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Interaction between body talk in romantic relationships and body dissatisfaction on unhealthy body change behaviors

Lillian Ellis

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Interaction between Body Talk in Romantic Relationships and Body Dissatisfaction
on Unhealthy Body Change Behaviors

by

Lillian Ellis

Thesis

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in

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Thesis Committee:

Chong Man Chow, Ph.D., Chair

Claudia Drossel, Ph.D., Ph.D.

Karen Saules, Ph.D.

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Abstract

Unhealthy body change behaviors, such as eating disorder symptoms and muscle dysmorphia symptoms, can cause serious harm in individuals' lives, impacting physical and emotional health. Body change behaviors have been shown to be associated with body dissatisfaction and body talk. However, individuals' body talk with their romantic partner has not been well examined. The current study investigated the relationships between body talk with a romantic partner, gender, and body dissatisfaction with body change strategies, using a hierarchical regression that included direct relationships and interaction effects. Participants were college students who took an online study for class credit. Body dissatisfaction and body talk with a romantic partner were significant predictors of unhealthy body change behaviors, though they did not significantly interact with each other. Gender was found to interact only with body dissatisfaction with muscularity, suggesting that many of the relationships might not be fundamentally different for men and women.

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Introduction and Background

Lifetime prevalence for eating disorders is between 8.7% and 15.9% for women and between 0.4% and 2.0% for men (Wade, Keski-Rahkonen, & Hudson, 2011). However, eating disorder symptoms—including restrictive eating, bingeing, extreme or frequent dieting, and purging (Fairweather-Schmidt & Wade, 2016)—affect many more people than just those who meet criteria for the disorder (American Psychiatric Association [APA], 2013). For example, it is estimated that about 26% of college men and 43% of college women report dieting to lose weight in the last 30 days, and 1% of college men and 4% of college women report vomiting or laxative use to lose weight (Matthews-Ewald, Zullig, & Ward, 2014). Symptoms of eating disorders in non-clinical populations can lead to the development of eating disorders (Stice, 2002). Even without onset of an eating disorder, eating disorder symptoms have psychological and physical consequences (Katzman, 2005; Le Grange, Swanson, Crow, & Merikangas, 2012; Neumark-Sztainer, Shenvood, French, & Jefsery, 1999), such as suicidal ideation (Brausch & Decker, 2014) and unhealthy weight gain (Neumark-Sztainer et al., 2006).

While symptoms of eating disorders are more likely to affect women, symptoms of muscle dysmorphia are more likely to affect men and should not be overlooked (APA, 2013; dos Santos Filho, Tirico, Stefano, Touyz, & Claudino, 2016). Symptoms of muscle dysmorphia include dangerous body change behaviors such as excessive exercise, high caloric intake, preoccupation with eating and exercise regimens, use of supplements, and use of anabolic steroids (Cafri et al., 2005). Muscle dysmorphia is a subtype of body dysmorphic disorder, which affects 2.2% of men (APA, 2013), and it is estimated that 0.5% of the general male population qualifies for a diagnosis of muscle dysmorphia, with no available

data on the prevalence in women (Pope et al., 2005). Subclinical symptoms of muscle dysmorphia can contribute to the development of muscle dysmorphia (Grieve, 2007), as well as impact quality of life even before they reach clinical diagnosis (Tod & Edwards, 2015). The muscle dysmorphia subtype of body dysmorphic disorder, known as muscle dysmorphic disorder, is accompanied by feelings of preoccupation and compulsion to carry out strict eating and exercise routines, often interfering with social role obligations (APA, 2013). Physical problems, such as health complications due to steroid use and persisting to work out despite injury, are common in those with muscle dysmorphic disorder (Tod & Edwards, 2015).

Body dissatisfaction is often cited as a contributor to the development of symptoms of eating and muscle dysmorphic disorders (Grogan, 2016). Body dissatisfaction is a multifaceted construct that entails individuals' subjective evaluation of their own physical appearance (Cash & Smolak, 2011) and is a consistent indicator of symptoms of eating disorders (e.g., restrictive eating; Fairweather-Schmidt & Wade, 2016), muscle dysmorphia (Hrabosky et al., 2009; Pope et al., 2005), and general psychological problems (e.g., depression; Duchesne et al., 2016). Body dissatisfaction affects individuals of different ages (Slof-Opt Landt et al., 2017) and different weight statuses (Weinberger, Kersting, Riedel-Heller, & Luck-Sikorski, 2016). Generally, body dissatisfaction affects between 23 and 73% of women and 15 and 61% of men in the general population (Fiske, Fallon, Blissmer, & Redding, 2014). Contemporary research suggests that women and men are both susceptible to two types of body dissatisfaction: dissatisfaction with body fat and dissatisfaction with muscularity (Grogan, 2016; Karazsia, Murnen, & Tylka, 2017; Kelley, Neufeld, & Musher-Eizenman, 2010; Muris, Meesters, van de Blom, & Mayer, 2005). Therefore, investigating

the correlates of body dissatisfaction and unhealthy body change behaviors (i.e., eating disorder symptoms and muscle dysmorphic symptoms) is important both for early detection of these disorders and as points for intervention in the general population.

An important context in which psychological health, including body dissatisfaction and symptoms of eating disorders, is developed and maintained is within romantic relationships in young adulthood (Arcelus, Yates, & Whiteley, 2012). Thus, it is not surprising that much research has explored the impact of romantic relationships on body dissatisfaction and eating disorder symptoms (Arcelus et al., 2012), though no research to date has explored symptoms of muscle dysmorphic disorder and romantic relationships. Because romantic relationships are often the source of most of an individual's social support (Davis, Morris, & Kraus, 1998), it is expected that the conversational topics of body dissatisfaction, and specifically body talk, are common between romantic partners. Body talk is conversation about body image, often self-disparaging in nature (Nichter, 2000). Body talk in other relationships (e.g., peers) has been found to be a factor for the emergence of body dissatisfaction and unhealthy body change behaviors (Shannon & Mills, 2015). Body talk in romantic relationships, however, represents an important interpersonal dynamic that has been overlooked in the existing literature. Even more importantly, little is known about whether body talk in romantic relationships functions as a risk factor that escalates the association between body dissatisfaction and unhealthy body change behaviors. Body talk is an especially intervenable behavior (Shannon & Mills, 2015), and further research is needed to determine if body talk with a romantic partner would be an effective intervention point for clinicians.

The current study has three major goals: (a) to investigate whether individuals' body

talk with their romantic partners is related to symptoms of eating disorders and muscle dysmorphia, (b) to investigate whether individuals' body dissatisfaction is related to symptoms of eating disorders and muscle dysmorphia, and (c) to investigate how body dissatisfaction and individuals' body talk with their romantic partners interact to predict symptoms of eating disorders and muscle dysmorphia.

Gender Differences in Body Dissatisfaction and Unhealthy Body Change Behaviors

Historically, body image research has exclusively focused on women who are motivated to be thin, but research on men and muscularity is a growing area of knowledge (Cafri & Thompson, 2004; Grogan, 2016). Recent research suggests that body image dissatisfaction and body change behaviors can occur in both genders, but different cultural groups prescribe different body shapes and sizes as desirable, and the cultural value of a “good” appearance is different for men and women (Fredrickson & Roberts, 1997). Body image dissatisfaction is a negative evaluation of one's body, usually resulting from the comparison of one's body to an ideal (Grogan, 2016). This negative evaluation of the discrepancy between current body and the ideal can trigger people to participate in unhealthy body change behaviors (Muris et al., 2005). The ideal body and the accompanying specific body change behaviors vary, especially between genders (Muris et al., 2005). Whereas being thin is a quality that is highly valued among women, being lean and muscular are the idealized physical characteristics for men. The nature of gender differences in body dissatisfaction is also accompanied by varying body change behaviors. It is more common for women to engage in dysfunctional eating behaviors including dieting, purging, and taking diet pills (Cash & Smolak, 2011). Drive for muscularity is associated with other dangerous body change behaviors such as excessive eating and exercising, taking supplements marketed

to increase muscle mass, and using anabolic steroids, all of which men are more likely to do (Cafri et al., 2005).

Body dissatisfaction and unhealthy body change behaviors in women.

Contemporary Western society pressures women to be thin, with clear influence from television, magazines, and other media (Pritchard & Cramblitt, 2014), creating widespread desire to be thinner (Etcoff, Orbach, Scott, & D'Agostino, 2006). Body dissatisfaction is so prevalent in women that it has been referred to as a “normative discontent” (Rodin, Silberstein, & Striegel-Moore, 1985). It is particularly concerning that many women are dissatisfied with their bodies and their weight because women are encouraged to see their (lack of) thinness as a constitutive part of their self-esteem and self-worth (Grover, Keel, & Mitchell, 2003). Women’s body dissatisfaction starts young, with gender differences able to be measured around 8 years old, and girls’ body dissatisfaction increasing with age (Ricciardelli & McCabe, 2001). Perceived pressure to be thin in childhood leads girls to develop increased body dissatisfaction in adolescence (Stice & Whitenton, 2002). Body dissatisfaction is measured in different ways including the discrepancy between ideal and actual body size, general feelings of dissatisfaction, and dissatisfaction with different parts of the body. For example, one study using perception of ideal and actual body size contour drawings to determine body dissatisfaction found that women were more likely to want a thinner body and were less satisfied with their body, despite men in the study being almost twice as likely to be obese or overweight (Markey & Markey, 2005). A nationally representative sample found that when asked “How do you feel about your body size right now?” 28.4% of women responded “very satisfied,” 48.0% “somewhat satisfied,” and 23.6% “not satisfied,” while men responded with 38.0% “very satisfied,” 48.2% “somewhat

satisfied,” and 12.5% “not satisfied” (Kruger, Lee, Ainsworth, & Macera, 2008). A longitudinal study using dissatisfaction with a variety of body parts (e.g., weight, body shape, waist, stomach) found women to have increased body dissatisfaction and that through adolescence, girls’ body dissatisfaction increased over time at a higher rate than boys’, widening the gender gap in body dissatisfaction (Bucchianeri, Arikian, Hannan, Eisenberg, & Neumark-Sztainer, 2013). These data reflect the gendered pressures on appearance in Western society (Markey & Markey, 2015).

The body change strategies that are associated with drive for thinness, such as dysfunctional eating and bulimic symptoms (Keel & Forney, 2013), are much more common in women than men (Striegel-Moore et al., 2009). Among female clinical populations, the drive for thinness is consistently related to the two most dangerous eating disorders, anorexia and bulimia (Wiederman & Pryor, 2000), and has been found to predict the development of anorexia and bulimia three years later (Peñas-Lledó, Bulik, Lichtenstein, Larsson, & Baker, 2015). In non-clinical populations, body dissatisfaction associated with body fat and a desire to be thinner is consistently related to dysfunctional eating behaviors, including restrictive eating and bulimic symptoms (Anderson, Williamson, Duchmann, Gleaves, & Barbin, 1999; Ricciardelli & McCabe, 2001) and rigid dieting behaviors (Ferreira, Trindade, & Martinho, 2016). Developing in adolescence, the “normative discontent” that women experience related to their body image results in normative dieting and unhealthy body change behaviors; 67% of adolescent girls reported participating in either fasting, purging, or taking diet pills in the last 30 days (Vidot, Messiah, Prado, & Hlaing, 2016). This unhealthy weight change behavior persists across the lifespan; 42% of women aged 30—74 reported dieting to lose weight in the last five years, including 31% of women between 65 and 74 years old (Allaz,

Bernstein, Rouget, Archinard, & Morabia, 1998).

These unhealthy body change behaviors are impacted by body dissatisfaction as well as negative affect of the individual (Stice, 2001). Evidence for the impact of negative affect has been found in clinical and non-clinical samples (Van Strien, Engels, Van Leeuwe, & Snoek, 2005). Interpersonal influences, such as perceived pressure to be thin from mothers and peers, as well as criticism about one's body from mothers and peers, predict higher levels of unhealthy body change behaviors (Shomaker & Furman, 2009).

Some women also experience body dissatisfaction associated with muscularity (Kelley et al., 2010). Women who report internalizing an athletic body ideal report having high drive for muscularity (Pritchard & Cramblitt, 2014). Cultural ideals for women are beginning to include having a toned, fit body in addition to being thin (Tiggemann & Zaccardo, 2015). Women reported that drive for muscularity impacted their preoccupation with their body and exercise routines and participation in compulsive exercise routines (Kelley et al., 2010). However, little further research exists that examines women's drive for muscularity (Griffiths, Murray, & Touyz, 2013); drive for muscularity is a trait that is more commonly associated with male body image (Morrison, Morrison, Hopkins, & Rowan, 2004).

Body dissatisfaction and unhealthy body change behaviors in men. Men report that the ideal man's body is muscular, but also lean (Ridgeway & Tylka, 2005). Thus, men do experience some symptoms of eating disorders, and these thinness-related cognitions are predictive of disordered eating behaviors (Masuda, Hill, Tully, & Garcia, 2015). However, men are also much more likely to experience body dissatisfaction related to muscularity (Karazsia et al., 2017). Muscularity is an aspect of body dissatisfaction that is emphasized in

Western culture, characterized by wanting visible abdominal muscles (i.e., a “six-pack”), big biceps, and a toned chest, among other features (Pritchard & Cramblitt, 2014; Ridgeway & Tylka, 2005). These two components of male body image, body dissatisfaction with body fat and body dissatisfaction with muscularity, both contribute to unhealthy body change behaviors (Tylka, 2011). Not surprisingly, men are significantly more likely than women to be diagnosed with muscle dysmorphia and to demonstrate symptoms of muscle dysmorphia (Grieve, 2007).

Drive for muscularity also affects men’s versus women’s feelings about themselves differently. Men who report a higher drive for muscularity report lower body esteem and higher feelings of body inadequacy. In contrast, women’s drive for muscularity was found to be unrelated to either body esteem or body inadequacy (Kelley et al., 2010). Kelley and colleagues (2010) also found that drive for muscularity is associated with compulsive exercise routines and disordered eating in men.

Unhealthy body change strategies associated with muscle dysmorphic symptoms include eating excessively, cycling excessive eating, excessive exercise, and excessive preoccupation with eating and/or exercise regimen that interferes with social and occupational obligations; as well as anabolic steroid use, ephedrine use, prohormone use (Cafri et al., 2005). Extreme diets, such as very high protein or low fat diets, can unhealthily stress the body (Leone, Sedory, & Gray, 2005). In addition to these physical risks, men with symptoms of muscle dysmorphic disorder can be impaired in a variety of life domains, and these symptoms can predict lower body-image quality of life (Tod & Edwards, 2015). The use of anabolic steroids has serious health consequences such as liver damage, cardiovascular damage, and aggressive behavior (Maravelias, Dona, Stefanidou, & Spiliopoulou, 2005).

Outside of anabolic steroid use, men with symptoms of muscle dysmorphia can *appear* healthy (Leone et al., 2005). However, the impact on social role obligations and quality of life can be severe; for example, those who have muscle dysmorphia are at increased risk for suicidal ideation and suicide completion (APA, 2013).

Body Talk

Body talk is characterized as self-deprecating remarks about one's body shape, size, and/or fitness to a conversational partner, which often results in the partner reciprocating with negative comments about his or her own body (Shannon & Mills, 2015; Tucker, Martz, Curtin, & Bazzini, 2007). Complaints about feeling fat, expression of discontent about a specific body part, social comparisons, and plans or strategies to attain physical appearance goals are common, especially in conversations among women, including women who are not overweight (Salk & Engeln-Maddox, 2011). Although body talk can be considered a normative interpersonal dynamic and potentially a type of social support (Nichter, 2000), correlational and experimental studies have shown a negative impact of body talk on body dissatisfaction and body change behaviors. Thus, body talk has received a drastic increase in research attention since 2000 (Shannon & Mills, 2015). There is some research on body talk in different relationships, like between family members (MacDonald, Dimitropoulos, Royal, Polanco, & Dionne, 2015) and mother-daughter pairs specifically (Rogers, Martz, Webb, & Galloway, 2017), but the vast majority of research on body talk has looked at the behavior between friends (Shannon & Mills, 2015). Unless otherwise stated, the literature below is on body talk in peer relationships.

Theories and perspectives on body talk.

Sociocultural perspective. Sociocultural perspectives, including objectification theory

(Fredrickson & Roberts, 1997), have offered unique insights into the development and maintenance of body image disturbances and eating disorder symptoms due to the process of socialization. For instance, objectification theory (Fredrickson & Roberts, 1997) argues that women are socialized from an early age to view their bodies as commodities and that their worth is often equated to the way they look and their sexual availability, and their looks are used to indicate their socioeconomic status (Dickins, Thomas, King, Lewis, & Holland, 2011). Thinness is a relatively new cultural development, increasing since the 1970's when diet drugs were marketed, making thinness a symbol of the wealth required to access these drugs. Thinness continues to represent an often unrealistic cultural beauty standard that is channeled through women's peer and family interactions, as well as mass media portraits of women's bodies (Thompson, Heinburg, Altabe, & Tantleff-Dunn, 1999). When women do not perceive themselves measuring up to unrealistic body expectations, they may feel anxious and dissatisfied with their weight and shape and in turn engage in unhealthy and pathological body change behaviors (Wiederman & Pryor, 2000).

The sociocultural factors that disproportionately affect women and influence body dissatisfaction and body change behaviors may be responsible for motivating individuals' engagement in body talk. Two factors influence women's higher tendency to engage in body talk. First, women offer more emotional disclosure and support in close relationships (e.g., best friends, parents) than men (Rose & Rudolph, 2006). Second, women report higher levels of body dissatisfaction, of which body talk is a behavioral, interpersonal manifestation (Shannon & Mills, 2015). In qualitative studies, women report motivation to engage in body talk includes attempts to seek reassurance about their anxiety and depression related to body dissatisfaction (Salk & Engeln-Maddox, 2011). However, body talk does not usually function

to decrease psychological symptoms. Body talk is one possible mechanism through which the sociocultural expectations of body image are transmitted and reinforced in an interpersonal context. Therefore, participation in body talk may eventually lead to more body dissatisfaction and pathological eating patterns.

Although objectification theory has been mainly applied to women (Fredrickson & Roberts, 1997; Thompson et al., 1999), similar processes of socialization may be adequate for describing men and boys. For example, self-objectification was found to be the strongest predictor of eating disorder onset and maintenance for young adult men (Dakanalis et al., 2016). As well, body shape can be an indicator of socioeconomic status (Pudrovska, Logan, & Richman, 2014) and used as a symbol of socioeconomic status (Swami, 2015) for men as well as women.

Specific body image concerns for men and women are culturally prescribed in Western culture, with the ideal women's figure being thin and the ideal men's figure being muscular (Pritchard & Cramblitt, 2014). Women are more likely to have a higher drive for thinness and weight and shape concerns, and they demonstrate higher weight-loss driven dysfunctional eating behaviors such as fasting, vomiting, laxative use, diuretic use, and diet pill use (Anderson & Bulik, 2004). In contrast, men are more likely to have a higher drive for muscularity and are more likely to participate in behaviors specific to gaining muscle like anabolic steroid use (Mitchison & Mond, 2015). Validating a sociocultural perspective, one study found that men's perception of a muscular ideal predicted drive for muscularity, which then predicted muscle dysmorphic symptoms (Thomas, Tod, Edwards, & McGuigan, 2014). As predicted by these separate beauty standards, women are more likely to engage in body talk focused on weight, referred to as fat talk conversations, whereas men are more likely to

engage in body talk conversations about becoming more muscular, referred to as muscle talk conversations (Sladek, Engeln, & Miller, 2014). The current literature on body talk has been mainly on females' fat talk conversations, and research on muscle talk conversations deserves more research attention.

Body talk as social support. Mimi Nichter (2000) describes body talk in the context of social support. Social support describes different types of interpersonal aid, including instrumental, informational, and emotional support (Sarason, 2013). Instrumental support is problem-solving support, often taking the form of tangible help, like loaning money or preparing a meal. Informational support is giving information to be helpful, such as providing directions or psychoeducation. Emotional support is helping people feel cared for and helping them regulate their emotions, such as providing reassurance. Body talk may entail all these types of social support, and this speculation has been supported by qualitative examinations (Salk & Engeln-Maddox, 2011). When body talk transmits information on perceived beauty standards and dysfunctional eating practices, it is functioning as informational support. This type of fat talk is often desired by participants; the qualitative study by Salk and Engeln-Maddox (2011) examining the content of fat talk found that 15% of respondents desired conversation partners to respond with strategies to help them change the size and shape of their bodies (e.g., "I would want my friend to be nice, but also honest. If he/she had any helpful tips on working out, eating better or living a healthier lifestyle, I would appreciate any such advice"). Body talk sometimes can include instrumental support, such as sharing pamphlets or other resources pertaining to beauty standards or eating (Anderson, Cornacchione, & Maloney, 2013). In fact, one study examining body talk in female friends found that 23% of pairs mentioned providing tangible help, like offering to go

to the gym together (Salk & Engeln-Maddox, 2011). Further quantitative evaluation is needed to determine definitively if body talk can function as effective informational and tangible support, though these qualitative investigations suggest that it is intended to provide these kinds of support.

When individuals are asked why they participate in fat talk or are asked to write a script for typical body talk conversations, they often include emotional support such as reassuring and body-esteem bolstering responses (Salk & Engeln-Maddox, 2011). Although body talk may not represent effective social support due to its negative effects on psychological health (Shannon & Mills, 2015), individuals often consider emotional support as the goal (Nichter, 2000; Salk & Engeln-Maddox, 2011). One explanation for why body talk can be meant as emotional support but be associated with negative psychological outcomes is that it functions as a type of co-rumination. Co-rumination is a process of extensively discussing problems and focusing conversations on negative emotions about personal problems (Rose, 2002). Co-rumination includes self-disclosure to a friend about one's personal problems as well as focusing on negative aspects of one's life. Not surprisingly, co-rumination (which includes self-disclosure and rumination) has been found to be related to more symptoms of anxiety (Dirghangi et al., 2015) and depression (Stone & Gibb, 2015), as well as positive friendship quality (Rose, Schwartz-Mette, Glick, Smith, & Luebbe, 2014). Rudiger and Winstead (2013) proposed that body talk can function as co-rumination when both members of the conversation extensively discuss their body image concerns, focusing on what they do not like about themselves or what they consider problems with their bodies. Similar to general co-rumination, appearance related co-rumination is associated with negative psychological outcomes. Further, it was found to be related

specifically to appearance related concerns, including increased body-related cognitive distortions and disordered eating (Rudiger & Winstead, 2013).

Social comparison. Social comparison theory posits that individuals are driven to compare themselves to the people around them (Festinger, 1954). A specific type of social comparison that is particularly relevant to body dissatisfaction is self-evaluation, where an individual compares themselves to a target individual in different domains such as appearance, attributes, skills, and social expectations (Kramer, Ingledew, & Iphofen, 2008). In a qualitative study of body talk of college women, the most common response to body talk was both members of the conversation making upward comparisons between themselves and their conversation partner (e.g., “If you’re fat, then I’m humongous”; Salk & Engeln-Maddox, 2011). As the tripartite model of body dissatisfaction and eating disturbance suggests, appearance-comparison, a type of self-evaluative social comparison, is predictive of both body dissatisfaction and eating disturbance (Krones, Stice, Batres, & Orjada, 2005; Thompson et al., 1999). It has been found that individuals who are more likely to engage in social comparison are more likely to participate in fat talk, and that social comparison traits in this sample were also related to higher body image dissatisfaction (Corning & Gondoli, 2012). The social comparison aspect of body talk appears to be a contributor to the resulting body image disturbance.

Past research on body talk.

Experimental designs. To examine the causal link between body talk and its outcomes (e.g., body image), researchers have used several different methods to manipulate body conversation in a lab setting (Shannon & Mills, 2015). For instance, some studies have demonstrated exposure to body talk may influence body dissatisfaction (Stice, Maxfield, &

Wells, 2003), guilt (Salk & Engeln-Maddox, 2012), and eating pathology (Katreovich, Register, & Aruguete, 2014). In addition to just being exposed, actively participating in body talk has also been shown to increase body dissatisfaction and guilt (Salk & Engeln-Maddox, 2012).

Listening to body talk without necessarily being involved has been shown to have various negative outcomes. An experimental study exposed participants to an ultra-thin confederate who either discussed her negative body image or a neutral topic in front of the participants (Stice et al., 2003). This study found that exposure to negative body talk decreased body satisfaction, regardless of the participants' initial thin-ideal internalization, body dissatisfaction, or social support. Tucker and colleagues (2007) investigated further the effects of different valences of body talk: negative or self-deprecating, self-accepting, and self-aggrandizing. The three conditions were meant to represent a confederate with low, moderate, and high body esteem. Participants exposed to these three conditions significantly differed in body satisfaction post-intervention. Large effect sizes were found, with the body satisfaction of the woman listening being higher when the confederate was moderately accepting of her body than when she said negative things about her body. Her body satisfaction was highest when the confederate expressed a self-aggrandizing opinion of her body; this difference was significant for both the other conditions (exposure to negative and moderately accepting body talk). However, a study conducted by Corning, Bucchianeri, and Pick (2014) found a different effect of positive body talk when they used a thin confederate instead of the average weight confederate in the study conducted by Tucker and colleagues (2007). In Corning and colleagues' study, they used a two-by-two design and exposed women to either fat talk or positive body talk from either a thin or overweight woman. As

expected, fat talk from either women increased body dissatisfaction, but the effect was stronger for women exposed to fat talk from the thin woman. Interestingly, positive body talk from the thin woman had the same effect on body dissatisfaction of the participant as when she fat talked. Overall, these studies all show that being exposed to negative body talk increases body dissatisfaction, with mixed results on the effect of positive body talk.

Being exposed to body talk has also been found to be detrimental to men (Engeln, Sladek, & Waldron, 2013). In Engeln et al.'s (2013) study, men overheard two confederates participating in either fat talk, muscle talk, or neutral conversation. Both the fat talk and muscle talk conditions predicted a larger decrease in body satisfaction than the neutral control condition. The fat talk and muscle talk conditions were indistinguishable from each other, suggesting that men are similarly affected by pressure to be lean and pressure to be muscular.

Salk and Engeln-Maddox (2012) examined the effects of listening to others' different reactions to negative body talk. In this study, participants listened to a conversation between two confederates with three different conditions: one where both confederates spoke negatively about their bodies, one where one spoke negatively and the second challenged it, and a third where they had a neutral conversation with no body talk. Interestingly, both conditions that contained fat talk had equally detrimental effects on body satisfaction, as well as guilt, compared to the neutral conversation that showed no negative effect. In this study, hearing challenges to negative body talk did not buffer the negative effects of body talk. After being exposed to fat talk, participants were given the opportunity to participate themselves. Those that did participate then experienced a greater state body dissatisfaction and guilt than those who did not participate in body talk.

Nonexperimental designs. A large body of literature has utilized self-report methods for capturing body talk or related constructs. Self-report methods have relied on a variety of questionnaires designed to answer different questions about body talk. In these investigations, similar to experimental studies, self-report body talk was found related to body dissatisfaction in both cross-sectional and some longitudinal studies (Sharpe, Naumann, Treasure, & Schmidt, 2013). A recent meta-analysis found that body talk is also associated with other body image disturbance variables, including internalization of the thin-ideal and appearance-based comparisons (Mills & Fuller-Tyszkiewicz, 2017).

Measuring self-report body talk. There are several common self-report questionnaires to measure body talk: Appearance Conversations with Friends (Jones, Vigfusdottir, & Lee, 2004), the Fat Talk scale (Clarke, Murnen, & Smolak, 2010), the Negative Body Talk scale (Engeln-Maddox, Salk, & Miller, 2012), the Fat Talk Questionnaire (Royal, MacDonald, & Dionne, 2013), the Body Talk Questionnaire (Rudiger & Winstead, 2013), Body-Related Co-Rumination (Rudiger & Winstead, 2013), and the Male Body Talk scale (Sladek et al., 2014). Some measures focus on the context and frequency of talk but are content-general (e.g., “My friends and I talk about how bodies look in our clothes”; Jones et al., 2004), while others are content-specific, measuring body talk containing fat talk (e.g., Clarke et al., 2010; Royal et al., 2013). The Male Body Talk scale is unique in that it does focus on the content of body talk but includes subscales with both fat talk and muscle talk (Sladek et al., 2014).

Three measures examine the general tendency to engage in body-related conversations, rather than dissatisfaction with specific body parts or concerns with weight, or muscle. These three measures are (a) Appearance Conversations with Friends (Jones et al.,

2004), (b) Body Talk Questionnaire (Rudiger & Winstead, 2013), and (c) Body Related Co-Rumination (Rudiger & Winstead, 2013). As part of a larger effort to find tools to measure appearance culture among male and female friendships in adolescence, Jones and colleagues (2004) 5-item questionnaire includes items that capture conversations with their friends about individuals' bodies (e.g., "My friends and I talk about how our bodies look in our clothes") as well as values associated with body image concerns (e.g., "My friends and I talk about how important it is to be attractive"). This measure, however, does not ask about any specific body parts, or even imply an ideal body shape or size (i.e., drive for thinness or drive for muscularity). Items are rated on a scale from 1 (*never*) to 5 (*very often*). The scale has been found to be reliable in adolescent boys and girls (Cronbach's alpha = .83 and .85, respectively; Jones et al., 2004), as well as in a population of adult women (Cronbach's alpha = .91; Bardone-Cone, Brownstone, Higgins, Fitzsimmons-Craft, & Harney, 2013).

The Appearance Conversations with Friends scale (Jones et al., 2004), however, does not capture the valence (positive or negative) of body talk. Rudiger and Winstead (2013) created the Body Talk Questionnaire in order to capture this aspect of body talk. They generated nine face-valid items to measure different types of body talk in young female friends, three to measure negative body talk (e.g., "Imagine you and your best or closest female friend saying negative things about your bodies [for example, "My butt is fat" or "I don't like my hair"]. How often would this occur between you and your friend?"); three to measure self-accepting body talk (e.g., "Imagine you and your best or closest female friend saying self-accepting things about your bodies [for example, "I feel okay about my body"]"); and three to measure positive body talk (e.g., "Imagine you and your best or closest female friend saying positive things about your bodies [for example, "I really like my body"]").

Participants' responses to self-accepting and positive body talk questions were highly correlated ($r = .81$), so these were conceptualized as a single factor. Unlike the gender neutral Appearance Conversations with Friends scale, this tool was designed for and validated in an undergraduate female sample.

The Body Related Co-Rumination measure is unique from the other body talk measures in that it accesses a construct different from mere self-disclosure of body problems, but instead extends to measure the process by which dyads discuss and revisit problems (Rudiger & Winstead, 2013). The tool was adapted from a measure of general co-rumination (Rose, 2002) by replacing "personal problems" in the original measure with "a problem related to physical appearance or dieting/exercising behaviors." This intensive measure was designed to assess more comprehensive levels of self-disclosure than items typically used to assess fat talk. The 27-item measure measures nine different aspects of the co-rumination process: (a) the frequency of co-rumination, (b) co-rumination competing with engaging in other activities, (c) the participant's encouragement of the discussion of their friend's problems, (d) their friend's encouragement of the discussion of the participant's problems, (e) recurrent discussions of the same problem, (f) speculation about the etiology of problems, (g) speculation about problem repercussions, (h) speculation about parts of the problem that are not understood, and (i) discussion of negative feelings. In order to measure each of these nine aspects of the co-rumination process, there were three items per aspect. Participants responded to each item on a scale from 1 (*not at all true*) to 5 (*really true*). The Body-Related Co-Rumination questionnaire demonstrated high reliability in previous research on college populations (Cronbach's alpha = .96; Rudiger & Winstead, 2013).

Unlike the previous broader measures, some tools measure only body talk with

specific content (e.g., concerns with being overweight). These measures are the Fat Talk scale (Clarke et al., 2010), the Negative Body Talk scale (Engeln et al., 2012), and the Fat Talk Questionnaire (Royal et al., 2013). The Fat Talk scale (Clark et al., 2010) uses nine vignettes that focus on negative body talk about the shape and size of the body, validated in an undergraduate female population. This measure asks individuals to evaluate nine short descriptions of a fictional woman “Naomi” engaging in body talk with female friends. These conversations happen in different settings (e.g., movie theater, shopping, walking to class), but always involve Naomi saying negative statements about her body in response to environmental cues, internal cues, or cues from female friends. The vignettes often use specific phrases, such as “I am now officially a huge fatty!” After reading each vignette, respondents rate how often they participate in similar conversations on a 5-point Likert scale, ranging from 1 (*they would never respond that way*) to 5 (*they would always respond that way*). The measure’s validity and reliability have only been investigated in undergraduate female populations. Researchers did find internal consistency reliability, as well as five week test-retest reliability, with scores at the separate time points correlating strongly ($r = .80$; Clarke et al., 2010).

Some researchers were concerned with the specificity of the Fat Talk scale’s vignettes, in that it might make it harder for some participants to identify with them (Engeln-Maddox et al., 2012). In response to this limitation, the Negative Body Talk scale (Engeln-Maddox et al., 2012) measures similar fat-talking behaviors in undergraduate female population, but uses face-valid questions about participant behavior, drawn from the definition of fat talk. The measure contains two subscales, the body concerns subscale and the body comparison subscale. The body concerns subscale focuses on statements about the

individuals' own body shape and size (e.g., "I need to go on a diet"; "I feel fat"). The body comparison subscale focuses on downward comparisons (e.g., "I wish my abs looked like hers") and looking at others' bodies (e.g., "She has a perfect body"). This scale measures how frequently individuals make 13 statements, rated on a 7-point Likert scale ranging from 'never' to 'always'. The scale demonstrated good internal consistency and 4—6 week test-retest reliability, with a test-retest coefficient of .72.

Although fat talk is considered an interpersonal process, that mutual nature is not captured by the items in the Negative Body Talk scale, which measures only the individual's statement. The Fat Talk Questionnaire (Royal et al., 2013), in contrast, was designed to measure negative body-talk conversations in female peer relationships. It is a 14-item measure with items that capture fat talk (e.g., "When I'm with one or several close female friend[s], I complain that my stomach is fat"), though does include a few items that include negative body talk not directly about weight (e.g., "When I'm with one or several close female friend[s], I criticize my body compared to my friends' bodies"). Responses are on a Likert-type scale from 1 (*never*) to 5 (*always*). The creators defined fat talk as "negative body-related conversations between girls or young women"; however, the measure was also tested in a male sample, with the slight modification of "close female friend(s)" being switched to "close male friend(s)" (Royal et al., 2013). In both male and female samples, high reliability was found (Cronbach's alpha = .91 and .94, respectively; Royal et al., 2013). The authors acknowledge that the specific body talk they were measuring, fat talk, is much more likely to occur between women, and this is supported by their data (Royal et al., 2013). Test-retest reliability was found, with $r = .90$ over a two week delay.

The Male Body Talk scale (MBTS; Sladek et al., 2014) is unique in that it can capture

muscle talk in addition to fat talk. This measure expanded the focus to include issues related to men's body dissatisfaction. This 16-item measure has two subscales, one measuring fat talk (e.g., "I wish I could lose this belly-fat") and one measuring 'muscle talk', which is conversation about a desire to be more muscular or lamenting not being muscular enough (e.g., "I wish my chest was more muscular"). Items were rated on a 7-point scale from 1 (*never*) to 7 (*always*). It was developed and validated using an exclusively male sample, with a diversity of ages using participants between 18 and 65 years old. In a sample of male introductory psychology students, moderate test-retest reliability was found for both the muscle talk subscale ($r = .67$) and the fat talk subscale ($r = .65$) after a 2—4 week delay. The MBTS was designed to study what men *say* about their bodies, and discriminant validity was found between the MBTS and what men *think* about their bodies.

Body talk and body dissatisfaction. There is clear evidence that body talk is associated with body dissatisfaction (Sharpe et al., 2013). A meta-analysis examined 22 correlational studies and found that body talk was associated with body dissatisfaction across demographic groups (Sharpe et al., 2013). Fat talk is the most studied type of body talk, but content-general body talk has also been examined. In addition, the body dissatisfaction-related correlates of muscle talk have recently been explored (Sladek et al., 2014).

Fat talk, as a specific type of body talk, was found associated with body dissatisfaction (Sharpe et al., 2013). In several examinations in undergraduate female populations, a medium effect size association between fat talk and body dissatisfaction was found (Salk & Engeln-Maddox, 2011; Warren, Holland, Billings, & Parker, 2012). In a series of longitudinal studies, Arroyo and Harwood (2012) found a circular relationship between fat talk and body dissatisfaction. They found that more fat talk predicted higher body

dissatisfaction three weeks later and also that higher body dissatisfaction predicted higher frequency of fat talk two weeks later. Another study measured the effects of fat talk across time for undergraduate females, this one using palm pilots to prompt participants several times throughout the day over a five-day period (Jones, Crowther, & Ciesla, 2014). This diary study found that exposure to fat talk was associated with an increase in body dissatisfaction across time.

Content-general specific body talk, as measured by Appearance Conversations with Friends, has been found to be associated with body dissatisfaction as well (Jones et al., 2004; Sharpe et al., 2013). The scale Appearance Conversations with Friends has been extensively examined in adolescents, with many studies including boys and girls. Overall, small to medium correlations with body dissatisfaction have been found in adolescent boys and girls in America (Jones et al., 2004; Jones & Crawford, 2006; Shroff & Thompson, 2006) and China (Chen & Jackson, 2012). A positive relationship between body dissatisfaction and body talk frequency has also been found in female children (Clark & Tiggemann, 2006; Clark & Tiggemann, 2007; Dohnt & Tiggemann, 2005).

In addition to body dissatisfaction, body talk has been found to be associated with other body image disturbance related variables, including internalization of the thin ideal (Arroyo & Harwood, 2012), drive for thinness (Warren et al., 2012), appearance-contingent self-worth (Bardone-Cone et al., 2013), and body-checking frequency (Jones et al., 2014).

Body talk and unhealthy body change strategies. While less thoroughly investigated than body dissatisfaction, a link between body talk and body change strategies has also been found. Body talk has been associated with binge eating, restrained eating, and disordered eating attitudes (Bardone-Cone et al., 2013). Exploratory studies have also probed body talk

and body change behaviors associated with muscle-gaining.

When investigating symptoms of eating disorders (e.g., dieting, purging, restrictive eating), most research has been on fat talk. A cross-sectional analysis found fat talk associated with symptoms of eating disorders in men and women across four age cohorts that were about 20, 30, 40, and 50 years old (Tzoneva, Forney, & Keel, 2015). It was also found that the association between fat talk and symptoms of eating disorders was weaker for men than women, and weaker for older women than young women. Another study further found that engagement in online fat talk predicted symptoms of eating disorders, even after accounting for online appearance comparison (Walker et al., 2015). Beyond these empirical investigations, a qualitative study found that individuals with eating disorders listed fat talk from their family members as contributing to the development of their disorder (Loth, Neumark-Sztainer, & Croll, 2009).

Another study quantitatively compared individuals who met eating disorder criteria versus those who did not in terms of their body talk (Ousley, Cordero, & White, 2007). This study purported to be measuring fat talk but included items that measured content-general body talk and muscle talk as well as fat talk, though it did not separate out these items as different from fat talk. This study found that individuals who met criteria for an eating disorder were significantly more likely to have high levels of this “fat talk” measure, which included fat talk, content-general specific body talk, and muscle talk. Sladek and colleagues (2014) conducted a study in males that separately examined fat talk and muscle talk. They found that fat talk was significantly related to symptoms of eating disorders, but that muscle talk was not. They also found that both muscle talk and fat talk was associated with a measure of muscle dysmorphia symptoms (Mayville, Williamson, White, Netemeyer, &

Drab, 2002), which were a collection of behavioral (e.g., “I often ignore a lot of physical pain while I am lifting to get bigger”) and cognitive-emotional symptoms (e.g., “I am satisfied with my muscle tone/definition”). Muscle talk, but not fat talk, was found to be related to a measure for drive for muscularity (McCreary & Sasse, 2000) that included items on body dissatisfaction (e.g., “I don’t think my arms are muscular enough”) and body change strategies that involve dysfunctional eating (e.g., “I try to consume as many calories as I can in a day”) and excessive exercise (e.g., “I think my weight training schedule interferes with other aspects of my life”). Unfortunately, the authors did not report which symptoms contributed to the association, so it is not definitively known that fat talk and muscle talk related to unhealthy body change behaviors to gain muscle.

Weight Management Conversations in Romantic Relationships

According to interdependence theory (Huston & Robins, 1982) and emotional contagion (Hatfield, Cacioppo, & Rapson, 1993), psychological and behavioral characteristics of two partners in a relationship often resemble each other’s due to the socialization process. One important mechanism that permits the socialization of body image in couples may include body talk (Tucker et al., 2007). As examined earlier, an individual’s fat talk and body image can be heavily influenced by their conversation partner’s fat talk (Tucker et al., 2007). However, this has been investigated mainly in female friendships. Existing research on body talk, unfortunately, has not examined the behavior in romantic relationships.

While body talk has not been investigated in romantic relationships, other forms of communication similar to body talk have been examined. A couple of studies have examined romantic partners’ conversation on weight management (Dailey, McCracken, & Romo, 2011;

Dailey, Romo, & Thompson, 2011). Weight management conversations are different from the body talk previously described in that they are about healthy behaviors and not primarily self-disparaging comments about one's body (Dailey, McCracken, & Romo, 2011). Dailey, Romo, and Thompson (2011) examined how perceived partners' ways of communicating weight management (e.g., challenge and acceptance) impacted the individuals' weight management behavior. Specifically, they found more warmth, support, and challenge that the partner had in the communication predicted higher healthy exercise and healthy diet from the actor. These studies examined how accepting and encouraging weight management conversations between partners can influence healthy behaviors. Furthermore, one study examined more negative conversation and found that direct criticism by a romantic partner impacted individuals' self esteem and body dissatisfaction (Sheets & Ajmere, 2005). However, investigations of romantic relationships often find protective factors from risks of unhealthy body change behaviors (Arcelus et al., 2012; Markey, Markey, & Gray, 2007). For example, social support in their romantic relationship was found to be a protective factor against eating disorder symptoms for women (Juda, Campbell, & Crawford, 2004). In general, these studies investigate how the quality of relationship (Morrison, Doss, & Perez, 2009) and partner's behaviors (Sheets & Ajmere, 2005) may be related to individuals' body dissatisfaction and eating disorder symptoms. While these studies did not investigate specific body talk conversations, they point to a possibility of the longer-term effects (e.g., feeling supported) that might come with more body conversation.

The current study examined how body talk between romantic partners has either detrimental or protective effects on unhealthy body change behaviors. Specifically, the current study examined body talk in the romantic relationship as a contributor to unhealthy

body change behaviors, and also as a moderator of the effect of body dissatisfaction on body change behaviors.

The Current Study

According to past research, body dissatisfaction and body talk are both associated with body change strategies (Sharpe et al., 2013). The current study investigated the prediction of different body change strategies by body dissatisfaction and by body talk with a romantic partner. The current study included replication of existing research on body dissatisfaction's link to unhealthy body change behaviors. Body dissatisfaction is a clear and consistent indicator of the development of unhealthy body change behaviors, such as symptoms of eating disorders (Peñas-Lledó et al., 2015) and muscle dysmorphia (Hrabosky et al., 2009). The current study extended beyond past research findings by examining previously unexplored body talk in a romantic relationship and the way it moderates body dissatisfaction. Competing hypotheses were proposed about the direction of the moderation; does body talk with a romantic partner intensify the risk posed by body dissatisfaction, or is it a protective factor?

Body talk in other relationships, such as among peers (Katreovich et al., 2014) and between parents and children (MacDonald et al., 2015), has been shown to increase unhealthy body change behaviors. The current study hypothesized that body talk within romantic relationships operates in this same way. Body surveillance and negative mood, two variables associated with body talk (Arroyo & Harwood, 2012; Clarke et al., 2010), have been found to moderate the relationship between body dissatisfaction and eating disorder symptomology (Stice, 2002; Tylka, 2004). These constructs moderate the relationship such that at high levels of each moderator, body dissatisfaction positively predicts eating disorder symptoms, but at low levels, the relationship between body dissatisfaction and the levels of eating disorder symptoms is much weaker. The relationship between body dissatisfaction,

muscle talk, and muscle dysmorphic symptoms has not been as thoroughly investigated, but a similar pattern was predicted. The current study investigated frequency of self-disclosive body talk, capturing the participant's disclosures about their own feelings about their body. Clearly there are many other aspects of body talk that are clinically relevant (e.g., tone, criticism, responsiveness of partner). However, the current study focused on the individual's own behavior of body talk as a possible direct intervention point, as many other researchers have done (e.g., Shannon & Mills, 2015; Sladek et al., 2014). Body talk was examined as a moderator of the relationship between body dissatisfaction and eating disorder and (separately) muscle dysmorphic disorder symptoms, hypothesizing that it would intensify the effect of body dissatisfaction on increased symptoms.

However, a competing hypothesis is that body talk in a romantic relationship could function differently and be a protective factor instead of risk factor for unhealthy body change behaviors. Body talk with a romantic partner could function as social support (Nichter, 2000). Social support has been found to be protective against unhealthy eating behaviors (Juda et al., 2004). It is predicted that body dissatisfaction can have differential impact on body change behaviors depending on the frequency of body talk with a romantic partner. In individuals who have high levels of body talk with a romantic partner, the body talk can function as social support and might be a protective factor against participation in body change behaviors. In individuals who have lower body talk with a romantic partner, body dissatisfaction might have a stronger direct relationship with body change behaviors.

The current study examined these competing hypotheses in men and women, including examination of two models of body image, one concerned with body fat and the other with muscularity. Two models with different content of body dissatisfaction, body talk,

and unhealthy body change behaviors were investigated. Specifically, the relationships between body dissatisfaction with body fat, fat talk, and eating disorder symptoms was investigated (Figure 1) as well as the relationships between body dissatisfaction with muscularity, muscle talk, and muscle dysmorphic symptoms (Figure 2). Based on the differential importance of thinness for men and women, it was predicted that the relationships between body dissatisfaction with fat, fat talk, and eating disorder symptoms would be stronger for women than men. It was predicted that the relationships between body dissatisfaction with muscularity, muscle talk, and symptoms of muscle dysmorphia would be stronger for men than women.

Specifically, the following hypotheses were examined:

(H1) Body dissatisfaction with fat would predict symptoms of eating disorders, and the association will be stronger for women than men.

(H2) Fat talk with romantic partner would predict symptoms of eating disorders, and the association would be stronger for women than men.

(H3) Body dissatisfaction with fat and fat talk with romantic partner would interact to predict symptoms of eating disorders, and the interaction effect would be stronger for women than men.

(H4) Body dissatisfaction with muscularity would predict muscle dysmorphic symptoms, and the association would be stronger for men than women.

(H5) Muscle talk with romantic partner would predict muscle dysmorphic symptoms, and the association would be stronger for men than women.

(H6) Body dissatisfaction with muscularity and muscle talk with romantic partner would interact to predict symptoms of muscle dysmorphia, and the interaction effect would be stronger for men than women.

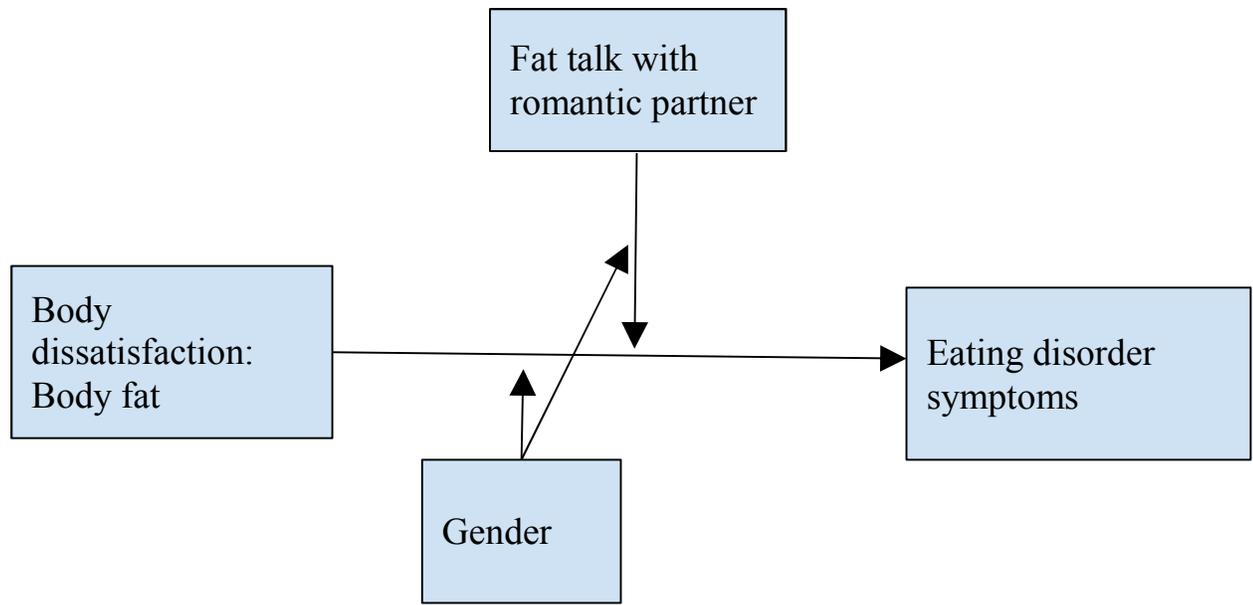


Figure 1. Fat talk with a romantic partner and body dissatisfaction with fat interact to predict symptoms of eating disorders, moderated by gender.

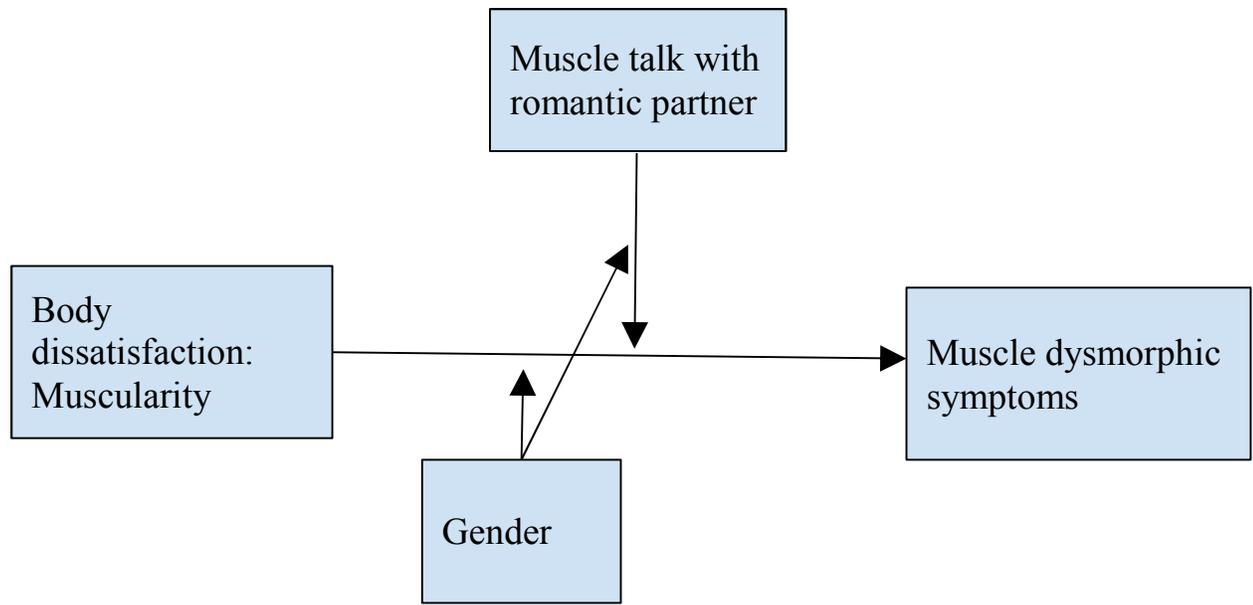


Figure 2. Muscle talk with a romantic partner interact with body dissatisfaction with muscularity to predict symptoms of muscle dysmorphia, moderated by gender.

Method

Participants and Procedure

Participants were recruited from a pool of undergraduate psychology students at a larger Midwestern university, using the SONA system, a cloud-based participant management system. Inclusion criteria were (a) being in a romantic relationship and (b) being over 18 years old. Participants took part in the study entirely online and received class credit for their participation. Before initiating the survey, participants read a description of the survey and consented to participation in the study. Surveys typically took less than an hour to complete. This was reviewed and accepted by the Institutional Review Board at Eastern Michigan University (see Appendix A).

A power analysis was conducted using the G*power software (Faul, Erdfelder, Buchner, & Lang, 2009), which suggested that at least 166 participants (83 men and 83 women) should be used to complete the analysis, based on looking for medium effect sizes in the nine predictors and interaction terms in the models (body dissatisfaction with fat [BDF], fat talk [FT], body dissatisfaction with muscle [BDM], muscle talk [MT], BDF*gender, FT*gender, BDM*gender, MT*gender), including covariates.

A total of 474 participants initiated the study, but five participants were removed because they listed that they and/or their partner was of a gender other than male and female, which was not enough to analyze and did not fulfill the binary gendered hypotheses. Of those remaining, 451 participants completed information on all variables in the current study and data from these cases were used for analyses.

The participants were predominantly women (72%, 28% men). Their partners were predominantly men (71%, 29% women). They were predominantly White (68%), with 20%

of participants identifying as Black. According to self-reported measurements, their Body Mass Indexes (BMIs) were mostly Average (48%) or Overweight (26%). They were mostly between the ages of 18 and 25 (78%). Further participant characteristics can be seen in Table 1.

The majority were in cross-sex relationships (93%, 4% same sex women, 3% same sex men). Same sex couples were included in the study, based on previous research findings that the way these couples interact with body dissatisfaction and body talk is not fundamentally different. Specifically, there are similar associations for gay men as straight men for body talk and body dissatisfaction with fat and muscularity (Jankowski, Diedrichs, & Halliwell, 2014). Partner influence on body dissatisfaction was not different for heterosexual or lesbian couples (Markey & Markey, 2014). However, partner's gender was included as a covariate to ensure effects were based on predicted variables (i.e., gender of participant) and not their partner's gender.

Table 1

Participant Characteristics

Variable	Frequency	Percentage
Gender		
Woman	325	72%
Man	126	28%
Partner's gender		
Woman	131	29%
Man	320	71%
Relationship Length		
<6 months	66	15%
6—12 months	105	23%
12—24 months	106	23%
2—5 years	126	28%
5—10 years	40	9%
10+ years	9	2%
Race		
White	310	68%
Black	91	20%
Hispanic	19	4%
Other	36	8%
BMI		
Underweight (<18.5)	18	4%
Average weight (18.5 —24.99)	218	48%
Overweight (25 — 30)	118	26%
Obese (>30)	102	22%
Age		
18—22	278	61%
23—25	77	17%
26—30	48	11%
31—45	46	10%
46—65	7	2%
66+	0	0%

Table 1 *continued*

Variable	Frequency	Percentage
Household Income		
Less than \$15,000	61	13%
\$15,000—\$35,000	77	17%
\$35,000—\$55,000	80	18%
\$55,000—\$75,000	84	18%
\$75,000—\$95,000	61	13%
Higher than \$95,000	93	20%

Measures

Demographic information. Participants answered questions about their race, ethnicity, gender, household income, age, height, weight, partner's gender, and the length of their relationship (see Appendix B for items).

Body dissatisfaction with fat. Participants completed the 9-item body dissatisfaction subscale of the Eating Disorder Inventory (Garner, Olmstead, & Polivy, 1983; see Appendix C for items). This subscale measures dissatisfaction with body size (e.g., "I think that my stomach is too big"). Specifically, it was designed to measure dissatisfaction with the "fatness" of body parts that increase in size during puberty for women. Dissatisfaction with the body's fatness is central to the pathology in anorexia and bulimia, and there is some theoretical suggestion that anorexia is partially a reaction against the symbolic meaning of the weight gain that comes with puberty. Participants rated items on a 5-point scale: *always*, *usually*, *often*, *sometimes*, *rarely*, or *never*. This scale has been found reliable in clinical (Cronbach's alpha = .90) and nonclinical populations (Cronbach's alpha = .91; Garner et al., 1983). In the current study's sample, the Cronbach's alpha was .87.

Body dissatisfaction with muscularity. In order to capture body dissatisfaction with muscularity, participants of both genders were administered the muscularity subscale of the

Male Body Attitudes scale (MBAS; Tylka, Bergeron, & Schwartz, 2005; see Appendix D for items). These items assessed participants' dissatisfaction with specific muscle groups (e.g., "I think my legs are not muscular enough") as well as overall build (e.g., "I think I have too little muscle on my body"). While this scale was originally designed to capture the specific body dissatisfaction issues that relate to the societal ideal for the male body, it has been found reliable in both genders (Tylka, 2013). It does not specifically refer to gender and applies to females' bodies as well (e.g., "I feel satisfied with the definition in my arms"). Thus, the MBAS was administered to all participants. Items were rated on a 6-point scale that ranged from *never* to *always*. This 12-item subscale is part of a larger 29-item measure that examines the participants' evaluations of their muscularity, low body fat, and height. When it was developed, this muscularity subscale was found to be reliable with a Cronbach's alpha of .83 (Tylka et al., 2005). It was found to be reliable in the current sample as well (Cronbach's alpha = .84).

Fat talk. Fat talk with romantic partner was measured using the fat talk subscale of the Male Body Talk scale (MBTS; Sladek et al., 2014; see Appendix E for items). This scale, extensively discussed in the self-report measures of body talk section of this thesis, looks at self-disclosure of body dissatisfaction with fat (e.g., "I need to lose some weight"). The MBTS was originally designed to examine fat talk in men, though the items apply to women's concerns as well (e.g., "I need to lose a few pounds"). Participants rated items on a 7-point scale from 1 (*never*) to 7 (*always*). The scale directions were modified to be gender neutral and specific to fat talk that happens with the participants' romantic partner (e.g., "We're interested in the types of things people say about their bodies when they're talking to their romantic partner"). This subscale has been found to be reliable with a Cronbach's alpha

of .92 (Sladek et al., 2014) and was reliable in the current study as well (Cronbach's alpha = .96).

Muscle talk. Muscle talk with a romantic partner was measured similarly to fat talk with a romantic partner, using the muscle talk subscale of the MBTS (Sladek et al., 2014; see Appendix E for items). The muscle talk subscale of the MBTS examines talk about specific muscle groups (e.g., "I wish I had more muscular arms.") and overall build (e.g., "I want to have more muscle."). The MBTS was modified to be gender neutral and specific to body talk with the romantic partner, as previously discussed. The muscle talk subscale has been found to be reliable with a Cronbach's alpha of .95 (Sladek et al., 2014) and a Cronbach's alpha of .94 was found in the current study.

Symptoms of eating disorders. In order to measure symptoms of eating disorders, the 26-item Eating Attitudes Test (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982; see Appendix F for items) was used. This measure is a widespread standard in the measurement of symptoms of bulimia and anorexia in nonclinical settings (Gleaves, Pearson, Ambwani, & Morey, 2014). It measures symptoms including dieting (e.g., "I am aware of the calorie content of foods that I eat"), binging (e.g., "I have gone on eating binges where I feel I may not be able to stop"), and preoccupation with food (e.g., "I feel that food controls my life"). Cronbach's alpha in the current sample was reliable at .89.

Symptoms of muscle dysmorphia. The Muscle Appearance Satisfaction scale (MASS; Mayville et al., 2002; see Appendix G for items) was used to examine symptoms of muscle dysmorphia. The MASS was specifically designed to measure symptoms of muscle dysmorphia and includes feelings bodybuilding dependence (e.g., "If my schedule forces me to miss a day of working out with weights, I feel very upset"), injury (e.g., "To get big, one

must be able to ignore a lot of pain”), and vulnerability to muscle-gaining substance use (e.g., “I would do anything to get my muscles bigger”). Items are rated on a Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The scale has been found to be reliable (Cronbach’s alpha = .87; Mayville et al., 2002) and was reliable in the current study (Cronbach’s alpha = .92).

Results

Descriptive analyses were conducted including means, standard deviations, and correlations of all relevant study variables (see Table 2). The mean for EAT-26 ($M = 9.69$) was well below the cutoff indicating clinical significance (20), and 14.0% of the population were at or above the clinical cut off of 20. Study variables overall were generally significantly correlated. Gender, specifically being a woman, was associated with higher levels of body dissatisfaction with fat ($r = .17, p < .01$), fat talk with a romantic partner ($r = .14, p < .01$), and symptoms of eating disorders ($r = .33, p < .01$). Body dissatisfaction with muscularity ($r = -.24, p < .01$), muscle talk with a romantic partner ($r = -.38, p < .01$), and muscle dysmorphic symptoms ($r = -.22, p < .01$) were associated with gender, specifically with being a man. Additionally, because the EAT-26 has an established cut-off of clinical concern, t-tests were conducted to determine if body dissatisfaction with fat and fat talk were significantly higher in those meeting the cut-off of clinically significant eating disorder symptoms. Welch’s independent t-test was used because of the unequal sample size of those below the cut-off ($n = 360$) and those above ($n = 63$). There were significant differences between the groups, in the expected directions (see Table 3).

Selected demographic variables were included as covariates (body mass index [BMI], race, household income, relationship length, age, and partner’s gender), chosen *a priori*, to

control for potential alternative explanations for the associations between study variables (Aiken & West, 1991; Hayes, 2013). Others studying body image have included race (e.g., Kolzet et al., 2015), household income (e.g., Griffiths et al., 2016), age (Benedict et al., 2016; Griffiths et al., 2016), and BMI (Pellizzer, Tiggemann, Waller, & Wade, 2018) as covariates in Step 1 of hierarchical regressions. Relationship length was included because no length limit was imposed, contrary to previous research (Hart, Chow, & Tan, 2017), and so an explanation that short relationships did not contain influential body talk was ruled out by including relationship length in the model. Partner's gender was included because of the number of same-sex couples included. All covariates except relationship length were correlated with at least one study variable. The only variables approaching multicollinearity were gender and partner's gender ($r = -.83$). However, analyses were run with and without partner's gender, and the significance of the results did not change.

Table 2

Means, Standard Deviations, and Correlations of Study Variables, Correlations of Covariate Variables with Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Gender	--	--							
2. Body dissatisfaction with fat	-.02	.97	.17**						
3. Body dissatisfaction with muscularity	.00	1.02	-.24**	.32**					
4. Fat talk	.03	.99	.14**	.61**	.24**				
5. Muscle talk	.06	1.02	-.38**	.15**	.55**	.36**			
6. Symptoms of eating disorder	9.69	1.67	.13**	.39**	.33**	.42**	.21**		
7. Symptoms of muscle dysphoria	2.87	1.16	-.22**	.08	.32**	.12*	.47**	.17**	
8. BMI	26.09	6.56	.11*	.33**	-.11*	.34**	-.11*	.06	-.07
9. Relationship length (months)	82.49	1136.80	.03	.05	.03	.03	.05	.00	-.01
10. Race (White vs other)	0.68	0.47	-.01	.08	.14**	.00	-.02	.09*	-.16**
11. Race (Black vs other)	0.20	0.40	.04	-.15**	-.19**	-.05	-.07	-.13**	.09
12. Race (Asian vs other)	0.04	0.20	.03	.05	.07	.01	.08	.02	.09*
13. Income	3.64	1.70	-.08	.01	.04	.03	.14**	.01	.01
14. Partner's gender	--	--	-.83**	-.13**	.22**	-.16**	.31**	-.08	.19**
15. Age	23.22	6.57	-.02	.08	.12*	.07	.11*	.06	.05

Note. * indicates $p < .05$; ** indicates $p < .01$. *M* and *SD* are used to represent mean and standard deviation, respectively. Gender is coded man = 0, woman = 1. BMI = body mass index

Table 2 *continued*

Variable	8	9	10	11	12	13	14
8. BMI							
9. Relationship length (months)	.03						
10. Race (White vs other)	-.06	-.07					
11. Race (Black vs other)	.09	-.02	-.73**				
12. Race (Asian vs other)	-.11*	-.01	-.30**	-.10*			
13. Income	-.04	-.01	.11*	-.21**	.08		
14. Partner's gender	-.03	-.03	.03	-.05	-.01	.07	
15. Age	.02	-.03	.03	-.12*	.08	.02	.03

Note. * indicates $p < .05$; ** indicates $p < .01$. *M* and *SD* are used to represent mean and standard deviation, respectively. Gender is coded man = 0, woman = 1. BMI = body mass index

Table 3

Welch's Two Sample t-Test Between Below and Above EAT-26 Scorers

Variable	<i>Mean of subclinical ED symptom participants</i>	<i>Mean of clinically significant ED symptom participants</i>	<i>t</i>	<i>df</i>
Body dissatisfaction with fat	-.136	.879	-8.873***	90.38
Fat talk	-.059	.862	-7.853***	91.71

Note. * indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$.

Predictors of Eating Disorder Symptoms

In order to examine the hypotheses of (H1) body dissatisfaction with fat will predict symptoms of eating disorders, and the association will be stronger for women than men (H2); fat talk with romantic partner will predict symptoms of eating disorders, and the association will be stronger for women than men; and (H3) body dissatisfaction with fat and fat talk with romantic partner will interact to predict symptoms of eating disorders, and the interaction effect will be stronger for women than men, a hierarchical regression was conducted predicting symptoms of eating disorders (see Table 4). Based on Aiken and West's (1991) recommendation, all continuous predictors were standardized before the interaction terms were computed. Also, participants' and their partners' gender variables were coded as 0 = Man and 1 = Woman.

In Step 1, covariates (BMI, age, relationship length, race, income, partner's gender) were entered. Step 1 overall was not significant ($R^2 = .03, p > .05$). In Step 2, participant's gender, body dissatisfaction with fat, and fat talk were entered, as well as all covariates from Step 1. As predicated, this step was significant overall ($R^2 = .32, p < .01$) and significantly different from Step 1 ($\Delta R^2 = .29, p < .01$). In Step 3, the interactions of gender*body dissatisfaction with fat, gender*fat talk, and body dissatisfaction with fat*fat talk were added to all variables included in Step 2, examining gender differences in the effects of body dissatisfaction with fat and fat talk, as well as the interaction between body dissatisfaction with fat and fat talk. All two-way interaction terms were entered simultaneously so that a three-way interaction could be tested for in the next step. This step was not significantly different from the previous step ($\Delta R^2 = .01, p > .05$). Step 4 included the three-way

interaction between gender, dissatisfaction with body fat, and fat talk; this interaction was not significant ($\Delta R^2 = .00, p > .05$).

It appears that the model in Step 2 best fitted the data, and thus, regression weights produced by this model are discussed. Specifically, it was found that body dissatisfaction with fat ($b = 5.88, p < .01$) and fat talk ($b = 8.74, p < .01$) were significant predictors of eating disorder symptoms. In this step, BMI significantly predicted eating disorder symptoms in the opposite direction as expected ($b = -.55, p < .01$), likely due to suppression effects in the regression. BMI was significantly positively correlated with eating disorder symptoms, but also with body dissatisfaction with fat, and so this correlation might have led to the unshared variance of BMI being significantly negative associated with eating disorder symptoms. Contrary to what was expected, gender was not a significant predictor of eating disorder symptoms ($b = 6.38, p > .05$).

Table 4

Predictors of Eating Disorder Symptoms in a Hierarchical Regression, Examining the Interactions of Gender, Fat Talk, and Body Dissatisfaction with Fat.

Predictor	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Step 1					
(Intercept)	53.08**	7.42			
BMI	.24	.16	.07		
Relationship length	.00	.00	.00		
Race (White vs. other)	1.01	3.98	.02		
Race (Black vs. other)	-6.62	4.50	-.12		
Race (Asian vs. other)	5.90	6.43	.05		
Income	.11	.62	.01		
Partner gender	-3.11	2.28	-.06		
Age	.11	.16	.03		
				$R^2 = .031$	
Predictor	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Step 2					
(Intercept)	68.09**	6.99			
BMI	-.55**	.15	-.16		
Relationship length	-.00	.00	-.01		
Race (White vs. other)	1.56	3.36	.03		
Race (Black vs. other)	-2.09	3.81	-.04		
Race (Asian vs. other)	2.51	5.45	.02		
Income	-.00	.53	-.00		
Partner gender	6.88	3.50	.14		
Age	-.01	.13	-.00		
Gender	6.38	3.56	.13		
Dissatisfaction with body					
Fat	5.88**	1.16	.26		
Fat talk	8.74**	1.13	.39		
				$R^2 = .317^{**}$	$\Delta R^2 = .29^{**}$
Predictor	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Step 3					
(Intercept)	67.81**	7.03			
BMI	-.56**	.15	-.17		
Relationship length	-.00	.00	-.01		
Race (White vs. other)	1.69	3.37	.04		
Race (Black vs. other)	-1.84	3.81	-.03		
Race (Asian vs. other)	2.85	5.45	.03		
Income	-.03	.53	-.00		
Partner gender	7.20*	3.51	.15		
Age	-.00	.13	-.00		
Gender	6.97	3.59	.14		

Table 4 *continued*
Step 3 (continued)

Predictor	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Dissatisfaction with body Fat	2.96	2.12	.13		
Fat talk	11.60**	2.18	.52		
Gender * Dissatisfaction with body fat	4.13	2.52	.15		
Gender * Fat talk	-3.93	2.52	-.15		
Dissatisfaction with body fat * Fat talk	-.45	.91	-.02		
				$R^2 = .323^{**}$	$\Delta R^2 = .01$
Predictor	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Step 4					
(Intercept)	68.32**	7.05			
BMI	-.55**	.15	-.16		
Relationship length	-.00	.00	-.01		
Race (White vs. other)	1.96	3.39	.04		
Race (Black vs. other)	-1.63	3.82	-.03		
Race (Asian vs. other)	3.14	5.46	.03		
Income	-.04	.53	-.00		
Partner gender	7.24*	3.51	.15		
Age	-.01	.13	-.00		
Gender	5.95	3.75	.12		
Body dissatisfaction with Fat	2.91	2.12	.13		
Fat talk	11.40**	2.19	.51		
Gender * Dissatisfaction with body fat	4.13	2.52	.15		
Gender * Fat talk	-3.72	2.53	-.14		
Body dissatisfaction with fat * Fat talk	-1.83	1.75	-.08		
Gender * Dissatisfaction with body fat * Fat talk	1.89	2.05	.07		
				$R^2 = .324^{**}$	$\Delta R^2 = .00$

Note. * indicates $p < .05$; ** indicates $p < .01$. A significant *b*-weight indicates the beta weight and semi-partial correlation are also significant. *b* represents unstandardized regression weights; *beta* indicates the standardized regression weights. Gender is coded man = 0, woman = 1.

Predictors of Muscle Dysmorphic Symptoms

A second hierarchical regression was used to test the remaining hypotheses: (H4) body dissatisfaction with muscularity will predict muscle dysmorphic symptoms, and the association will be stronger for men than women; (H5) muscle talk with romantic partner will predict muscle dysmorphic symptoms, and the association will be stronger for men than women; and (H6) body dissatisfaction with muscularity and muscle talk with romantic partner will interact to predict symptoms of muscle dysmorphia, and the interaction effect will be stronger for men than women.

Step 1 included the same covariates (BMI, relationship length, age, partner's gender) as the previous regression, and significantly predicted muscle dysmorphic symptoms ($R^2 = .075, p < .01$; see Table 5). Step 2 included body dissatisfaction with muscularity, muscle talk with a romantic partner, and participant's gender explained significantly more variance in muscle dysmorphic symptoms than Step 1 ($\Delta R^2 = .19, p < .01$). Step 3 included three interaction terms: the interaction term between body dissatisfaction with muscularity and muscle talk with a romantic partner, participant's gender and body dissatisfaction with muscularity, and participant's gender and muscle talk. This step significantly explained more variance than Step 2 ($\Delta R^2 = .02, p < .05$). Step 4 included the three-way interaction term body dissatisfaction with muscularity*muscle talk*gender, but was not significantly different from Step 3.

Thus, Step 3 was the best fit for the data. In Step 3, muscle talk ($b = .59, p < .01$) and the interaction of body dissatisfaction and gender ($b = .31, p < .05$) were significant predictors. This significant interaction term is graphed in Figure 3. The interaction found that for men, the relationship between body dissatisfaction with muscularity and symptoms of muscle dysmorphia was not significant ($b = -.06, p > .05$), though there was a significant positive relationship for women ($b = .25, p < .01$).

Table 5
Predictors of Muscle Dysmorphia Symptoms in a Hierarchical Regression, Examining the Interactions of Gender, Muscle Talk, and Body Dissatisfaction with Muscularity.

Predictor	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Step 1					
(Intercept)	3.20**	.38			
BMI	-.01	.01	-.07		
Relationship length	-.00	.00	-.01		
Race (White vs. other)	-.45*	.20	-.18		
Race (Black vs. other)	-.06	.23	-.02		
Race (Asian vs. other)	.15	.33	.03		
Income	.00	.03	.01		
Partner gender	.49**	.12	.19		
Age	.01	.01	.04		
				$R^2 = .075^{**}$	
Predictor	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Step 2					
(Intercept)	3.28**	.37			
BMI	-.00	.01	-.02		
Relationship length	-.00	.00	-.04		
Race (White vs. other)	-.38*	.18	-.15		
Race (Black vs. other)	.07	.21	.02		
Race (Asian vs. other)	.06	.30	.01		
Income	-.02	.03	-.04		
Partner gender	.13	.19	.05		
Age	-.00	.01	-.01		
Gender	.00	.20	.00		
Dissatisfaction with muscularity	.13*	.06	.11		
Muscle talk	.45**	.06	.40		
				$R^2 = .265^{**}$	$\Delta R^2 = .19^{**}$
Predictor	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Step 3					
(Intercept)	3.35**	.37			
BMI	-.01	.01	-.04		
Relationship length	-.00	.00	-.04		
Race (White vs. other)	-.33	.18	-.13		
Race (Black vs. other)	.15	.21	.05		
Race (Asian vs. other)	.10	.29	.02		
Income	-.03	.03	-.04		
Partner gender	.11	.19	.04		
Age	-.00	.01	-.01		
Gender	-.01	.20	-.01		
Body dissatisfaction with muscularity	-.06	.11	-.05		
Muscle Talk	.59**	.11	.52		

Table 5 *continued*
Step 3 (continued)

Predictor	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Body dissatisfaction with muscularity* Muscle Talk	-.05	.05	-.05		
Body dissatisfaction with muscularity* Gender	.31*	.13	.20		
Muscle Talk* Gender	-.17	.27	-.11		
				$R^2 = .282^{**}$	$\Delta R^2 = .02^*$
Predictors	<i>b</i>	<i>SE</i>	<i>beta</i>	Fit	Difference
Step 4					
(Intercept)	3.35**	.37			
BMI	-.01	.01	-.04		
Relationship length	-.00	.00	-.04		
Race (White vs. other)	-.34	.18	-.14		
Race (Black vs. other)	.14	.21	.05		
Race (Asian vs. other)	.10	.30	.02		
Income	-.03	.03	-.04		
Partner's gender	.11	.19	.04		
Age	-.00	.01	-.01		
Gender	-.02	.21	-.01		
Body dissatisfaction with muscularity	-.05	.12	-.05		
Muscle Talk	.59**	.11	.52		
Body dissatisfaction with muscularity* Muscle Talk	-.05	.07	-.05		
Body dissatisfaction with muscularity* Gender	.30*	.14	.20		
Muscle Talk* Gender	-.17	.13	-.11		
Body dissatisfaction with muscularity* Muscle Talk* Gender	.01	.09	.00		
				$R^2 = .282^{**}$	$\Delta R^2 = .00$

Note. * indicates $p < .05$; ** indicates $p < .01$. A significant *b*-weight indicates the beta weight and semi-partial correlation are also significant. *b* represents unstandardized regression weights; *beta* indicates the standardized regression weights. Gender is coded man = 0, woman = 1.

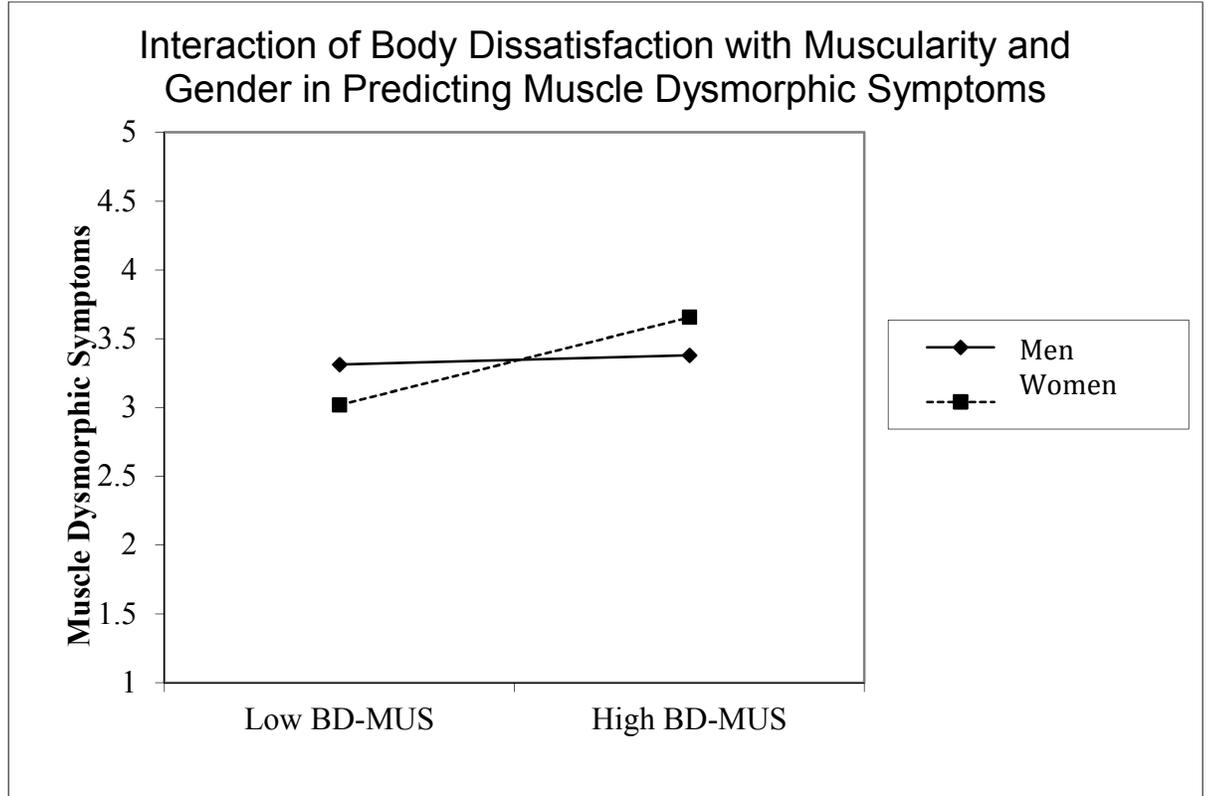


Figure 3. Interaction of body dissatisfaction with muscularity and gender in predicting muscle dysmorphic symptoms. BD-MUS = body dissatisfaction with muscularity. Body dissatisfaction significantly predicted symptoms of muscle dysmorphia for women only [$b = .25$ (SE = .07) $p < .01$], though not with men only [$b = -.06$ (SE = .11) $p > .05$].

Discussion

Unhealthy body change strategies are a clear public health problem, and this was corroborated by the data collected in this study. For example, it was found that 14% of the current college population were at or above the clinical screening cut-off on the EAT-26, indicating a high level of need for intervention. The current study investigated the correlates of unhealthy body change strategies in men and women. A series of hierarchical regression models were used to both examined direct impact of body dissatisfaction, body talk in romantic relationships, and gender, as well as how predictor variables interacted in influencing participants' level of body change strategies.

Predicting Eating Disorder Symptoms

The first hypothesis, H1 (body dissatisfaction with fat will predict symptoms of eating disorders, and the association will be stronger for women than men), was partially supported. Body dissatisfaction with fat did predict symptoms of eating disorders. In contrast to the hypothesis, this association was not found to be different for men and women. While the level of body dissatisfaction with fat and the level of symptoms of eating disorders was different by gender (with women reporting higher levels for both), there was not a significant interaction of gender. In other words, body dissatisfaction with fat predicted symptoms of eating disorders similarly for both genders; there was no moderation by gender. This replicated previous findings that body dissatisfaction with fat is associated with eating disorder symptoms in men and women (Wade et al., 2011), although women demonstrate higher levels of both constructs (Matthews-Ewald et al., 2014).

Similarly, the second hypothesis, H2 (fat talk with romantic partner will predict symptoms of eating disorders, and the association will be stronger for women than men),

found partial support. Fat talk with a romantic partner predicted symptoms of eating disorders, but gender did not moderate this association. It appears that while higher levels of fat talk with a romantic partner was associated with eating disorder symptoms, the association was not different for men or women. The association between fat talk in a romantic relationship and eating disorder symptoms is consistent with findings about fat talk with a peer (Katreovich et al., 2014) or a parent (MacDonald et al., 2015), as well as recent findings examining body talk more generally (i.e., not as specific as measuring fat talk and/or muscle talk) in romantic relationships (Hart et al., 2017). The lack of moderation by gender within this study suggests that the associations of body dissatisfaction with fat and fat talk with romantic partner with eating disorder symptoms are not fundamentally different for men and women. If this is true, then it means that future research does not need to segregate by gender out of concern that the relationship between body dissatisfaction with fat, fat talk in romantic relationships, and eating disorder symptoms are fundamentally different for men and women.

The third hypothesis, H3 (body dissatisfaction with fat and fat talk with romantic partner will interact to predict symptoms of eating disorders, and the interaction effect will be stronger for women than men), was not supported. There was no significant interaction between body dissatisfaction with fat and fat talk with a romantic partner, regardless of gender.

Further research is required to understand if fat talk with a romantic partner individually predicts eating disorder symptoms or is better explained by a more complex multivariate interactive model. Perhaps frequency of fat talk with a romantic partner is not a

specific enough measure to examine its function; relationship quality (Juda et al., 2004) and the tone of the talk (Dailey, Romo, & Thompson, 2011) might be more influential qualities.

Additionally, frequency of fat talk with a romantic partner could be acting as a moderator but differently for different people in different contexts. For some it might act as co-rumination (increasing eating disorder symptoms) in some contexts and as a protective factor for people get support from their romantic partner (decreasing eating disorder symptoms). Fat talk in a romantic relationship could function differently based on environmental or situational constructs that the current study was not specific enough to measure. To support the idea that fat talk can function differently, based on a thorough qualitative exploration of fat talk between female friends, Nichter (2000) suggests that fat talk that was similar in frequency and intensity could serve very different purposes, indicating friendship, social status (e.g., popularity), social support seeking, and/or rumination. The current study found that there was not a uniform effect of how an individual's body dissatisfaction with fat interacted with fat talk with a romantic partner to predict symptoms of eating disorders. However, that does not mean that there is not an interaction between these constructs for individuals, based in their contexts. Future studies could take a functional approach to understanding fat talk and examine in what situations it is more likely (the antecedents) and what individual and interpersonal consequences follow the incidence of fat talk with a romantic partner.

Predicting Muscle Dysmorphic Symptoms

As predicted by the fourth hypothesis, H4 (body dissatisfaction with muscularity will predict muscle dysmorphic symptoms, and the association will be stronger for men than women), body dissatisfaction with muscularity was associated with muscle dysmorphic

symptoms. Interestingly, the association between body dissatisfaction with muscularity and muscle dysmorphic symptoms was moderated by gender. However, the moderation was inconsistent with the hypothesis such that women's body dissatisfaction with muscularity was more positively associated with muscle dysmorphic symptoms than men's. In fact, in the model, men's body dissatisfaction with muscularity was not significant (see Figure 3). Thus, it is surprising and merits discussion that for women, for whom there was a significant association between body dissatisfaction with muscularity and muscle dysmorphia symptoms; for men the association between body dissatisfaction with muscularity and muscle dysmorphia was not significant. For women who want to be more muscular, this desire is somewhat counter to Western cultural norms. Due to this counter cultural desire (e.g., having an athletic ideal), women with high body dissatisfaction with muscularity might experience heightened pressure to achieve an athletic and muscular body, and thus, report more symptoms of muscle dysmorphia. For example, it has been found that women who express a counter cultural athletic ideal also report an increased desire for muscularity (Homan, 2010). Regardless of what unique factor leads there to be a stronger relationship for women between body dissatisfaction with muscularity and muscle dysmorphic symptoms, that there is this relationship is an important finding. Most past research tended to investigate muscle talk in male populations, implicitly assuming that muscle talk, body dissatisfaction with muscularity, and muscle dysmorphic symptoms are not relevant in women. This study shows that it is not the case. Instead, it suggests that if women report body dissatisfaction with muscularity, it may be especially clinically relevant.

The second surprising result of H4 is that men's body dissatisfaction with muscularity did not predict muscle dysmorphic symptoms within the model. Men's body dissatisfaction

with muscularity was correlated with men's muscle dysmorphia symptoms at the bivariate correlation level ($r = .32, p < .01$); however, that association was better explained by other variables within a regression model. Muscle talk with a romantic partner was significant for men, and had a relatively strong effect. Despite the stereotype that men engage in less body talk, this interpersonal dynamic, when it is about muscle dissatisfaction, is even more predictive of their muscle dysmorphic symptoms, above and beyond their actual levels of dissatisfaction.

As well, it could be an issue of whether or not men who value their masculinity report their dissatisfaction with muscularity. Specifically, men report that part of living up to masculine ideal is having the right "attitude" and "confidence," as well as a muscular body (Pompper, 2010), which could be directly challenged by reporting body dissatisfaction. So men who value masculinity could be less likely to report body dissatisfaction with muscularity, and also more likely to pursue a muscular ideal (and thus demonstrate muscle dysmorphia symptoms).

Partially supporting Hypothesis 5, H5 (muscle talk with romantic partner will predict muscle dysmorphic symptoms, and the association will be stronger for men than women), muscle talk with a romantic partner did predict muscle dysmorphic symptoms, though this was not moderated by gender. Men reported higher levels of muscle talk with a romantic partner than women; this finding was consistent with past research on men and muscle talk generally (Sladek et al., 2014). However, the current study found that while the amount of both muscle talk with romantic partner and muscle dysmorphic symptoms is higher in men, the relationship between variables is the same for both genders examined. This implies that the way these variables relate is not fundamentally different by gender. This implication

suggests that studying both men and women together can lead to insights on the nature of the relationship of the study variables and that segregation by gender is not necessarily essential to answering basic research questions about muscle talk in romantic relationships and muscle dysmorphic symptoms. This is an important finding because many studies of muscle talk and symptoms of muscle dysmorphia do limit their recruitment and study sample to men (e.g., McCreary, & Sasse, 2000; Sladek et al., 2014), out of a hypothesis that something fundamentally different might be happening in women than men.

Contrary to Hypothesis 6 (body dissatisfaction with muscularity and muscle talk with romantic partner will interact to predict symptoms of muscle dysmorphia, and the interaction effect will be stronger for men than women), results were not significant. There was no interaction effect between body dissatisfaction with muscularity and muscle talk with romantic partner, regardless of gender. Similarly to H3, the function of muscle talk with a romantic partner did not seem to differ for individuals at different levels of body dissatisfaction with muscularity. Thus, in this study, both body dissatisfaction with muscularity (for women) and muscle talk with romantic partner (for both men and women) uniquely contributed to explain variation in muscle dysmorphic symptoms. As discussed with the null finding of H3, it is possible either that these constructs really do individually contribute to muscle dysmorphia symptoms, or that the individual differences that change the function of muscle talk with a romantic partner were not measured in this study. Future studies should examine how other person-level constructs (e.g., muscularity ideal or depressive symptoms) possibly interact with muscle talk with a romantic partner in order to understand how muscle talk with a romantic partner differentially impacts individuals. As well, future studies can examine different aspects of muscle talk with a romantic partner

(e.g., tone or topic) to see if factors other than frequency associated with muscle talk with a romantic partner interact with body dissatisfaction with a romantic partner. While there have been qualitative investigations of fat talk that show it can serve different functions (Nichter, 2000), including co-rumination and social support, no such qualitative examination has been done for muscle talk. Future qualitative studies of muscle talk, especially muscle talk in a romantic relationship, can be conducted in order to identify individual differences and aspects of muscle talk that can be further investigated quantitatively to understand possible interactions.

Limitations and Future Directions

This study addressed important gaps in the literature as well as setting a foundation for more specific investigations to follow. However, there were some limitations inherent in the design of the study. For example, participants' limited self-awareness or inaccurate reporting could have influenced the results, as is a limitation of all self-report survey data. Also, there was no validation check to ensure that participants were paying attention for the entire survey. Thus, this self-report investigation sets the stage for more in-depth observational investigation. Additionally, the current study was a cross-sectional, non-experimental design, so was not able to show causal links, only associations. A future longitudinal or experimental design would be able to shed light on the causal directions of these associations. Knowledge of the associations between body talk with a romantic partner, gender, body dissatisfaction, and unhealthy body change strategies can serve to inspire future work to determine the causal directions between the variables. As these causal directions are known, intervention points are enumerated for clinical and public health interventions.

While there was diversity in race, BMI, and socioeconomic status in the current sample, investigating these variables further could yield understanding about how demographic characteristics could moderate the relationships found. BMI was skewed towards those who are overweight or obese more than other samples (e.g., Masuda et al., 2015; Vargas, Flores, & Robles, 2014). This is more ecologically valid (Lebel, Kestens, Clary, Bisset, & Subramanian, 2014) though this might mean that results diverge from what would be found in a thinner college sample.

Additionally, the current sample was mostly young White women. The results of this analysis should be re-examined in more ecologically valid sample instead of the currently used convenience sample of college students taking a psychology class. Future studies should oversample men and oversample those in same-sex relationships so they can be independently analyzed. In the literature, there are some suggestions of influence on body change strategies for age (Demarest & Allen, 2000), BMI (Stice, 2016), and socioeconomic status (Mulders-Jones, Mitchison, Girosi, & Hay, 2017), but none were found in the current study. Also, there is evidence in the literature that body dissatisfaction with fat and body dissatisfaction with muscularity vary across race (Miller et al., 2000), and further investigation of racial and ethnic differences is important in understanding and treating marginalized clients. There was evidence in the current study that race impacted symptoms of muscle dysmorphia in the sample, specifically with Black people having higher symptoms of muscle dysmorphia than other groups. Future research should further investigate this difference, specifically recruiting Black participants and surveying them on experiences of racial discrimination and ethnic and racial identity to explore this possible moderation.

Additionally, as this study was a population-level nomothetic approach, gaps are still left in understanding how body talk in a romantic relationship and body dissatisfaction influence body change strategies for individual clients. Idiographic approaches are still important to determine if these patterns apply to specific individuals, especially in a clinical setting. The current study lends evidence that body talk in a romantic relationship and body dissatisfaction should be investigated as possible intervention points for clients with unhealthy body change strategies. However, research that observes body talk between romantic partners in action is important to understand how body talk functions for different individuals.

Conclusion

Unhealthy body change strategy use is a public health concern, especially in emerging adulthood. Previously, it has been established that body talk, especially fat talk, is related to individuals' use of unhealthy body change strategies (Shannon & Mills, 2015). The current study examined in more detail fat talk and muscle talk with a romantic partner, its interaction with body dissatisfaction with fat and muscle and gender, in a college sample. It was found that muscle talk and fat talk with a romantic partner each predicted unhealthy body change strategies, even when body dissatisfaction was taken into account, lending evidence to the importance of studying fat talk and muscle talk in the context of romantic relationships. Additionally, this study suggests that body dissatisfaction and body talk in romantic relationships are relevant factors that clinicians should investigate in the treatment of unhealthy body change strategies. That body talk did not interact with body dissatisfaction suggests that researchers and clinicians can investigate and treat these variables independently.

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APPENDICES

Appendix A: IRB approval

Study Details
Submissions

Legacy

1078645 Online Survey of Body Dissatisfaction, Body Talk in Romantic Relationships, and Unhealthy Body Change Strategies

PDF
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<p>Approval Date: 05-30-2017</p> <p>Sponsors: N/A</p>	<p>Expiration Date: N/A</p> <p>Closed Date: N/A</p>	<p>Organization: N/A</p> <p>Current Policy: Pre-2018 Rule</p>	<p>Active Submissions: N/A</p>
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Appendix B: Demographic information

Please specify the following:

Your gender (select one):

Female

Male

Other _____

Your *partner's* gender (select one):

Female

Male

Other _____

Your age in years: _____

Your race or ethnicity (mark all that apply):

White

Black/ African-American

Hispanic/ Latino

Arab/ Middle Eastern

Asian

American Indian/Alaska Native

Native Hawaiian/Pacific Islander

Other _____

Your sexual Orientation:

Straight/ Heterosexual

Gay/Lesbian/ Homosexual

Bisexual

Asexual

Questioning/Unsure

Other _____

Your height (Please enter in feet and inches; e.g., if you are 66 inches or 5'6", enter a 5 for ft and 6 for inches): ___ft ___in

Your height (in pounds)" ___ lbs

What is the current economic status of the household in which you reside (Please select one)?

Plenty of luxuries

Plenty of extras

Solidly middle-class

Barely enough to get by
Very poor, not enough to get by

Which of the following categories best describes your total yearly family income?

Under \$15,000
\$15,000 - \$35,000
\$35,000 - \$55,000
\$55,000 - \$75,000
\$75,000 - \$95,000
Over \$95,000

What best describes your current relationship status:

Single
Dating/noncohabiting
Dating/cohabiting
Married
Other: _____

Approximately how long have you been in a relationship with your partner (Please enter in the months and years; e.g., if you have been together for 26 months, answer 2 years, 2 month)? ___ years ___ months

Appendix C: Body Dissatisfaction Scale

Body Dissatisfaction Scale (Garner et al., 1983)

"always," "usually," "often," "sometimes," "rarely," or "never"

1. I think that my stomach is too big.
2. I think that my thighs are too large.
3. I think that my stomach is just the right size.
4. I feel satisfied with the shape of my body.
5. I like the shape of my buttocks.
6. I think my hips are too big.
7. I think that my thighs are just the right size.
8. I think that my buttocks are too large.
9. I think that my hips are just the right size.

Appendix D: Male Body Attitudes Scale

Male Body Attitudes Scale (MBAS; Tylka, Bergeron, & Schwartz, 2005)

Please indicate how often you experience thoughts or feelings described in the items below.

Please rate each item with the following scale:

- 1 = never
- 2 = rarely
- 3 = sometimes
- 4 = often
- 5 = always

- 1. I think I have too little muscle on my body.**
- 2. I think my body should be leaner.
- 3. I wish my arms were strong.**
- *4. I feel satisfied with the definition in my abs (i.e., stomach muscles).**
- 5. I think my legs are not muscular enough.**
- 6. I think my chest should be broader.**
- 7. I think my shoulders are too narrow.**
- 8. I am concerned that my stomach is too flabby.
- 9. I think my arms should be larger (i.e., more muscular).**
- 10. I feel dissatisfied with my overall body build.
- 11. I think my calves should be larger (i.e., more muscular).**
- **12. I wish I were taller.
- 13. I think I have too much fat on my body.
- 14. I think my abs are not thin enough.
- 15. I think my back should be larger and more defined.**
- 16. I think my chest should be larger and more defined.**
- *17. I feel satisfied with the definition in my arms.**
- *18. I feel satisfied with the size and shape of my body.
- **19. I am satisfied with my height.
- 20. Have you felt that your own body size or shape compared unfavorably to other people?
- 21. Has eating sweets, cakes, or other high calorie food made you feel fat or weak?
- 22. Have you felt like your muscle tone was way too low?**
- 23. Have you felt excessively large and rounded (i.e., fat)?
- 24. Have you felt ashamed of your body size or shape?
- 25. Has seeing your reflection (e.g., in a mirror or window) made you feel badly about your size or shape?
- 26. Has seeing muscular people made you feel badly about your own body size or shape?
- 27. Have you been so worried about your body size or shape that you have been feeling that you ought to diet?
- 28. Have you ever felt that you were way too focused on your body size or shape?
- 29. Have you been particularly self-conscious about your body size or shape when in the company of other people?

Note: **Muscularity Subscale Items are bolded**

Appendix E: Male Body Talk Scale

Male Body Talk Scale (Sladek et al., 2014)

We're interested in the types of things people say about their bodies when they're talking to their romantic partner.

We're interested in what you **SAY** – not what you think. When you're answering the following questions, please only give responses that are consistent with **the way you actually talk** to your romantic partner. *Even if you wouldn't use these exact words*, we're interested in whether you say similar things (that mean the same thing) when you're talking to your romantic partner.

On the following scale from 1 to 7, how often do you **say** things like...

1 = “never”, 2 = “rarely”, 3 = “occasionally”, 4 = “sometimes”, 5 = “frequently”, 6 = “usually”, 7 = “always”

- 1. I want a six-pack.**
2. I wish I could lose this belly fat.
3. I need to go on a diet.
- 4. I wish I had bigger biceps.**
- 5. I wish my chest were more muscular.**
- 6. I want to add bulk.**
7. I need to lose some weight.
- 8. I wish my abs were more toned.**
9. I wish I could lose this gut.
10. I need to start watching what I eat.
- 11. I need to lift weights more.**
- 12. I should work on my abs.**
13. I need to lose a few pounds.
- 14. I wish I could bulk up a little.**
- 15. I want to have more muscle**
- 16. I wish I had more muscular arms.**

Note: **Muscle Talk Subscale is bold**, all other items are part of the Fat Talk Subscale.

Appendix F: Eating Attitudes Test

Eating Attitudes Test (EAT-26; Garner et al., 1982)

Please indicate how often you experience thoughts or show behaviors described in the items below. Please rate each item with the following scale:

“Always”, “Usually”, “Often”, “Sometimes”, “Rarely”, “Never”

1. Am terrified about being overweight
2. Avoid eating when I am hungry
3. Find myself preoccupied with food
4. Have gone on eating binges where I feel I may not be able to stop
5. Cut my food into small pieces
6. Aware of the calorie content of foods I eat
7. Particularly avoid food with high carbohydrate content (bread, rice, potatoes, etc.)
8. Feel that others would prefer if I ate more
9. Vomit after I have eaten
10. Feel extremely guilty after eating
11. Am preoccupied with a desire to be thinner
12. Think about burning up calories when I exercise
13. Other people think I'm too thin
14. Am preoccupied with the thought of having fat on my body
15. Take longer than others to eat my meals
16. Avoid foods with sugar in them
17. Eat diet foods
18. Feel that food controls my life
19. Display self-control around food
20. Feel that others pressure me to eat
21. Give too much time and thought to food
22. Feel uncomfortable after eating sweets
23. Engage in dieting behavior
24. Like my stomach to be empty
25. Have the impulse to vomit after meals
26. Enjoy trying new rich foods

Appendix G: Muscle Appearance Satisfaction Scale

Muscle Appearance Satisfaction Scale Items (Mayville et al., 2002)

Please indicate how often you think or feel in the ways the following items describe. Rate each item with the following scale:

1 = Strongly disagree 2 3 4 5 7 = Strongly Agree

1. When I look at my muscles in the mirror, I often feel satisfied with my current muscle size.
2. If my schedule forces me to miss a day of working out with weights, I feel very upset.
3. I often ask friends and/or relatives if I look big.
4. I am satisfied with the size of my muscles.
5. I often spend money on muscle-building supplements.
6. It is OK to use steroids to add muscle mass.
7. I often feel like I am addicted to working out with weights.
8. If I have a bad workout, it is likely to have a negative effect on the rest of my day.
9. I would try anything to get my muscles to grow.
10. I often keep working out even when my muscles or joints are sore from previous workouts.
11. I often spend a lot of time looking at my muscles in the mirror.
12. I spend more time in the gym working out than most others who work out.
13. To get big, one must be able to ignore a lot of pain.
14. I am satisfied with my muscle tone/definition.
15. My self-worth is very focused on how my muscles look.
16. I often ignore a lot of physical pain while I am lifting to get bigger.
17. I must get bigger muscles by any means necessary.
18. I often seek reassurance from others that my muscles are big enough.
19. I often find it difficult to resist checking the size of my muscles.