which lead this researcher to believe that physical attractiveness may be the driving force of homophily, credibility, attitude, and perceived behavioral control.

One model was perceived more ethically capable than the other model. Though I attempted to have as few differences among the two as possible, this could be due to a number of factors. The model who was perceived as less ethically capable was using the “selfie” method rather than having a third party take the photo. This may have attributed to participants feeling as though she was more self-centered. Additionally, that model’s facial expressions (not smiling) were not as friendly or inviting as the other models.

This research reveals that physical attractiveness may supersede traditional characteristics of credibility and expertise. Professionals who strive to emanate traditional aesthetics and expectations for their field, may be damaging their credibility if those expectations defy current gender norms and beauty ideals. Additionally, physical attractiveness may be moderating variables within the TPB that could mitigate health communication messages and campaigns. Trainers and fitness models should look at how their bodies may or may not conform to both body ideals within and outside their bodybuilding communities if their primary goal is to encourage their audiences to participate in weight lifting exercises.

Though the data was not a good fit for the original hypothesized model, the exploratory analysis revealed significant findings. Physical attractiveness was the sole significant outcome

and played a central role in mediating the stimulus on the variable outcomes. With the results showing the main effects of physical attractiveness, the exploratory analysis became an independent variable with homophily and credibility as moderators for attitude and perceived behavioral control. The revised model identified within the exploratory analysis proved to be a good fit. It is noted that this model should be validated before it is used within future research.

Limitations

According to an *a priori* power analysis for the most restrictive test, 875 participants would have been needed to adequately test if the model was a good fit. Unfortunately, only 824 subjects participated in the study. A larger sample size would have been needed to ensure whether or not the model was a good fit.

The stimuli were specifically chosen to remain as consistent as possible with the exception of muscle mass. Together, the stimuli were visibly different with regard to muscle mass. However, the participants were not allowed to view the stimuli together and may not have perceived the stimuli the same way as the researcher did. What the researcher may have perceived as low or high muscle mass, may not have been consistent with the participants'. Additionally, muscularity may not be a good indicator of credibility and expertise within the fitness industry.

The results of this study reveal that there is room to explore beyond contemporary perceptions of physical attractiveness and its relationship to credibility, homophily, attitude, and behavioral intent. The stimuli were pulled from Instagram accounts of lesser known female bodybuilders. It was difficult to find accounts that showed individuals early on in their career and currently. Similarities between hairstyles (length and color), skin tone, apparel, and stance were

more difficult to find than anticipated. Incorporating diversity among the stimuli may reveal differing results.

Though it is often used, self-reported data has been criticized for unforeseen biases within the surveying method. Future research should attempt to identify which aspects of the stimuli's appearance the participants perceive as physically attractive.

Future Research

Future research should explore how homophily, credibility, and physical attractiveness could influence perceived behavioral control. This study hints that if your attitude towards the behavior is positive, you would perceive the stimulus as more homophilous, credible, and physically attractive. Therefore, it would affect your perceived behavioral control.

Replication is suggested as means of further research in order to confirm this studies results. Incorporating a range of different body ideals from different cultures would help to unearth similarities or differences among the research. Future research should be done to explore what particular aspects of attractiveness are valued among the general population.

The exploratory analysis revealed the possible fit and significance of a new model. Research using this new model should be conducted to reveal if the model has any legitimacy. Until the model has been validated, it should not be used within research.

However, it is still evident that there is noise among the path from homophily to perceived behavioral control. There may be other perceptions that are arising that influence homophily and possible moderators should be explored to identify any such moderators.

This study did contribute to the Theory of Planned Behavior by identifying that physical attractiveness was shown to be a driving force behind perceived behavioral control and attitude.

However, future research should look at other theoretical frameworks to address the other phenomenon witnessed.

Chapter 7 Conclusion

These results have strong implications for how females will continue to be judged on their physical attractiveness compared to other defining characteristics such as homophily and credibility. Social norms and body ideals continue to play a role within media especially within the fitness and health industry. The exploratory analysis provided insight into possible research that may be conducted in the future regarding the complex role that physical attractiveness plays within particular aspects of the TPB. For females who make a career out of weight lifting and encouraging their audiences to participate in weight lifting activities, the amount of muscle mass they have made be detrimental to achieving these specific goals. Additionally, physical attractiveness plays a large role in whether or not their audience perceives them as credible. The findings from the exploratory analysis provided ample implications and substantive evidence that future research is necessary to explore physical attractiveness as a driving force for variables beyond homophily and credibility.

References

- Ahmad, M. H., Shahar, S., Teng, N. I. M. F., Manaf, Z. A., Sakian, N. I. M., & Omar, B. (2014). Applying theory of planned behavior to predict exercise maintenance in sacrospinal elderly. *Clinical Interventions in Aging, 9*, 1551-1561.
- Ajzen, I. (1985). From intentions to actions: a theory of planned behavior *Action Control* (pp. 11-39): Springer Berlin Heidelberg.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.
- Ajzen, I. (2002). Constructing a TBP questionnaire: Conceptual and methodological considerations.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Anderson, E. S., Winett, R. A., & Wojcik, J. R. (2007). Self-regulation, self-efficacy, outcome expectations, and social support: social cognitive theory and nutrition behavior. *Annals of Behavioral Medicine, 34*(3), 204-312.
- Armitage, C. J., & Sprigg, C. A. (2010). The roles of behavioral and implementation intentions in changing physical activity in young children with low socioeconomic status. *Journal of Sport & Exercise Psychology, 32*(3), 359.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1986). *Social foundations of thought and action: a social cognitive theory*: Prentice-Hall.
- Bandura, A. (2001). Social cognitive theory of mass communication. *Media Psychology, 3*(3).
- Barlett, C. P., Vowels, C. L., & Saucier, D. A. (2008). Meta-analyses of the effects of media images on men's body-image concerns. *Journal of Social and Clinical Psychology, 27*(3), 279-310.
- Bergstrom, R. L., & Neighbors, C. (2006). Body image disturbance and the social norms approach: an integrative review of literature. *Journal of Social and Clinical Psychology, 25*(9), 995-1020.
- Berry, T. R., Jones, K. E., McLeod, N. C., & Spence, J. C. (2011). The relationship between implicit and explicit believability of exercise-related messages and intentions. *Health Psychology, 30*(6), 746-752.
- Bhatt, N., Jayswal, R. M., & Patel, J. D. (2013). Impact of celebrity endorser's source credibility on attitude towards advertisements and brands. *South Asian Journal of Management, 20*(4), 74-95.
- Botta, R. A. (1999). Television images and adolescent girls' body image disturbance. *Journal of Communication, 49*(2), 22-41.
- Brechwald, W. A., & Prinstein, M. J. (2011). Beyond homophily: a decade of advances in understanding peer influence processes. *Journal of Research on Adolescence, 21*(1), 166-179.
- Brown, B. B. (1990). Peer groups and peer cultures. In S. S. Feldman & G. R. Elliot (Eds.), *At the threshold: The developing adolescent* (pp. 171-196). Cambridge, MA: Harvard University Press.

- Burger, J. M., LaSalvia, C. T., Hendricks, L. A., Mehdipour, T., & Neudeck, E. M. (2011). Partying before the party gets started: The effects of descriptive norms on pregame behavior. *Basic and Applied Social Psychology, 33*(3), 220-227.
- Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and differentiation *Psychological Review, 106*(4), 676-713.
- Byrne, D. (1971). The ubiquitous relationship: attitude similarity and attraction. *Human Relations, 24*(3), 201-207.
- Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology, 58*, 1015-1026.
- Conn, V. S., Tripp-Reimer, T., & Maas, M. L. (2003). Older women and exercise: theory of planned behavior beliefs. *Public Health Nursing, 20*(2), 153-163.
- Craib, I. (2011). *Anthony Giddens*: Routledge.
- Critical readings in bodybuilding*. (2012). (N. R. Adam Locks Ed.). New York, New York: Routledge.
- Daley, J. A., McCroskey, J. C., & Richmond, V. (1977). Relationships between vocal activity and perception of communicators in small group interaction. *Western Journal of Speech Communication, 41*(3), 175-187.
- Dion, K., Berscheid, E., & Walster, E. (1972). What is beautiful is good. *Journal of Personality and Social Psychology, 24*(3), 285-290.
- Duffy, B. K., & Jackson, L. D. (1998). *Health communication research: A guide to developments and directions* United States: Greenwood Press.
- Dunleavy, V. O. (2008). An examination of descriptive and injunctive norm influence on intention to get drunk. *Communication Quarterly, 56*(4), 468-487.
- Dworkin, S. L., & Wachs, F. L. (2009). *Body panic: gender, health, and the selling of fitness*. New York: New York University Press.
- Eagly, A. H., Makhijani, M. G., Ashmore, R. D., & Longo, L. C. (1991). Beautiful is good, but...: A meta-analytic review of research on the physical attractiveness stereotype. *Psychological Bulletin, 110*(1), 109-128.
- Eagly, A. H., Mladinic, A., & Otto, S. (1991). Are women evaluated more favorable than men? An analysis of attitudes, beliefs, and emotions. *Psychology of Women Quarterly, 15*(2), 203-216.
- Eisenberg, M. E., Neumark-Sztainer, D., Story, M., & Perry, C. (2004). The role of social norms and Friends' influences on unhealthy weight-control behaviors among adolescent girls. *Social Science & Medicine, 60*(6), 1165-1173.
- Elliot, D. L., Goldberg, L., Moe, E. L., DeFrancesco, C. A., Durham, M. B., McGinnis, W., & Lockwood, C. (2008). Long-term outcomes of the ATHENA (Athletes Targeting Healthy Exercise & Nutrition Alternatives) program for female high school athletes. *Journal of Alcohol & Drug Education, 52*(2), 73-93.
- Elmore, K. C., Scull, T. M., & Kupersmidt, J. B. (2017). Media as a "super peer": how adolescents interpret media messages predicts their perception of alcohol and tobacco use norms. *Journal of Youth and Adolescence, 46*(2), 376-387.
- Esmailpour, M., & Aram, F. (2016). Investigating the impact of viral message appeal and message credibility on consumer attitude toward the brand. *Management & Marketing, 11*(2), 470-483.

- Fitzsimmons-Craft, E. E., Bardone-Cone, A. M., Crosby, R. D., Engel, S. G., Wonderlich, S. A., & Bulik, C. M. (2016). Mediators of the relationship between thin-ideal internalization and body dissatisfaction in the natural environment. *Body Image, 18*, 113-122.
- Forbes, G. B., Collinsworth, L. L., Jobe, R. L., Braun, K. D., & Wise, L. M. (2007). Sexism, hostility toward women, and endorsement beauty ideals and practices: Are beauty ideals associated with oppressive beliefs? *Sex Roles, 56*(5-6), 265-273.
- Garner, D. M., Garfinkel, P. E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. *Psychological Reports, 47*(2), 483-491.
- Gheorghiu, A. I., Callan, M. J., & Skylark, W. J. (2017). Facial appearance affects science communication. *PNAS, 114*(23), 5970-5975. doi:10.1073/pnas.1620542114
- Giddens, A. (1984). *The constitution of society: outline of the theory of structuration* Cambridge: Polity Press.
- Giles, S. M., Helme, D., & Krcmar, M. (2007). Predicting disordered eating intentions among incoming college freshman: an analysis of social norms and body esteem. *Communication Studies, 58*(4), 395-410.
- Gotlieb, J. B., & Sarel, D. (1991). Comparative advertising effectiveness: the role of involvement and source credibility. *Journal of Advertising, 20*(1), 38-45.
- Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental correlational studies. *Psychological Bulletin, 134*(3), 460-476.
- Grewal, D., Gotlieb, J., & Marmorstein, H. (1994). The moderating effects of message framing and source credibility on the price-perceived risk relationship. *Journal of Consumer Research, 21*(1), 145-153.
- Grogan, S., & Richards, H. (2002). Body image: focus groups with boys and men. *Men and Masculinities, 4*(3), 219-232.
- Grossbard, J. R., Neighbors, C., & Larimer, M. E. (2011). Perceived norms for thinness and muscularity among college students: what do men and women really want? *Eating Behaviors, 12*(3), 192-199.
- Hamermesh, D. S. (2011). *Beauty pays: why attractive people are more successful*. Princeton, NJ: Oxford: Princeton University Press.
- Holland, G., & Tiggemann, M. (2017). "Strong beats skinny every time": Disordered eating and compulsive exercise in women who post fitspiration on Instagram. *International Journal of Eating Disorders, 50*(1), 76-79.
- Hovland, C. I., & Weiss, W. (1951). The influence of source credibility on communication effectiveness. *Public Opinion Quarterly, 15*(4), 635-650.
- Johnston, M., French, D. P., Bonetti, D., & Johnston, D. (2004). Assessment and measurement in health psychology. In S. Sutton, A. Baum, & M. Johnston (Eds.), *The Sage handbook of health psychology* (pp. 288-323). London: Sage.
- Jones, L. W., Sinclair, R. C., & Courneya, K. S. (2003). The effects of source credibility and message framing on exercise intentions, behaviors, and attitudes: an integration of the elaboration likelihood model and prospect theory. *Journal of Applied Social Psychology, 33*(1), 179-196.
- Jones, M. H., & Ford, J. M. (2013). Social achievement goals, efficacious beliefs, and math performance in a predominately african american high school. *Journal of Black Psychology, 40*(3), 239-262.

- Jones, M. R., & Karsten, H. (2008). Giddens's structuration theory and information systems research. *Management Information Systems, 32*(1), 127-157.
- Kaliyath, S. (2016). Gender as a social construct. In K. R. Priya & A. K. Dalal (Eds.), *Qualitative Research on Illness, Wellbeing and Self-Growth: Contemporary Indian Perspectives* (pp. 362): Routledge.
- Knauss, C., Paxton, S. J., & Alsaker, F. D. (2007). Relationships amongst body dissatisfaction, internalisation of the media body ideal and perceived pressure from media in adolescent girls and boys. *Body Image, 4*, 353-360.
- Knobloch-Westerwick, S., & Romero, J. P. (2011). Body ideals in the media: Perceived attainability and social comparison choices. *Media Psychology, 14*(1), 27-48.
- Kotchen, M. J., & Reiling, S. (2000). Environmental attitudes, motivations, and contingent valuation of nonuse values: A case of study involving endangered species. *Ecological Economics, 32*(1), 93-107.
- Kothe, E. J., & Mullan, B. A. (2015). Interaction effects in the theory of planned behaviour: Predicting fruit and vegetable consumption in three prospective cohorts. *British Journal of Health Psychology, 20*(3), 549-562.
- Lamsal, M. (2012). The structuration approach of Anthony Giddens. *Himalayan Journal of Sociology & Anthropology, 5*, 111-122.
- Lapinski, M. K., & Rimal, R. N. (2005). An explication of societal norms. *Communication Theory, 15*(2), 127-147.
- Lemay, E. P., Clark, M. S., & Greenberg, A. (2010). What is beautiful is good because what is beautiful is desired: Physical attractiveness stereotyping as projection of interpersonal goals. *Personality and Social Psychology Bulletin, 36*(3), 339-353.
- Leonard, M., Graham, S., & Bonacum, D. (2004). The human factor: The critical importance of effective teamwork and communication in providing safe care. *Quality & Safety in Health Care, 13*(1).
- Linos, N., Slopen, N., Subramanian, S. V., Berkman, L., & Kawachi, I. (2013). Influence of community social norms on spousal violence: a population based multilevel study of nigerian women. *American Journal of Public Health, 103*(1), 148-155.
- Lorber, J., & Farrell, S. A. (1991). *The social construction of gender* Newbury Park, CA: Sage.
- Lorber, J., & Martin, P. Y. (2001). The socially constructed body: Insights from feminist theory. In P. Kivisto (Ed.), *Illuminating Social Life: Classical and Contemporary Theory Revisited* (2 ed., pp. 259-282). Thousand Oaks, CA: Pine Forge Press.
- Lorber, J., & Martin, P. Y. (2011). The socially constructed body: Insights from feminist theory. In P. Kivisto (Ed.), *Illuminating Social Life: Classical and Contemporary Theory Revisited* (5 ed.). Thousand Oaks: Pine Forge Press.
- Lorenzo, G. L., Biesanz, J. C., & Human, L. J. (2010). What is beautiful is good and more accurately understood: Physical attractiveness and accuracy in first impressions of personality. *Psychological Science, 21*(12), 1777-1782.
- Mackey, E. R., & LaGreca, A. M. (2008). Does this make me look fat? Peer crowd and peer contributions to adolescent girls' weight control behaviors. *Journal of Youth and Adolescence, 37*(9), 1097-1110.
- Maibach, E. (2007). The influence of the media environment on physical activity: looking for the big picture. *American Journal of Health Promotion, 21*(4), 353-362.

- Martin, C. L., Ruble, D. N., & Szkrybalo, J. (2004). Recognizing the centrality of gender identity and stereotype knowledge in gender development and moving toward theoretical integration: Reply to Bandura and Bussey. *Psychological Bulletin, 130*(5), 702-710.
- Martinez, L. S., & Lewis, N. (2016). The moderated influence of perceived behavioral control on intentions among the general U.S. population: Implications for public communication campaigns. *Journal of Health Communication, 21*(9), 1006-1015.
- McCreary, D. R., Sasse, D. K., Saucier, D. M., & Dorsch, K. D. (2004). Measuring the drive for muscularity: Factorial validity of the drive for muscularity scale in men and women. *Psychology of Men & Masculinity, 5*(1), 49-58.
- McCroskey, L. L., McCroskey, J. C., & Richmond, V. P. (2006). Analysis and improvement of the measurement of interpersonal attraction and homophily. *Communication Quarterly, 54*(1), 1-31.
- Mishkind, M. E., Rodin, J., Silberstein, L. R., & Striegel-Moore, R. H. (1986). The embodiment of masculinity: cultural, psychological, and behavioral dimensions. *The American Behavior Scientist, 29*(5), 545-562.
- Morrison, D. R. (2014). *Bioethics* (4 ed. Vol. 6). Farmington Hills, MI: Macmillan Reference USA.
- Mou, Y. (2015). Exploring podcast adoption intention via perceived social norms, interpersonal communication, and theory of planned behavior. *Journal of Broadcasting & Electronic Media, 59*(3), 475-493.
- Muldoon, R., Lisciandra, C., Bicchieri, C., Hartmann, S., & Sprenger, J. (2014). On the emergence of descriptive norms. *Politics, Philosophy, & Economics, 13*(1), 3-22.
- Murnen, S. K., Poinsette, K., Huntsman, K., Godfarb, J., & Glaser, D. (2015). Body ideals for heterosexual romantic partners: Gender and sociocultural influences. *Body Image, 12*, 22-31.
- Myers, S. A., Horan, S. M., Kennedy-Lightsey, C. D., Madlock, P. E., Sidelinger, R. J., Byrnes, K., . . . Mansson, D. H. (2009). The relationship between college students' self-reports of class participation and perceived instructor impressions. *Communication Research Reports, 26*(2), 123-133.
- Neuwirth, K., & Frederick, E. (2004). Peer and social influence on opinion expression: Combining the theories of planned behavior and the spirit of silence. *Communication Research, 31*(6), 669-703.
- Park, H. (2007). Distinctiveness and influence of subjective norms, personal descriptive and injunctive norms on behavioral intent: A case of two behaviors critical to organ donation. *Human Communication Research, 33*(2), 194-218.
- Park, J., Chiu, W., & Won, D. (2017). Sustainability of exercise behavior in seniors: an application of the extended theory of planned behavior. *Journal of Physical Education and Sport, 17*(1), 342.
- Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services, 29*, 123-134.
- Pearl, R. L., Dovidio, J. F., Puhl, R. M., & Brownell, K. D. (2015). Exposure to weight-stigmatizing media: Effects on exercise intentions, motivation, and behavior. *Journal of Health Communication, 20*(9), 1004-1013.
- Plax, T. G., & Rosenfeld, L. B. (1980). Individual differences in the credibility and attitude change relationship. *Journal of Social Psychology, 111*(1), 79-89.

- Pornpitakpan, C. (2004). The persuasiveness of source credibility: a critical review of five decades' evidence. *Journal of Applied Social Psychology, 34*(2), 243-281.
- Priebe, C. S., & Spink, K. S. (2012). Using messages promoting descriptive norms to increase physical activity *Health Communication, 27*(3), 284-291.
- Ridgeway, R. T., & Tylka, T. L. (2005). College men's perceptions of ideal body composition and shape. *Psychology of Men & Masculinity, 6*, 209-220.
- Ridolfi, D. R., Myers, T. A., Crowther, J. H., & Ciesla, J. A. (2011). Do appearance focused cognitive distortions moderate the relationship between social comparisons to peers and media images and body image disturbance? *Sex Roles, 65*(7), 491-505.
- Rimal, R. N., & Real, K. (2005). How behaviors are influenced by perceived norms: A test of the theory of normative social behavior. *Communication Research, 32*(3), 389-414.
- Risman, B. J. (2004). Gender as a social structure: Theory wrestling with activism. *Gender & Society, 18*(4), 429-450.
- Rodin, J., Silberstein, L., & Striegel-Moore, R. H. (1985). Women and weight: a normative discontent. *Nebraska Symposium on Motivation, 32*, 267.
- Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the health belief model. *Health Education Quarterly, 15*(2), 175-183.
- Saltzberg, E. A., & Chrisler, J. C. (1995). Beauty is the beast: psychological effects of the pursuit of the perfect female body. In J. Freeman (Ed.), *Women: A Feminist Perspective* (pp. 306-315). Mountain View, CA: Mayfield Publishing Company.
- Schaefer, L. M., Burke, N. L., Thompson, K., Dedrick, R. F., Heinberg, L. J., Calogero, R. M., . . . Swami, V. (2015). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4). *Psychological Assessment, 27*(1), 54-67.
- Shepherd, C. B., & Rickard, K. M. (2012). Drive for muscularity and help-seeking: the mediational role of gender role conflict, self-stigma, and attitudes. *Psychology of Men & Masculinity, 13*(4), 379-392.
- Shepherd, T. (2013). Gendering the commodity audience in social media. In C. Carter, L. Steiner, & L. McLaughlin (Eds.), *Routledge companion to media and gender* (pp. 157-167). Florence, KY: Routledge.
- Shilling, C. (1991). Educating the body: physical capital and the production of social inequalities. *Sociology, 25*(4), 653-672.
- Simpson, C. C., & Mazzeo, S. E. (2017). Skinny is not enough: A content analysis of fitspiration on Pinterest. *Health Communication, 32*(5), 560-567.
- Smelser, N. J. (1988). Social structure. In N. J. Smelser (Ed.), *Handbook of sociology*. Beverly Hills: Sage.
- Smolak, L., Levine, M. P., & Thompson, K. J. (2001). The use of sociocultural attitudes towards appearance questionnaire with middle school boys and girls. *International Journal of Eating Disorders, 29*(2), 81-89.
- Smolak, L., & Murnen, S. K. (2008). Drive for leanness: Assessment and relationship to gender, gender role and objectification. *Body Image, 5*, 251-260.
- Smolak, L., & Stein, J. A. (2006). The relationship of drive for muscularity to sociocultural factors, self-esteem, physical attributes gender role, and social comparison in middle school boys. *Body Image, 3*, 121-129.
- Strandbu, A., & Kvalem, I. L. (2014). Body talk and body ideals among adolescent boys and girls: A mixed-gender focus group study. *Youth & Society, 46*(5), 623-641.

- Strasburger, V. C., & Wilson, B. J. (2002). *Children, adolescents, and the media* (2 ed.). Beverly Hills, CA: Sage Publications.
- Swami, V., & Furnham, A. (2008). *The psychology of physical attraction*. London, New York: Routledge.
- Sypeck, M. F., Gray, J. G., & Ahrens, A. H. (2004). No longer just a pretty face: fashion magazines' depictions of ideal female beauty from 1959 to 1999. *International Journal of Eating Disorders*, 36(3), 342-347.
- Sypeck, M. F., Gray, J. J., Etu, S. F., Ahrens, A. H., Mosimann, J. E., & Wiseman, C. V. (2006). Cultural representations of thinness in women, redux: Playboy magazine's depiction of beauty from 1979 to 1999. *Body Image*, 3(3), 229-235.
- Talbot, C. V., Gavin, J., Steen, T. v., & Morey, Y. (2017). A content analysis of thinspiration, fitspiration, and bonespiration imagery on social media. *Journal of Eating Disorders*, 40(5), 1-8.
- Teven, J. J., & McCroskey, J. C. (1997). The relationship of perceived teacher caring with student learnign and teacher evaluation. *Communication Edition*, 46(1), 1-9.
- Thompson, J. K., Berg, P. v. d., Roehrig, M., & Heinberg, L. (2004). The sociocultural attitudes towards appearance scale-3 (SATAQ-3): Development and validation. *International Journal of Eating Disorders*, 35, 293-304.
- Thompson, J. K., & Cafri, G. (2007). *The muscular ideal: psychological, social, and medical perspectives* (1 ed.). Washington, DC: American Psychological Association.
- Tiggemann, M., & Slater, A. (2014). NetTweens: The Internet and body image concerns in preteenage girls. *Journal of Early Adolescence*, 34, 606-620.
- Tiggemann, M., & Zaccardo, M. (2015). "Exercise to be fit, not skinny": The effect of fitspiration imagery on women's body image. *Body Image*, 15, 61-67.
- Touhey, C. E. (1975). Prior information, credibility, and attitude change. *The Journal of Social Psychology*, 95(2), 287-288.
- Tylka, T. L. (2010). Integrating social comparison theory and self-esteem within objectification theory to predict women's disordered eating *Sex Roles*, 63(2), 18-31.
- vanZoonen, W., & vanderMeer, T. (2015). The importance of source credibility perception in times of crisis: Crisis communication in a socially mediated era. *Journal of Public Relations Research*, 27(5), 371-388.
- Walberg-Rankin, J., Edmonds, C. E., & Gwazdauskas, F. C. (1993). Diet and Weight Changes of Female Bodybuilders Before and After Competition. *International Journal of Sport Nutrition*, 3(1), 87-102.
- Wang, L., & Wang, L. (2015). Using theory of planned behavior to predict the physical activity of children: probing gender differences *BioMed Research International*, 2015, 1-9.
- Ward, C. D., & McGinnies, E. (1974). Persuasive effects of early and late mention of credible and noncredible sources. *The Journal of Psychology*, 86(1), 17-23.
- West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender & Society*, 1(2), 125-151.
- Worthen, M. G. F., & Baker, S. A. (2016). Pushing up on the glass ceiling of female muscularity: women's bodybuilding as edgework. *Deviant Behavior*, 37(5), 471-495.
- Yoon, K., Kim, C. H., & Kim, M.-S. (1998). A cross-cultural comparison of the effects of source credibility on attitudes and behavioral intentions. *Mass Communication & Society*, 1(3/4), 153-173.

Zhang, N., Campo, S., Yang, J., Janz, K. F., Snetselaar, L. G., & Eckler, P. (2015). Effects of social support about physical activity on social networking sites: applying the theory of planned behavior. *Health Communication, 30*(12), 1277-1285.

Appendix A

WIRB Approval Letter



March 20, 2018

Dan Tamul, PhD, MA, BA
Virginia Tech
181 Turner Street NW (0311)
Blacksburg, VA 24061

Dear Dr. Tumul:

SUBJECT: REGULATORY OPINION—IRB EXEMPTION
Protocol Title: Breaking the muscular mold
Investigator: Dan Tamul, PhD, MA, BA

This letter is in response to your request to Western Institutional Review Board (WIRB) for an exemption determination for the above-referenced research project. WIRB's IRB Affairs Department reviewed the exemption criteria under 45 CFR §46.101(b)(2):

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
 - (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

We believe that the research fits the above exemption criteria. The data will be collected in a way so that the subjects cannot be identified, directly or through identifiers linked to the participants.

This exemption determination can apply to multiple sites, but it does not apply to any institution that has an institutional policy of requiring an entity other than WIRB (such as an internal IRB) to make exemption determinations. WIRB cannot provide an exemption that overrides the jurisdiction of a local IRB or other institutional mechanism for determining exemptions. You are responsible for ensuring that each site to which this exemption applies can and will accept WIRB's exemption decision.

Please note that any future changes to the project may affect its exempt status, and you may want to contact WIRB about the effect these changes may have on the exemption

Western Institutional Review Board®

1019 39th Avenue SE Suite 120 | Puyallup, WA 98374-2115
Office: (360) 252-2500 | Fax: (360) 252-2498 | www.wirb.com

Appendix B
Questionnaire

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

I consent

What is your sex?

Male

Female

Other

Prefer not to answer

What is your age?

▼ 18 ... 61 or older

Please read the following sentences and indicate your agreement or disagreement where 1 = Strongly disagree, 4 = Neither agree nor disagree, and 7 = Strongly agree.

| | 1= Strongly Agree | 2= Agree | 3= Somewhat agree | 4 = Neither agree nor disagree | 5 = Somewhat disagree | 6 = Disagree | 7 = Strongly disagree |
|--|-------------------------|-----------------------|-------------------------|---|-----------------------------|-----------------------|-----------------------------|
| I want women's bodies to look very thin. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I want women's bodies to look like they have little fat. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I think a lot about women looking thin. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I want women's bodies to look very lean. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Select "Strongly disagree" for this question. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I think a lot about women having very little body fat. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please read the following sentences and indicate your agreement or disagreement where 1 = Strongly disagree, 4 = Neither agree nor disagree, and 7 = Strongly agree.

| | Strongly Agree | Agree | Somewhat agree | Neither agree nor disagree | Somewhat disagree | Disagree | Strongly disagree |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| It is important for men to look athletic. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I think a lot about men looking muscular. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I think men should spend a lot of time doing things to look more athletic. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I think a lot about men looking athletic. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I think men should spend a lot of time doing things to look more muscular. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Select "Somewhat agree" for this response. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

STIMULUS

| | | | | | | | | |
|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------|
| Bright | <input type="radio"/> | Stupid |
| Phony | <input type="radio"/> | Genuine |
| Not understanding | <input type="radio"/> | Understanding |

THINKING OF THE PERSON YOU JUST READ ABOUT, please read the following sentences and indicate your agreement or disagreement where 1 = Strongly disagree, 3 = Neither agree nor disagree, and 5 = Strongly agree.

| | 1 = Strongly Disagree | 2=Disagree | 3 = Neither Agree nor Disagree | 4 = Agree | 5 = Strongly Agree |
|-------------------------------------|-----------------------|-----------------------|--------------------------------|-----------------------|-----------------------|
| This person thinks like me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person doesn't behave like me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person is different from me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person shares my values | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person is like me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person treats people like I do | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person doesn't think like me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person is similar to me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person doesn't share my values | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

This person
behaves like
me

This person is
unlike me

This person
doesn't treat
people like I
do

This person
has thoughts
and ideas that
are similar to
mine

This person
expresses
attitudes
different from
mine

This person
has a lot in
common with
me

THINKING OF THE PERSON YOU JUST READ ABOUT, please read the following sentences and indicate your agreement or disagreement where 1 = Strongly disagree, 3 = Neither agree nor disagree, and 5 = Strongly agree.

| | 1 = Strongly Disagree | 2 = Disagree | 3 = Neither Agree nor Disagree | 4 = Agree | 5 = Strongly Agree |
|---|-----------------------|-----------------------|--------------------------------|-----------------------|-----------------------|
| I think this person is pretty. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person is sexy looking. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I don't like the way this person looks. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person is ugly. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I find this person attractive physically. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person is not good looking. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person looks appealing. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I don't like the way this person looks. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person is nice looking. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person has an attractive face. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person is not physically attractive. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| This person is good looking. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please indicate your **IMPRESSION OF WEIGHTLIFTING** by selecting the number between the pairs of adjectives below. The closer the number is to an adjective, the more certain you are of your evaluation. For me to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month is:

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|-----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------|
| Harmful | <input type="radio"/> | Beneficial |
| Pleasant | <input type="radio"/> | Unpleasant |
| Good | <input type="radio"/> | Bad |
| Worthless | <input type="radio"/> | Valuable |
| Enjoyable | <input type="radio"/> | Unenjoyable |

I have a high degree of control to regularly perform weight lifting exercises for at least 30 minutes each day in the forthcoming month.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
| Impossible | <input type="radio"/> | Possible |

I have a high degree of control to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|-----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|
| Definitely True | <input type="radio"/> | Definitely False |

I have control over my ability to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|
| No Control | <input type="radio"/> | Complete Control |

It is mostly up to me whether or not I perform weight lifting exercises for at least 30 minutes each day in the forthcoming month

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------|
| Strongly Agree | <input type="radio"/> | Strongly Disagree |

That's the end of the Questionnaire!

Thank You for Participating!

Below is the code that you need to enter in MTurk. Please block and copy this code to receive payment for your participation.

Lemon\$ {e://Field/random}

If you have any other thoughts about the questionnaire that you would like to share with us, please write them in the box below.

Thank you for being part of the study!

Appendix C

Low Muscle Mass Stimulus- Model 1

My name is Megan Parker. I am a 22-year-old recent graduate. Growing up I was never active in sports. I remember dreading the school's yearly physical fitness test with a mile run because I couldn't do it. I would have never considered myself athletic & certainly never saw my life becoming what it is today. I had never been in a gym before my sophomore year of college and I had no clue what I was doing. I just wanted to feel better in a bikini. Getting into the gym and weightlifting has taught me strength and discipline I never knew I had. Weightlifting has helped drop 7% body fat, making me feel leaner and firmer. My resting metabolic rate has sped up immensely and I'm able to burn more calories during the day without even picking up a weight. Walking into the gym and lifting weights automatically puts me in a better mood. I can tell my dopamine and serotonin levels are up, making me feel better than when I started. It's a great natural anti-depressant! I used to spend hours doing crunches but now my core has strengthened through weight training and my posture is better. We are all capable of achieving whatever we set our minds to. As I always say: Change your mind, change your life! It's true what they say, "strong is the new skinny."



High Muscle Mass Stimulus- Model 1

My name is Megan Parker. I am a 22-year-old recent graduate. Growing up I was never active in sports. I remember dreading the school's yearly physical fitness test with a mile run because I couldn't do it. I would have never considered myself athletic & certainly never saw my life becoming what it is today. I had never been in a gym before my sophomore year of college and I had no clue what I was doing. I just wanted to feel better in a bikini. Getting into the gym and weightlifting has taught me strength and discipline I never knew I had. Weightlifting has helped drop 7% body fat, making me feel leaner and firmer. My resting metabolic rate has sped up immensely and I'm able to burn more calories during the day without even picking up a weight. Walking into the gym and lifting weights automatically puts me in a better mood. I can tell my dopamine and serotonin levels are up, making me feel better than when I started. It's a great natural anti-depressant! I used to spend hours doing crunches but now my core has strengthened through weight training and my posture is better. We are all capable of achieving whatever we set our minds to. As I always say: Change your mind, change your life! It's true what they say, "strong is the new skinny."



Low Muscle Mass Stimulus- Model 2

My name is Megan Parker. I am a 22-year-old recent graduate. Growing up I was never active in sports. I remember dreading the school's yearly physical fitness test with a mile run because I couldn't do it. I would have never considered myself athletic & certainly never saw my life becoming what it is today. I had never been in a gym before my sophomore year of college and I had no clue what I was doing. I just wanted to feel better in a bikini. Getting into the gym and weightlifting has taught me strength and discipline I never knew I had. Weightlifting has helped drop 7% body fat, making me feel leaner and firmer. My resting metabolic rate has sped up immensely and I'm able to burn more calories during the day without even picking up a weight. Walking into the gym and lifting weights automatically puts me in a better mood. I can tell my dopamine and serotonin levels are up, making me feel better than when I started. It's a great natural anti-depressant! I used to spend hours doing crunches but now my core has strengthened through weight training and my posture is better. We are all capable of achieving whatever we set our minds to. As I always say: Change your mind, change your life! It's true what they say, "strong is the new skinny."



High Muscle Mass Stimulus- Model 2

My name is Megan Parker. I am a 22-year-old recent graduate. Growing up I was never active in sports. I remember dreading the school's yearly physical fitness test with a mile run because I couldn't do it. I would have never considered myself athletic & certainly never saw my life becoming what it is today. I had never been in a gym before my sophomore year of college and I had no clue what I was doing. I just wanted to feel better in a bikini. Getting into the gym and weightlifting has taught me strength and discipline I never knew I had. Weightlifting has helped drop 7% body fat, making me feel leaner and firmer. My resting metabolic rate has sped up immensely and I'm able to burn more calories during the day without even picking up a weight. Walking into the gym and lifting weights automatically puts me in a better mood. I can tell my dopamine and serotonin levels are up, making me feel better than when I started. It's a great natural anti-depressant! I used to spend hours doing crunches but now my core has strengthened through weight training and my posture is better. We are all capable of achieving whatever we set our minds to. As I always say: Change your mind, change your life! It's true what they say, "strong is the new skinny."



Appendix D

Thin ideal Internalization Items

1. I want women's bodies to look very thin.
 2. I want women's bodies to look like they have little fat.
 3. I think a lot about women looking thin.
 4. I want women's bodies to look very lean.
 5. I think a lot about women having very little body fat.
-

Muscular ideal Internalization Items

1. It is important for men to look athletic.
 2. I think a lot about men looking muscular.
 3. I think men should spend a lot of time doing things to look more athletic.
 4. I think a lot about men looking athletic.
 5. I think men should spend a lot of time doing things to look more muscular.
-

Homophily Items

1. This person thinks like me
 2. This person doesn't behave like me
 3. This person is different from me
 4. This person shares my values
 5. This person is like me
 6. This person treats people like I do
 7. This person doesn't think like me
 8. This person is similar to me
 9. This person doesn't share my values
 10. This person behaves like me
 11. This person is unlike me
 12. This person doesn't treat people like I do
 13. This person has thoughts and ideas that are similar to mine
 14. This person expresses attitudes different from mine
 15. This person has a lot in common with me
-

Credibility Items

1. Intelligent 1 2 3 4 5 6 7 Unintelligent
 2. Untrained 1 2 3 4 5 6 7 Trained
 3. Cares about me 1 2 3 4 5 6 7 Doesn't care about me
 4. Honest 1 2 3 4 5 6 7 Dishonest
 5. Has my interests at heart 1 2 3 4 5 6 7 Doesn't have my interests at heart
 6. Untrustworthy 1 2 3 4 5 6 7 Trustworthy
 7. Inexpert 1 2 3 4 5 6 7 Expert
 8. Self-centered 1 2 3 4 5 6 7 Not self-centered
 9. Concerned with me 1 2 3 4 5 6 7 Not concerned with me
 10. Honorable 1 2 3 4 5 6 7 Dishonorable
 11. Informed 1 2 3 4 5 6 7 Uninformed
 12. Moral 1 2 3 4 5 6 7 Immoral
 13. Incompetent 1 2 3 4 5 6 7 Competent
 14. Unethical 1 2 3 4 5 6 7 Ethical
 15. Insensitive 1 2 3 4 5 6 7 Sensitive
 16. Bright 1 2 3 4 5 6 7 Stupid
 17. Phony 1 2 3 4 5 6 7 Genuine
 18. Not understanding 1 2 3 4 5 6 7 Understanding
-

Physical Attractiveness Items

1. I think this person is pretty
 2. This person is sexy looking
 3. I don't like the way this person looks
 4. This person is ugly
 5. I find this person attractive physically
 6. This person is not good looking
 7. This person looks appealing
 8. I don't like the way this person looks
 9. This person is nice looking
 10. This person has an attractive face
 11. This person is not physically attractive
 12. This person is good looking
-

Attitude Items

For me to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month is:

Harmful

Pleasant

Good

Worthless

Enjoyable

Beneficial

Unpleasant

Bad

Valuable

Unenjoyable

Perceived Behavioral Control Items

1. I have a high degree of control to regularly perform weight lifting exercises for at least 30 minutes each day in the forthcoming month.
Impossible Possible
 2. I have a high degree of control to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month.
Definitely True Definitely False
 3. I have control over my ability to perform weight lifting exercises for at least 30 minutes each day in the forthcoming month?
No Control Complete Control
 4. It is mostly up to me whether or not I perform weight lifting exercises for at least 30 minutes each day in the forthcoming month
Strongly Agree Strongly Disagree
-

Appendix E
Figures

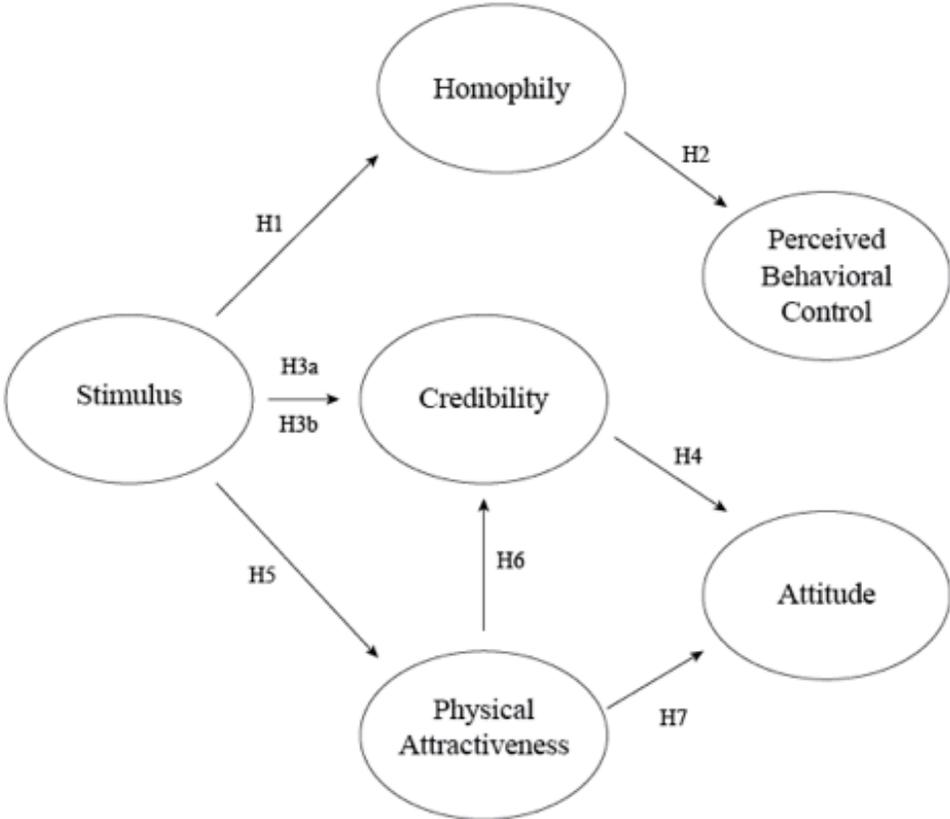


Figure 1 Proposed Model. This figure illustrates the hypothesized path model.

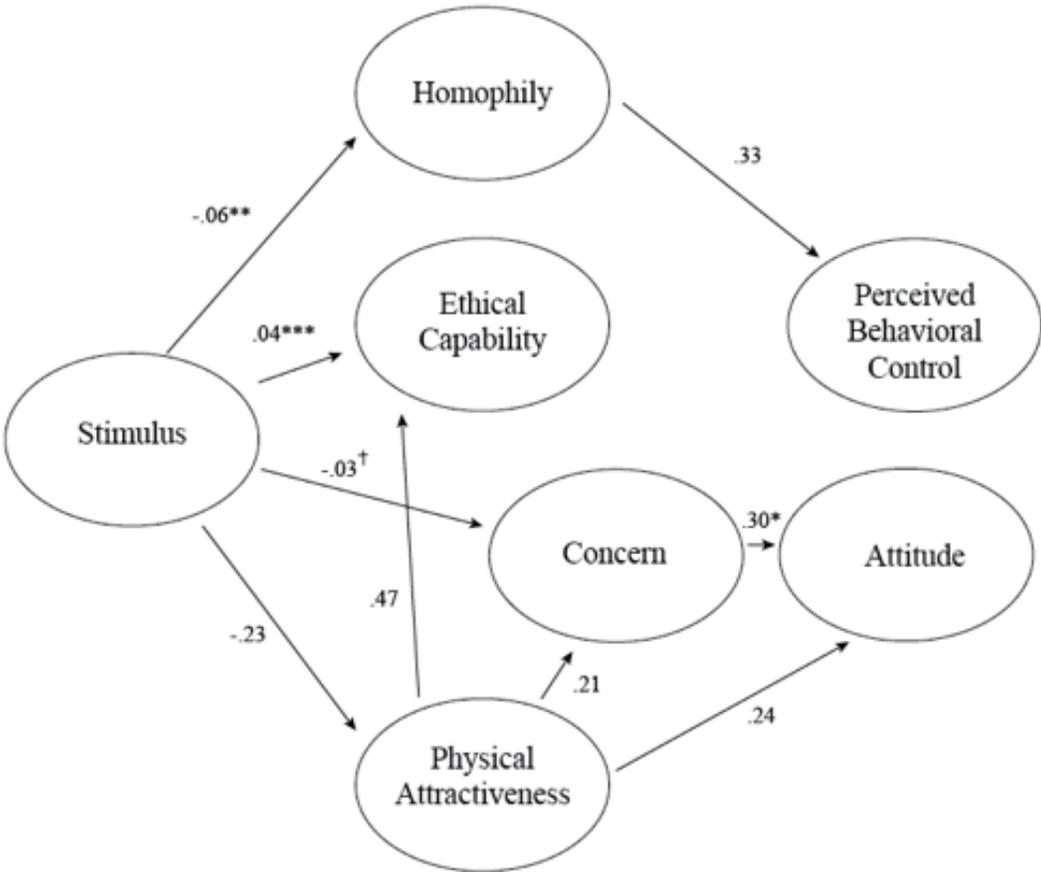


Figure 2. Hypothesized model with weights. This figure illustrates that the hypothesized model was not a good fit for the data. $\dagger p = .377$, $* p = .317$, $** p = .098$, $*** p = .259$. All other values are $p < .001$.

Correlation Table

| Measure | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------|-------|-------|-------|--------|------|---|
| 1. Attractiveness | - | | | | | |
| 2. Homophily | 0.343 | - | | | | |
| 3. Ethical Capability | 0.463 | 0.378 | - | | | |
| 4. Concern | 0.222 | 0.377 | 0.409 | - | | |
| 5. Attitude | 0.392 | 0.424 | 0.429 | 0.214 | - | |
| 6. PBC | 0.212 | 0.332 | 0.248 | 0.118* | 0.46 | - |

Figure 3. Correlation Table. This figure illustrates the correlations from the previously listed regression tests.

All correlations with where $p = .002$ are indicated with *. All other correlations are significant at $p < .001$.

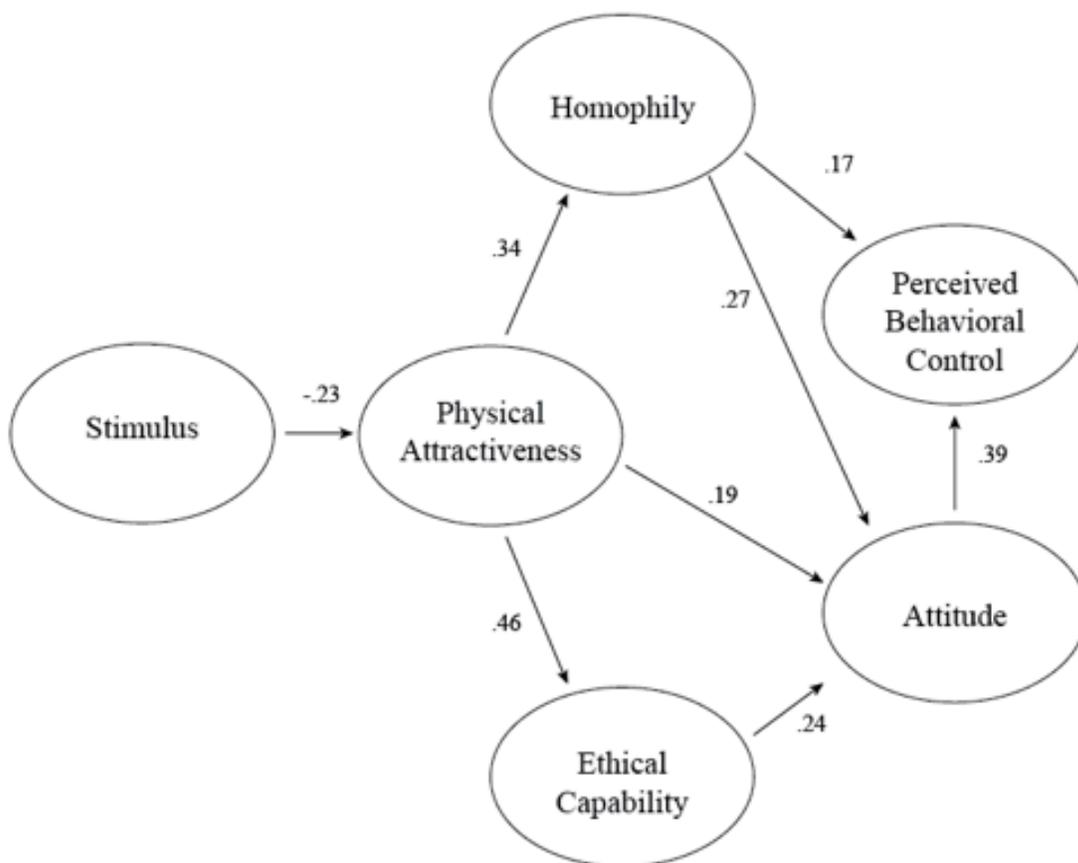


Figure 4. Exploratory Analysis Model. This figure illustrates the model that was created through the exploratory analysis.