

SELF-OBJECTIFICATION, BODY IMAGE, EATING BEHAVIORS, AND EXERCISE
DEPENDENCE AMONG COLLEGE FEMALES

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Thesis Prepared for the Degree of
MASTER OF SCIENCE

UNIVERSITY OF NORTH TEXAS

August 2010

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Kessler, Kelly L. Self-Objectification, Body Image, Eating Behaviors, and Exercise Dependence among College Females. Master of Science (Kinesiology), August 2010, 45 pp., 4 tables, 6 figures, references, 56 titles.

The purposes of this study were to examine the associations between (a) self-objectification, (b) body shame, (c) appearance anxiety, and (d) exercise dependence. Participants ($N = 155$) completed a demographic questionnaire and a survey packet including the Body Surveillance subscale and Body Shame subscale of the Objectified Body Consciousness Scale, Appearance Anxiety Scale, Eating Attitudes Test 26, and the Exercise Dependence Scale. Correlations were conducted revealing associations between self-objectification, body shame, appearance anxiety, and eating attitudes. Associations were also found between body shame and exercise dependence. Partial correlations were conducting revealing body shame and appearance anxiety mediated the relationship between self-objectification and eating attitudes. Body shame also mediated the relationship between self-objectification and exercise dependence.

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INTRODUCTION

Western society places a great deal of value and importance on outward appearance. Women are expected to have a lean and slender figure (Wagner Oehlhof, Musher-Eizenman, Neufeld, & Hauser, 2009). Social and cultural pressures are put on individuals to conform to an “ideal” body shape that is often unobtainable (Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; Tylka & Hill, 2004). These expectations are expressed both subtly and explicitly, through interpersonal interactions (Fredrickson & Roberts, 1997; Strelan & Hargreaves, 2005), mass media (Adami, 2001; Barlett & Harris, 2008; Fredrickson & Roberts, 1997; Strelan & Hargreaves, 2005), and the consistent displaying of bodies (Barlett & Harris, 2008; Fredrickson & Roberts, 1997; Strelan & Hargreaves, 2005) in everyday life. Placing high value on the physique alone makes it not only more acceptable to objectify women, but it also perpetuates the idea that the body is malleable (Fredrickson et al., 1998) and that bodies are objects to be consumed for pleasure (Calogero, Davis, & Thompson, 2005; Fredrickson & Roberts, 1997; Pipher, 1994).

Although there is an immense amount of social and cultural pressure to be thin, a paradox exists as obesity rates continue to rise (Forbes et al., 2005). Currently there are nearly 133.6 million people who are overweight, including 63.6 million who are obese in the United States and the numbers are rising (National Institute of Health, 2006). Contributing to the prevalence of overweight individuals and obesity are sedentary lifestyles and poor eating behaviors. An estimated 78% of the adult population engages in little to no physical activity (Center for Disease Control, 1993) and nearly 80% of people do not follow the dietary guidelines for proper nutrition (Center for Disease Control, 2008).

At the same time that rates of overweight and obesity are problematic, some individuals

seem to adopt equally unhealthy behaviors such as crash dieting, use of weight loss products, and excessive exercise (Tylka & Hill, 2004). Grigg, Bowman, and Redman (1996) found 36% of individuals wanting to lose weight engaged in an extreme form of dieting including diuretics, weight loss pills, laxatives, or purging. Individuals also exercised excessively as another means of purging. Nearly \$33 billion is spent on weight reduction products yearly and almost 87% of women design their own weight loss programs often incorporating extreme measures (Thomas, 1995).

The unobtainable body ideal set by society can create high levels of body dissatisfaction when individuals fail to meet the expectations (Fredrickson & Roberts, 1997), while sacrificing their health. However due to the extreme and often unreachable body ideals, success is rare, resulting in lower self-esteem and negative body image. Negative body image varies in degree from person to person depending on exposure to social body ideal messages and individual body size (Forbes et al., 2005). Body image has cognitive, affective, and perceptual components. The cognitive aspect of body image involves individuals' thoughts about their body (e.g., body (dis)satisfaction). The affective component of body image involves individuals' feelings about their body (e.g., body shame and appearance anxiety; Barlett & Harris, 2008). Finally, the perceptual aspect of body image refers to individuals' judgments of their body size compared to the actual body size (Barlett & Harris, 2008; Cash, Wood, Phelps, & Boyd, 1991). Negative body image is fairly common in Western society; in fact, some have referred to it as a "normative discontent" (Rodin, Silberstein, & Striegel-Moore, 1984). Survey research findings indicated that nearly 56% of women have negative body image (Cash & Pruzinsky, 2002; Grogan, 2008).

For the purposes of this study, objectification theory (Fredrickson & Roberts, 1997) is

used as the theoretical framework to examine the relationships between self-objectification, body image, eating attitudes and behaviors, and exercise dependence. According to objectification theory (see Figure 1), women exposed to objectifying social and cultural environments may internalize a third person perspective of their bodies, referred to as self-objectification, and adopt beliefs about their bodies as objects (Fredrickson & Roberts, 1997). Individuals who internalize society's values may be at risk for negative psychological consequences. These consequences include increased body shame, increased anxiety, decreased flow states, and insensitivity to internal body cues (Fredrickson et al., 1998). Several mental health risks may result from individuals experiencing these psychological consequences including disordered eating/eating disorders, depression, and sexual dysfunction (Fredrickson et al., 1998). In line with objectification theory, relationships between self-objectification, body image, and eating attitudes and behaviors are examined. Inability to reach extreme body ideals, and the internalization of feeling inadequate due to not meeting society's expectations may lead to other negative health consequences such as over exercising to a point where it becomes health-damaging. Thus, an exploratory aspect of this study is to examine excessive exercise as an additional possible negative health consequence within the objectification theory framework. The inclusion of exercise behaviors, specifically exercise dependence, will extend previous objectification theory research. In the following sections, a review of relevant objectification theory and exercise dependence research is reviewed. In the final section, the current proposed study is presented.

REVIEW OF LITERATURE

Research has shown that self-objectification plays a significant role in eating and exercise behaviors (Daubenmier, 2005, Fredrickson & Roberts, 1997; Greenleaf & McGreer, 2006; Tylka & Hill, 2004). An overview of the objectification theory framework is presented, followed by a review of literature focusing on relationships between objectification, body image, disordered eating, and exercise dependence.

Objectification Theory

According to objectification theory (Fredrickson & Roberts, 1997), living in a society where high value is placed on outward appearance and sexual attractiveness may push individuals to determine their self-worth by how well they fit the cultural norm. With images of extremely slender females displayed in the media and depicted as the ideal, individuals may feel pressure to conform. Women may develop a preoccupation with the appearance of their bodies, viewing themselves as objects that are controllable and can be altered to fit with social ideas (Tylka & Hill, 2004). Individuals may internalize these messages and begin to evaluate themselves based on appearance, otherwise known as self-objectification (Fredrickson & Roberts, 1997; Pipher, 1994; Wagner Oehlhof et al., 2009). When someone objectifies their own body, they place less of an emphasis on how well their body performs, and more value is given to the appearance and attractiveness of their physique (Wagner Oehlhof et al., 2009). Behavioral changes may also occur with self-objectifying individuals such as habitual body monitoring. Individuals may consistently look at themselves in mirrors or adjust their clothes as they come to believe their value in society is based on outward appearance (Fredrickson & Roberts, 1997; Tylka & Hill, 2004).

Individuals who fail to meet society's body ideal, consistently monitor their bodies, and view their bodies as objects may experience several negative consequences, such as increased body shame, increased anxiety, fewer peak motivational states leading to decreased flow, and a decreased sensitivity to internal body cues (Tylka & Hill, 2004). Two of the potential negative effects of self-objectification, body shame and anxiety, are related to negative body image. Body shame results from individuals placing value on meeting the cultural body ideal and continually failing to obtain it (Tylka & Hill, 2004). Shame is generated by individuals' inability to reach a goal and by the perceptions individuals create about how the outside world will evaluate their bodies. Body shame is a combination of evaluating ones' self and perceptions of others' evaluations (Fredrickson et al. 1998).

In addition to experiencing shame because of perceived "failure" to have an idealized physique, individuals who are very cognizant of their appearance in the eyes of others may also experience high levels of anxiety. These feelings can stem from perceived threats to self from others' evaluative glances (Fredrickson & Roberts, 1997). With the high value placed on physical appearance and a great desire to receive approval from others, the uncertainty of how one will be viewed can be the cause of higher levels of appearance anxiety (Fredrickson & Roberts, 1997). Individuals placing a great deal of value on others' opinions are more likely to experience anxiety. This may lead to individuals monitoring their bodies more and becoming increasingly vigilant of how they are perceived by the outside world (Fredrickson & Roberts, 1997).

Another consequence of self-objectification is decreased peak motivational states. The ability to experience peak motivational states is decreased when individuals self-objectify and are objectified by others. Peak motivational states occur when individuals are able to be

completely focused and pour all their energy into a single activity to accomplish a goal. These experiences can be extremely rewarding and gratifying to individuals, as they get into a flow state where once-difficult tasks become effortless and intrinsic motivation is at its peak (Jackson & Csikszentmihalyi, 1999). Flow is characterized by nine features: loss of self-consciousness, merging of action and awareness, intense concentration on the current task, sense of control, a balance between the task's difficulty level and the individuals' skill level, an autotelic or intrinsically motivating experience, transformation of time, clear goals, and unambiguous feedback (Jackson & Csikszentmihalyi, 1999). Intrinsic motivation, also an integral part of flow, is decreased by self-awareness. Internalizing others' objective views can also cause individuals to be more self-conscious (Fredrickson & Roberts, 1997). This prevents the ability to focus on one task at a time and depletes mental capabilities. Also, when one views their body as an object, the focus is more on how it appears rather than what it is capable of doing (Fredrickson & Roberts, 1997).

Individuals who self-objectify are also less sensitive to internal body cues. This may be due to intentional restrictive eating in an attempt to change one's body shape. With this, hunger cues and other internal sensations go unattended to (Tylka & Hill, 2004). It may also be due to a preoccupation with outward appearance and fewer resources to use to focus inward (Fredrickson & Roberts, 1997).

According to the objectification theory model, subsequent to the negative psychological consequences of self-objectification, individuals may experience increased risk for several mental health conditions, including disordered eating and depression (Tylka & Hill, 2004). The shame felt by women who fail to meet the body ideal combined with the cultural assumption that weight is in their locus of control, can lead to restrained eating as an attempt to control weight,

body size and shape, and improve satisfaction with their bodies. In extreme cases, this restrictive eating can turn into an eating disorder (Noll & Fredrickson, 1998). The “normative discontent” experienced by individuals has become so natural that altering behaviors to counter body shames may become commonplace (Fredrickson & Roberts, 1997). Dieting, restrictive eating, and excessive exercise have all become integrated into young women’s lives (Grigg et al., 1996). Individuals who deeply internalize societal pressures may be more susceptible to developing eating disorders (Fredrickson & Roberts, 1997).

Increased anxiety levels and fewer peak motivational states also can contribute to decreased pleasure and more depressive thoughts (Fredrickson & Roberts, 1997). Reoccurring shame and anxiety may play a significant role in increased chances of becoming depressed. Individuals who repeat negative thoughts about being dissatisfied with body appearance will have fewer peak motivational experiences to yield pleasure. With frequent negative thoughts, it is also more likely for individuals to become depressed. Also, by adopting an outside observer’s perspective of themselves, a person may experience “loss of self,” feeling they have little control over their own lives, which can also lead to depression (Fredrickson & Roberts, 1997).

Given the focus of this study, which in part is to examine the association between self-objectification, negative body image, and eating attitudes and behaviors, a review of relevant research in each area follows.

Self-Objectification and Body Image

Society’s emphasis on ideal body shape may create pressure for women to become thinner. Individuals buying into this cultural norm for body shape may place high value on outward appearance, leading to an increase in body surveillance (Fredrickson et al., 1998;

Pipher, 1994; Prichard & Tiggemann, 2005). Self-surveillance is the time individuals spend thinking about their bodies and viewing them from an outsider's perspective (John & Ebbeck, 2008; Tylka & Hill, 2004). Internalization of these body shape ideals may be a strong contributor to how individuals view themselves and to the development of their self-concept. Consistently monitoring one's body and comparing it to the body ideals can lead to greater anxiety and body shame (Bessenoff & Snow, 2006; Calogero et al., 2005). As a result of higher levels of shame and anxiety, individuals may experience lower self-esteem and develop negative body image attitudes (Ata, Ludden, & Lally, 2007). Likewise, individuals who exercise with the goal of weight-loss and increasing the physical attractiveness of their bodies may be more susceptible to having negative body image (Prichard & Tiggemann, 2008).

Media and exposure to societal messages about body size and shape can play a significant role in self-objectification and negative body image (Calogero et al., 2005). Women exposed to magazines portraying a thin body shape as ideal were more likely to experience decreased mood states, increased anxiety, and more negative body image than those exposed to larger body shapes as ideal (Forbes, 2005; Harper & Tiggemann, 2008; Wagner Oehlhof, 2009). This was also supported when looking at generational differences between mothers and daughters. Daughters were more likely to have a negative body image due to increased exposure to the thin body ideal (Forbes, 2005). Even without explicit exposure to societal messages, individuals will self-objectify their bodies. In a study, individuals were asked to look at a mirror and focus on their appearance while wearing a swimsuit (Fredrickson et al., 1998). Results indicated that the group not asked to look themselves in the mirror was just as likely to self-objectify and evaluate themselves from a third-person's point of view, leading to increased anxiety and shame, and a

more negative body image (Harper & Tiggemann, 2008). Previous research has consistently documented the association between self-objectification and negative body image.

Self-Objectification and Eating Attitudes and Behaviors

Consistent with objectification theory, research has supported the link between self-objectification, negative body image, and disordered eating attitudes and behaviors (Calogero et al., 2005; Fredrickson et al., 1998; Greenleaf & McGreer, 2006). Disordered eating includes caloric restriction, use of diet pills or laxative, skipping meals, binge and purge cycles, and in extreme cases anorexia and bulimia (Littleton & Ollendick, 2003). Previous research has shown individuals who internalize societal messages about body ideals and self-objectify also have greater body shame (Fredrickson et al., 1998; Tiggemann & Slater, 2001). Individuals who are dissatisfied and ashamed of their appearance may be more likely to engage in these extreme behaviors, in an attempt to change their body size and possibly feel less shameful (Littleton & Ollendick, 2003; Tiggemann, 2001).

Another negative consequence of self-objectification is decreased sensitivity to internal body cues, or interoceptive awareness. Individuals become less aware of hunger sensations and less in-tune with their emotions. The body's natural reaction to restrictive eating is muted and this increases the likelihood of disordered eating (Tiggemann, & Slater, 2001; Tylka & Hill, 2004). Poor interoceptive awareness was found to be a symptomatic of eating disorders (Tylka & Hill, 2004). However, more significantly the role of negative body image, shame and anxiety were stronger predictors in unhealthy eating behaviors (Tylka & Hill, 2004). Likewise, higher levels of self-objectification and body-surveillance were found to lead to greater negative body

image and disordered eating (Daubenmier, 2005; Greenleaf & McGreer, 2006; Noll & Fredrickson, 1998; Tiggemann & Slater, 2001).

This connection between self-objectification, self-awareness, and disordered eating can be seen with individuals participating in yoga. Yoga focuses on increasing bodily awareness and being cognizant of internal body cues. Yoga participants were shown to have lower levels of self-objectification, more self-awareness, and less negative body image than non-yoga participants, thus contributing to less disordered eating (Daubenmier, 2005).

Individuals who are overly concerned with body appearance are more likely to exhibit unhealthy eating attitudes and behaviors (Fredrickson et al., 1998; Greenleaf & McGreer, 2006; Harper & Tiggemann, 2008). Congruent with other research, individuals experienced more negative body image and greater disordered eating habits (Calogero et al., 2005; Fredrickson et al., 1998). To cope with the feelings accompanied with negative body image, unhealthy eating behaviors are employed (Calogero et al., 2005), however individuals may also engage in damaging exercise behaviors as well. The association between negative body image and unhealthy eating attitudes and behaviors has been consistently supported by previous research.

Exercise Dependence

Although researchers have used objectification theory as a framework for studying exercise, typically the focus has been upon exercise motives (e.g., Blaydon, Linder & Kerr, 2004; Hagen & Hausenblas, 2003; Strelan & Hargreaves, 2005). For example, self-objectification tends to be associated with appearance-oriented exercise motives (Prichard & Tiggemann, 2005, 2008). To date, researchers have yet to examine exercise dependence as a potential compensatory behavior. Thus, one aspect of the proposed study is to explore exercise

dependence within the objectification theory framework. Conceptually, this seems to be a logical extension of the framework, as previous research has documented that some individuals use excessive exercise as a way to improve body image and decrease shame to an extent that the exercise behavior becomes a harmful obligation (Littleton & Ollendick, 2003).

While exercise can have many psychological and physical benefits, when it is done in excess, there can be several negative consequences (Garmen, Hayduk, Crider, & Hodel, 2004). Excessive exercise may be employed to control caloric balances and it may also be used as a coping mechanism to deal with pressures to conform to a specific body shape (Loumidis & Wells, 2001). In both cases the intent of exercise is one that can be unhealthy. Individuals with a negative body image may turn to exercise as a means to work toward meeting society's body ideal. They may incorporate exercise into their lives to a point where it takes precedence over any other obligation, possibly developing into exercise dependence.

Exercise dependence is often characterized by individuals prioritizing physical activity over work or social obligations, over-use injuries, dysfunctional psychological processes, and withdrawal symptoms when exercise is restricted or stopped (Bamber, Cockerill, Rodgers, & Carroll, 2003; Hamer & Karageoghis, 2007). Individuals with exercise dependence also workout regardless of illness or injury (Blaydon, Linder, & Kerr, 2004; Cook & Hausenblaus, 2008). The degree of the dependence can vary depending on how negative the effect is when taken away, ranging from slight discomfort to high levels of distress (De Coverly Veale, 1987). Specifically, there are seven diagnostic criteria including tolerance (increased amount of exercise to get the desired effect), withdrawal (anxiety or fatigue when exercise is taken away), intention effect (exercising in large quantities for a long period of time is intended), loss of control (a desire but inability to decrease exercise amounts), time (a lot of time is spent exercising), conflict (exercise

is a priority over social, occupational, and recreational obligations), and continuance (exercise continues regardless of physical or psychological problems) (Hausenblas & Symons Downs, 2002).

There are two types of exercise dependence including primary and secondary. Although this study will not examine the differences, for the purpose of background information, it is important to have a basic understanding. Primary exercise dependence refers to an intrinsic need to do physical activity without a preexisting eating disorder. Individuals who have eating disorders and employ excessive exercise as a means to further control weight would have secondary exercise dependence (Blaydon, Linder & Kerr, 2004; De Coverly Veale, 1987; Hagen & Hausenblas, 2003).

Past research has shown individuals who may be more susceptible to becoming exercise dependent tend to have similar personality characteristics including high anxiety, low self-esteem, obsessive-compulsiveness, and a perfectionist drive (Hagen & Hausenblas, 2003). Many of these characteristics of individuals likely to be exercise dependent are also the negative consequences seen when individuals self-objectify, however there is a lack of research to demonstrate a connection. This study aims to extend the objectification theory to look at exercise dependence as a possible consequence of self-objectification, increased body shame and appearance anxiety.

Study Purposes

The purpose of this study is to examine the associations between self-objectification, body image, eating attitudes and behaviors, and exercise dependence within the objectification theory framework (Figure 2). Specifically, it is hypothesized that:

- Self-objectification will be positively associated with body shame and appearance anxiety
- Body shame and appearance anxiety will be positively associated with disordered eating attitudes.
- Body shame and appearance anxiety will be positively associated with exercise dependence
- Body shame and appearance anxiety will mediate the associations between self-objectification, eating attitudes, and exercise dependence.

METHODOLOGY

Participants

Participants in this study included 166 female college students ranging in age from 18 to 39 who participate in regular physical activity, defined as individuals who engage in moderate activity 5 or more days a week or vigorous activity 3 or more days a week (Jackson, Morrow, Bowles, FitzGerald, & Blair, 2007). Participants who reported participating in collegiate or elite athletics were excluded from inclusion, leaving 155 participants in the study. Participants were not excluded based race or ethnicity.

Measures

Participants completed a survey packet including: demographic and background information, the Body Surveillance and Body Shame subscales of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996), the Appearance Anxiety Scale (Dion, Dion, & Keelan, 1990), Eating Attitudes Test 26 (Garner, Olmsted, Bohr, & Garfinkel, 1982), and the Exercise Dependence Scale (Hausenblas & Symons Downs, 2002).

Demographic Questionnaire

Participants completed a questionnaire regarding demographic characteristics including age, height, weight, gender, ethnicity, and physical activity involvement (Centers for Disease Control and Prevention, 2008; Jackson, Morrow, Bowles, FitzGerald, & Blair, 2007).

Body Surveillance Subscale of the Objectified Body Consciousness Scale

The Body Surveillance subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996) is an 8-item assessment of the extent to which women view their bodies from an

outsider's perspective. Previously, the Body Surveillance subscale had been used as a measure of self-objectification (Greenleaf, 2005; McKinely & Hyde, 1996; Tylka & Hill, 2004). Items are measured on a 7-point Likert scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*), including the option of NA, if the item is not applicable. Items 1, 2, 3, 4, 7, and 8 are reverse scored. The scores from the items are averaged, with higher scores indicating greater concern for outward appearance and more time spent self-monitoring. The Body Surveillance subscale has internal consistencies of .79 among undergraduate women (McKinely & Hyde, 1996). In the current sample, the internal consistency was .81.

Body Shame Subscale of the Objectified Body Consciousness Scale

The Body Shame subscale of the Objectified Body Consciousness Scale (McKinely & Hyde, 1996) is an assessment of body shame and individuals' negative feelings produced when they fail to meet society's expectations of ideal body shape. The Body Shame subscale also has eight items measured on a 7-point Likert scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*), as well as the possible answer of NA. Items 5 and 7 are reverse scored. The scores are averaged and higher scores are indicative of greater body shame. The Body Shame subscale has an internal consistency of .68 for undergraduate women. It is also moderately correlated to questions about society's ideal for body shape among undergraduate women ($r = .51$) (McKinely & Hyde, 1996). The internal consistency for the current sample was .86.

Appearance Anxiety Scale

The Appearance Anxiety Scale (Dion, Dion, & Keelan, 1990) is a 30-item assessment of the degree to which women are preoccupied with how others evaluate their physical appearance.

It is measured on a 5-point Likert Scale ranging from 0 (*never*) to 5 (*almost always*). Scores are added with higher scores indicating greater appearance anxiety. Items 3, 6, 8, 9, 11, 12, 15, 19, 20, 22, and 30 are reverse scored. The internal consistency of this scale is .92 (Garcia, 1998). The Appearance Anxiety Scale also has a test-retest reliability of .89 (Dion, Dion, & Keelan, 1990). In the current sample, the internal consistency was .91.

Eating Attitudes Test 26

The Eating Attitudes Test 26 (Garner et al., 1982) is a 26-item assessment measuring disordered eating attitudes. The EAT-26 consists of three subscales including Dieting (avoiding fattening foods and concerns with being thinner), Bulimia and Food Preoccupation (thoughts about food and bulimic symptoms), and Oral control (Self-control with eating). Participants rate the intensity of eating attitudes from six possible options: *Never* (1), *Rarely* (2), *Sometimes* (3), *Often* (4), *Very Often* (5), and *Always* (6). Item 26 is reverse scored. The scores are added up and scores of 20 or higher indicate a possible eating disorder problem. The Eating Attitudes Tests has internal consistency of .94 (Garner & Garfinkel, 1979). The total scale internal consistency for the current sample was .91.

Exercise Dependence Scale

The Exercise Dependence Scale (Hausenblas & Symons Downs, 2002) is a 21-item assessment of exercise dependence with seven subscales: tolerance, withdrawal effects (exercising to avoid feeling anxious and tense), continuance (exercising regardless of physical problems), lack of control, reduction in other activities, time spent exercising, and intention of exercise. Items are measured on a six-point Likert scale ranging from 1 (*never*) to 6 (*always*).

The scores are averaged. Individuals who score in the dependent range, by rating an item either a 5 or a 6 for three or more subscale items indicates a possible risk for exercise dependence. The symptomatic range is rating items a 3 or a 4 and the asymptomatic range is rating items either a 1 or a 2. A higher score indicates greater exercise dependence. Lower scores indicate less exercise dependence. This scale has an internal consistency of .93 (Hausenblaus & Symons Downs, 2002). The EDS was found to be positively related with measures from the Leisure-Time Exercise Questionnaire (Godin, Jobin, & Bouillon, 1986) with mild exercise ($r = .16$), moderate exercise ($r = .21$), and strenuous exercise ($r = .57$) (Symons Downs, Hausenblaus, & Nigg, 2004). In the current sample, the internal consistency was .94.

Procedure

Approval from the Internal Review Board (IRB) at the University of North Texas for the use of human participants was obtained prior to the beginning of this study. Participants were recruited from undergraduate kinesiology classes and undergraduate physical education classes. Permission was received from instructors and classes were chosen by convenience and class size. The investigator attended two sport sociology classes and eleven physical education classes for the purposes of participant recruitment. Participants received a letter of consent (Appendix A) informing them of the general purpose of the study and their rights as volunteer participants. Subsequently, voluntary participants were given survey packets and instructions for completing the packets. The order of the questionnaires in the survey packet was counterbalanced to avoid any bias from the sequence of questions.

Data Analysis

Means and standard deviations were calculated for participants' demographic information. To examine associations between self-objectification, body image, eating attitudes and behaviors, and exercise dependence, correlations were calculated. To examine the role appearance anxiety and body shame play in the relationships among self-objectification, eating, and exercise dependence, a partial correlation was conducted.

RESULTS

Sample Characteristics

Participants in this study included 166 college females ranging in age from 18 to 39 years ($M = 20.86$, $SD = 2.44$). Those reporting current involvement in collegiate or elite athletics ($n = 11$) were excluded from inclusion in this study resulting in a final sample of 155 participants. Participants identified themselves as Caucasian ($n = 105$), African American ($n = 30$), Asian ($n = 8$), Hispanic ($n = 6$), Native American ($n = 1$), or other ($n = 5$). Participants' self-reported height ranged from 59 inches to 73 inches ($M = 65.26$, $SD = 3.04$) and self-reported weight ranged from 93 pounds to 267 pounds ($M = 144.21$, $SD = 31.81$). BMI, calculated from self-reported height and weight, ranged from 17.22 to 43.19 ($M = 23.76$, $SD = 4.56$). Ideal weight was indicated by the participants ranging from 90 pounds to 195 pounds ($M = 130.31$, $SD = 18.71$). Participants reported their current weight intentions. Of the 155 participants, 18% indicated they were trying to stay the same weight, 67% said they were trying to lose weight, 2% said they were trying to gain weight, and 13% indicated they were not trying to do anything about their weight.

In addition to participants' weight intentions, perceptions of body shape and workout intensity were investigated. Participants identified body shapes that best represented their own shape, their ideal body shape, and the socially ideal body shape on a Figure Rating Scale (Stunkard, Sorenson, & Schlusinger, 1983) from one to nine. Participants selected 3.51 ($SD = 1.03$) as the figure that represented their current body shape, 2.64 ($SD = .64$) as the figure that represented participants' ideal body shape, and 2.17 ($SD = .80$) as the figure that represented participants' perceived societal ideal (See Figure 3).

Participants rated their physical activity level or intentions for physical activity by responding to a single-item measure (Jackson et al., 2007). Of the 155 participants, 3% indicated

they do not exercise or walk regularly, but they have been thinking about starting. Another 48% said they do moderate physical activity fewer than five times a week or vigorous activity fewer than three times a week, and 26% said they have been doing moderate physical activity five or more times a week and vigorous activity at least 3 days a week for the last one to six months. Finally, 23% indicated they have been doing moderate physical activity five or more days a week or vigorous activity at least three days a week for seven months or longer.

Participants reported participation in moderate activities for an average of 4.78 ($SD = 1.40$) days per week with an average time of 46.12 ($SD = 41.92$) minutes per day. Of the 155 participants, 146 reported participation in vigorous activities for an average of 3.19 ($SD = 1.30$) days per week with an average time of 49.89 ($SD = 33.91$) minutes per day. When asked to describe their average workout intensity, participants indicated they workout at an intensity of 7.17 ($SD = 1.39$) on a scale from 1 to 10.

Associations among Self-Objectification, Body Shame, Appearance Anxiety, Disordered Eating Attitudes, and Exercise Dependence

Prior to conducting analyses to examine research hypotheses, preliminary analyses were performed, specifically examining the associations between body mass index, body surveillance, body shame, appearance anxiety, eating attitudes, and exercise dependence. BMI was positively associated with body surveillance, body shame, and appearance anxiety. Based on the results, BMI was controlled for in subsequent analyses.

To address the first research hypothesis (“Self-objectification will be positively associated with body shame and appearance anxiety”), correlations were conducted to determine relationships among the three variables (See Table 2 for correlations between all variables). Body Surveillance, used to measure self-objectification, was positively correlated with body

shame ($r = .41, p < .01$) and appearance anxiety ($r = .65, p < .01$). Results indicate participants who self-objectify were more likely to experience body shame and appearance anxiety.

Correlations were conducted to address the second research hypothesis (“Body shame and appearance anxiety will be positively associated with disordered eating attitudes”). Body shame ($r = .66, p < .01$) and appearance anxiety ($r = .60, p < .01$) were both positively correlated with eating attitudes. Correlations were used to address the third research hypothesis (“Body shame and appearance anxiety will be positively associated with exercise dependence”). Body shame was positively correlated with exercise dependence ($r = .33, p < .01$), however the relationship between appearance anxiety and exercise dependence was not significant ($r = .10, p = .22$). The strongest relationships occurred between body surveillance and appearance anxiety and between body shame and eating attitudes, which supports previously documented relationships of the objectification theory model (See Figure 1).

To address the final research hypothesis (“Body shame and appearance anxiety will mediate the associations between self-objectification, eating attitudes, and exercise dependence”), partial correlations were conducted (See Table 3). The first set of partial correlations examined the relationship between body surveillance and eating attitudes. To determine which variables were potential mediators, separate analyses were conducted with the following variables controlled for (a) BMI, body shame, and appearance anxiety; (b) body shame and BMI; and (c) appearance anxiety and BMI. When controlling for all three (BMI, body shame, and appearance anxiety), the direct relationship between body surveillance and eating attitudes was not significant (See Figure 4). However, the direct correlation between body surveillance and eating attitudes without controlling for body shame and appearance anxiety was significant ($r = .37, p < .01$). These results indicate that body shame and appearance anxiety

mediate the relationship between body surveillance and eating attitudes. When controlling for appearance anxiety and BMI, the relationship between body surveillance and disordered eating attitudes was not significant (See Figure 5). When controlling for body shame and BMI, the relationship between body surveillance and eating attitudes was also not significant (See Figure 6).

The second set of partial correlations examined the relationship between body surveillance and exercise dependence when controlling for (a) BMI, body shame, and appearance anxiety; (b) body shame and BMI; and (c) appearance anxiety and BMI. When controlling for BMI, body shame, and appearance anxiety, the relationship between body surveillance and exercise dependence was not significant (See Figure 4). The direct correlation between self-objectification and exercise dependence, without controlling for possible moderators, was also not significant. When controlling for BMI and appearance anxiety, the relationship between body surveillance and exercise dependence was not significant (See Figure 5), however when controlling for body shame and BMI, body surveillance was negatively correlated with exercise dependence ($r = -.17, p < .05$) (See Figure 6).

DISCUSSION

The purpose of this study was to replicate previous research examining several components of objectification theory and to extend previous research by examining the relationships of objectification theory constructs to exercise dependence. Specifically the associations between self-objectification, body shame, appearance anxiety, eating attitudes, and exercise dependence were examined. Individuals living in a society where physical attractiveness is valued and the body is viewed as a malleable object may experience negative thoughts and feelings toward their bodies. Feelings of shame and anxiety regarding one's appearance may be linked to engaging in unhealthy eating behaviors. While these relationships are well established, one area needing further investigation is the possible role of exercise dependence as it relates to objectification theory. Results from this study partially supported the hypothesized relationships.

Consistent with the hypotheses, self-objectification was significantly correlated with body shame and appearance anxiety. Women who experience pressure to conform to a specific body shape also report an increased preoccupation with their appearance (Fredrickson & Roberts, 1997; Pipher, 1994; Wagner Oehlhof et al., 2009). This is in line with the research done by Forbes (2005), Harper and Tiggemann (2008), and Wagner Oehlhof (2009), which described women who are exposed to magazines portraying thin body shapes are more likely to experience increased anxiety and more negative body image. In addition, women with higher levels of self-objectification tend to experience negative feelings associated with perceived failures when it comes to achieving society's "body ideal" (Fredrickson & Roberts, 1997; Tylka & Hill, 2004). These findings are consistent with the research done by Fredrickson and Roberts (1997), Tylka and Hill (2004), Bessenoff and Snow (2006) as well as many others who have studied objectification theory. Indeed, the strength of relationships between objectification theory constructs between the results of this study and previous research studies are quite similar (see

Table 4). These relationships are important as it provides a greater understanding of women's experiences in society. Women internalizing the need to be extremely thin and meet society's expectations of what the female body should look like can experience a variety of negative psychosocial and behavioral health consequences, such as depression and disordered eating.

Consistent with objectification theory and previous research, body shame and appearance anxiety were significantly correlated with eating attitudes. Women who indicated feeling a sense of shame and guilt for not meeting the social ideals and who experience anxiety with regard to their outward appearance were more likely to endorse disordered eating attitudes and beliefs. Previous research has indicated the shame women feel by failing to meet the body ideal and the cultural assumption that it is in their control may lead to attempts to control weight through restrictive eating or disordered attitudes toward food (Noll & Fredrickson, 1998; Tylka & Hill, 2004).

As an extension of objectification theory, the associations between exercise dependence, self-objectification, body shame, appearance anxiety, and eating attitudes were also examined. Body shame was significantly correlated with exercise dependence. Based on the results of a previous study, within the objectification theory, self-objectification tends to be associated with appearance-oriented motives. Individuals perceiving their own image does not match the ideal tend to have more negative feelings about their bodies and higher levels of body shame (Fredrickson & Roberts, 1997; Tylka & Hill, 2004), possibly influencing them to engage in excessive exercise as a compensatory behavior, similar to disordered eating attitudes and behaviors (Calogero et al., 2005, Fredrickson et al., 1998). Individuals may engage in these behaviors to not only change their physical appearance but also deal with the emotional side of feeling inadequate when they do not fit the body ideal. The results are consistent with the

research conducted by Loumidis and Wells (2001) who found that eating and exercise behaviors may be a form of emotional coping. Thus, the likelihood of someone developing an eating disorder or becoming exercise dependent may be increased when individuals have more negative feelings toward their bodies.

While body shame and exercise dependence were positively associated, appearance anxiety was not related to exercise dependence. Individuals who are overly concerned with how they are being evaluated by others or are nervous about how their body is perceived by the outside world may be more hesitant to exercise in public (Fredrickson & Roberts, 1997), leaving fewer options to exercise excessively. As restrictive eating may be done in a more private setting and yielding less evaluation from others, individuals may be more inclined to control their weight through restrictive eating (Grigg et al., 1996; Noll & Fredrickson, 1998). Additional research is needed to more fully examine and understand how body shame and appearance anxiety may be related to exercise dependence.

Eating attitudes and exercise dependence were positively associated; women who reported higher levels of disturbed eating attitudes also reported higher levels of exercise dependence. Individuals may engage in several compensatory behaviors in an attempt to change their body shape and feel less shameful (Fredrickson et.al, 1998; Greenleaf & McGreer, 2006; Harper & Tiggemann, 2008). These compensatory behaviors may involve restrictive eating and excessive exercise in an effort to control caloric intake. Much of the current research focuses only on disordered eating attitudes as a compensatory behavior, however very little has examined the role of exercise dependence.

An additional purpose of this study was to determine if appearance anxiety and body shame act as mediators in the relationships between (a) self-objectification and eating attitudes,

and (b) self-objectification and exercise dependence. Appearance anxiety acted as a mediator in the relationships between self-objectification and eating attitudes and between self-objectification and exercise dependence. Women internalizing society's messages and viewing their bodies as malleable objects may be more likely to engage in weight control methods (Littleton & Ollendick, 2003; Tiggemann, 2001). Often these women are overly concerned with how others and themselves evaluate their appearance as high value is placed on fitting society's ideal. The nervousness and anxiety women experience for how they appear to others may lead them to adopt weight loss behaviors. Engaging in these behaviors may be due to concern for evaluative glances and for the internal need to fit into slender standard set for women.

Body shame also acted as a mediator in the relationship between self-objectification and eating attitudes, as well as in the relationship between self-objectification and exercise dependence. A direct correlation between self-objectification and eating attitudes was significant. However, when controlling for body shame, the relationship was no longer significant, showing that the body shame women feel by self-objectifying influences their attitudes toward eating. Likewise, a direct correlation between self-objectification and exercise dependence was not significant, however when controlling for body shame, self-objectification was negatively correlated with exercise dependence. With body shame acting as a mediator and a negative correlation, there may be additional factors influencing the relationship between exercise dependence and body shame. These may include a long-term routine of incorporating exercise into the day purely for enjoyment or perhaps a former athlete who has the goal of maintaining their athleticism from the sport. Possibly excessive exercise may also be part of normative discontent, as individuals view it as normal to be dissatisfied with their body shapes and appearances (Rodin, Silberstein, & Striegel-Moore, 1984). Therefore, much like disordered

eating may be a natural part of a person's routine to control caloric intake, excessive exercise may take on the same role. It is important to understand exercise dependence and its contributing factors, so that proper prevention methods may be employed or appropriate treatment can be applied to an individual experiencing exercise dependence. Additional research is needed to determine if and how exercise dependence may be appropriate to integrate into objectification theory. The results of this study provide some initial support for its inclusion, however, more research is needed.

Limitations and Future Directions

While the present study may provide a greater understanding of exercise dependence as an extension of objectification theory, it is important to consider several limitations of this study. First, all data was self-reported and reliant on the honesty of the participants. It is possible participants may not have accurately reported their height and weight, activity level, or other responses to items. However, in an effort to promote honesty, surveys were completely anonymous and participants were told that there were no right or wrong answers and to respond with what was true for them. Second, the sample was all taken from Kinesiology and Physical Education classes. These classes may yield a greater ratio of people interested in and/or participating in physical activity, which may not be representative of the larger population. Nationally, an estimated 78% of individuals do not get the recommended amount of physical activity, however in the current sample, about 50% were engaging in an adequate amount of physical activity (Center for Disease Control, 1993).

Women currently training for competitive sport were removed from the sample, however it is possible that the participants' enrollment in Kinesiology and Physical Education classes may

influence the results of this study. To examine this possibility, exploratory analyses were conducted using a subset of the data. Correlations among the variables were conducted with data from the most active participants (i.e., participants indicating participation in moderate physical activity five or more days a week or vigorous activity at least three days a week for seven months or longer). Results from these analyses were the same as those for the larger sample, however the relationship between body shame and exercise dependence was no longer significant. Future study may want to examine the role of exercise dependence within a very active population such as athletes or individuals indicating high levels of physical activity.

An additional limitation of this study was that the sample consisted of only college-aged women, which limits the generalizability of the results. Although initially conceptualized as a framework for understanding the experiences of women in Western society, objectification theory has recently been used to examine the experiences of men, thus future research examining exercise dependence within this theoretical framework may benefit from the inclusion of men. Another limitation to this study was that the sample was primarily Caucasian. Previous research has indicated that race and ethnic differences may exist in how women perceive their bodies. To explore this possibility, exploratory correlations were conducted with two subsets of the data. When looking only at African American participants, all significant correlations were the same as in those for the whole sample, however the relationship between body shame and exercise dependence was no longer significant. When looking at only Caucasian participants, all significant correlations were also the same as those for the entire sample, however the relationship between body shame and exercise dependence was not significant. Future studies may want to examine the role race and ethnicity play in the occurrence of self-objectification and exercise dependence.

Finally, for the purpose of this study, only certain aspects of the objectification theory were selected, however other variables, such as motivational states and insensitivity to body cues, may be important to consider. Future research may want to replicate this study using other components of the objectification theory such as decreased peak motivational states and insensitivity to body cues. This may help to determine if they play a more significant role in the relationship between self-objectification and exercise dependence.

With the limitations of this study, future research may also be directed towards surveying a larger and more diverse population better representative of the general population. This should include a wider age range and people from different backgrounds, other than kinesiology and physical education. This would increase the generalizability of the results. Additional research may also want to look at athletes versus non-athletes and their attitudes toward exercise dependence. This may help to explain what alternative factors contribute to exercise dependence and if self-objectification plays a role in and out of the athletic environment. Finally, future research should target individuals who are exercise dependent, and analyze relationships between self-objectification and exercise dependence.

Conclusion and Implications

The internalization of the social and cultural pressures felt by college-aged women may negatively affect their attitudes and behaviors. Women may feel shameful and anxious when they feel they do not meet the body ideal, possibly leading them to engage in disordered eating and unhealthy exercise habits. Educators and professionals in the college environment should promote acceptance of all body shapes and provide alternative healthier ways to cope with the pressures young women experience.

Clinicians who work with people with eating disorders may use the information gathered from this study by keeping in mind that individuals may not only suffer from disordered eating but possibly unhealthy exercise behaviors as well. The relationship between disordered eating attitudes and exercise dependence in this study also demonstrates the need to examine attitudes toward exercise when working with individuals who experience high levels of body shame.

Practically, establishing an environment where many body shapes are accepted and there is not an underlying pressure to be extremely thin may have an effect on the number of individuals who self-objectify. Previous research done by Forbes (2005), found that women who had increased exposure to the thin ideal also were more likely to have a negative body image. Thus, possibly limiting the amount of exposure women have to the importance of being extremely slender would have an effect on extent to which women self-objectify, develop an unhealthy perception of their own bodies, and adopt the belief that their bodies are malleable.

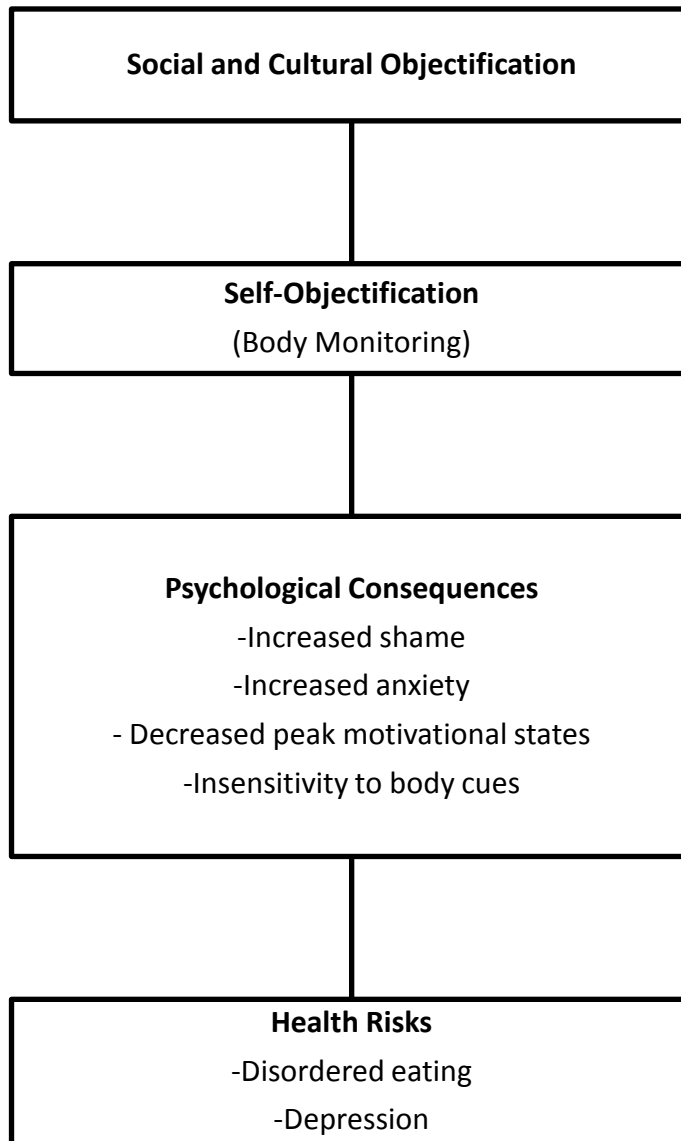


Figure 1. Objectification theory model (Fredrickson & Roberts, 1997).

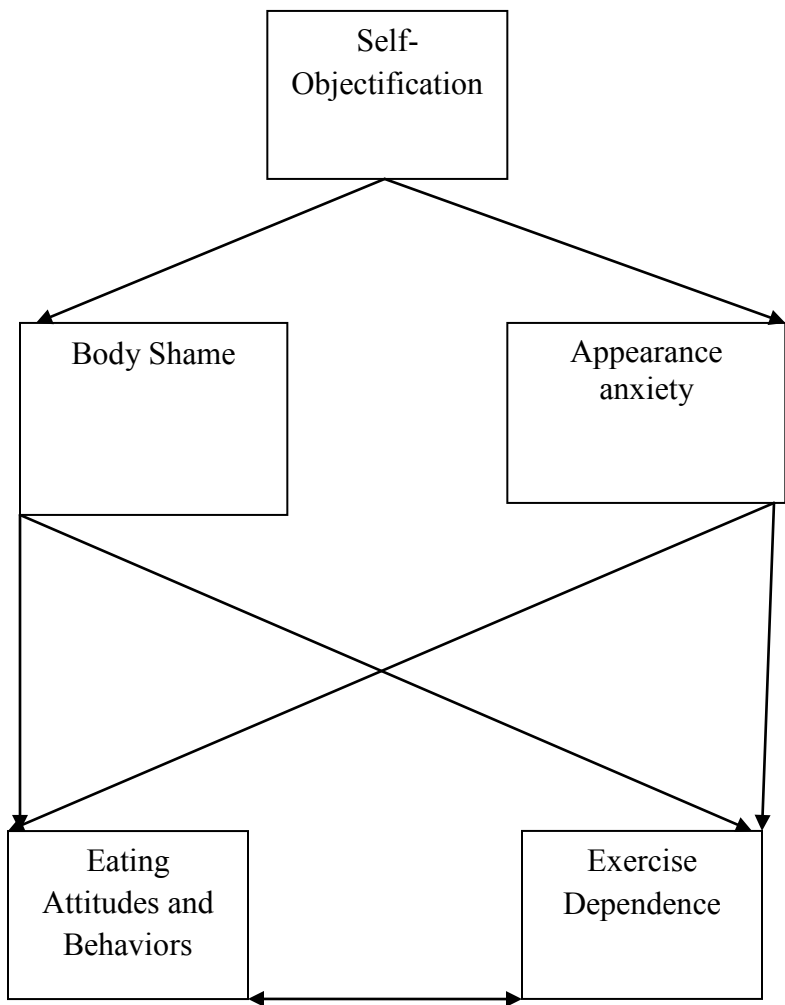


Figure 2. Extension of objectification theory model.

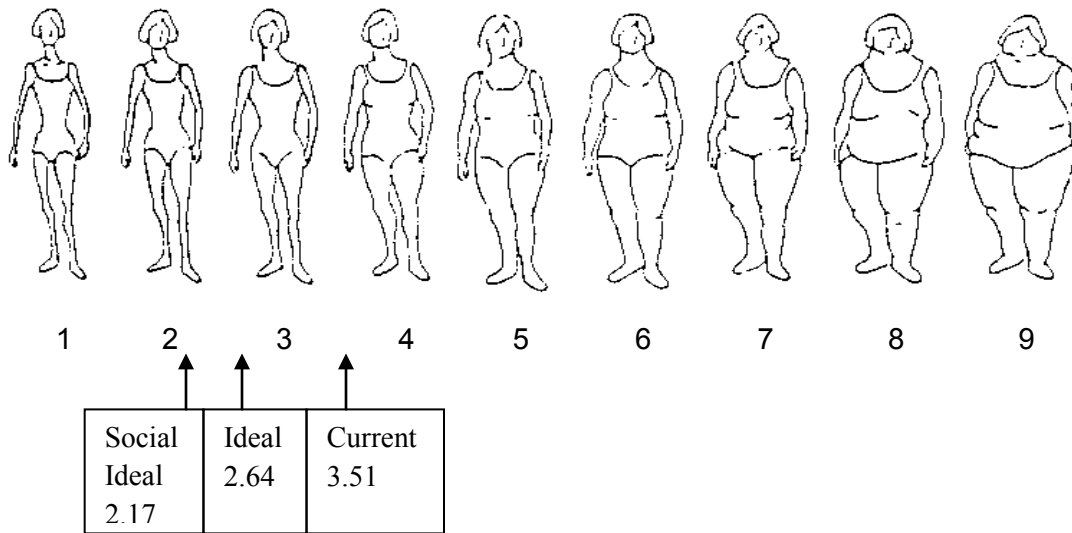


Figure 3. Figure Rating Scale.

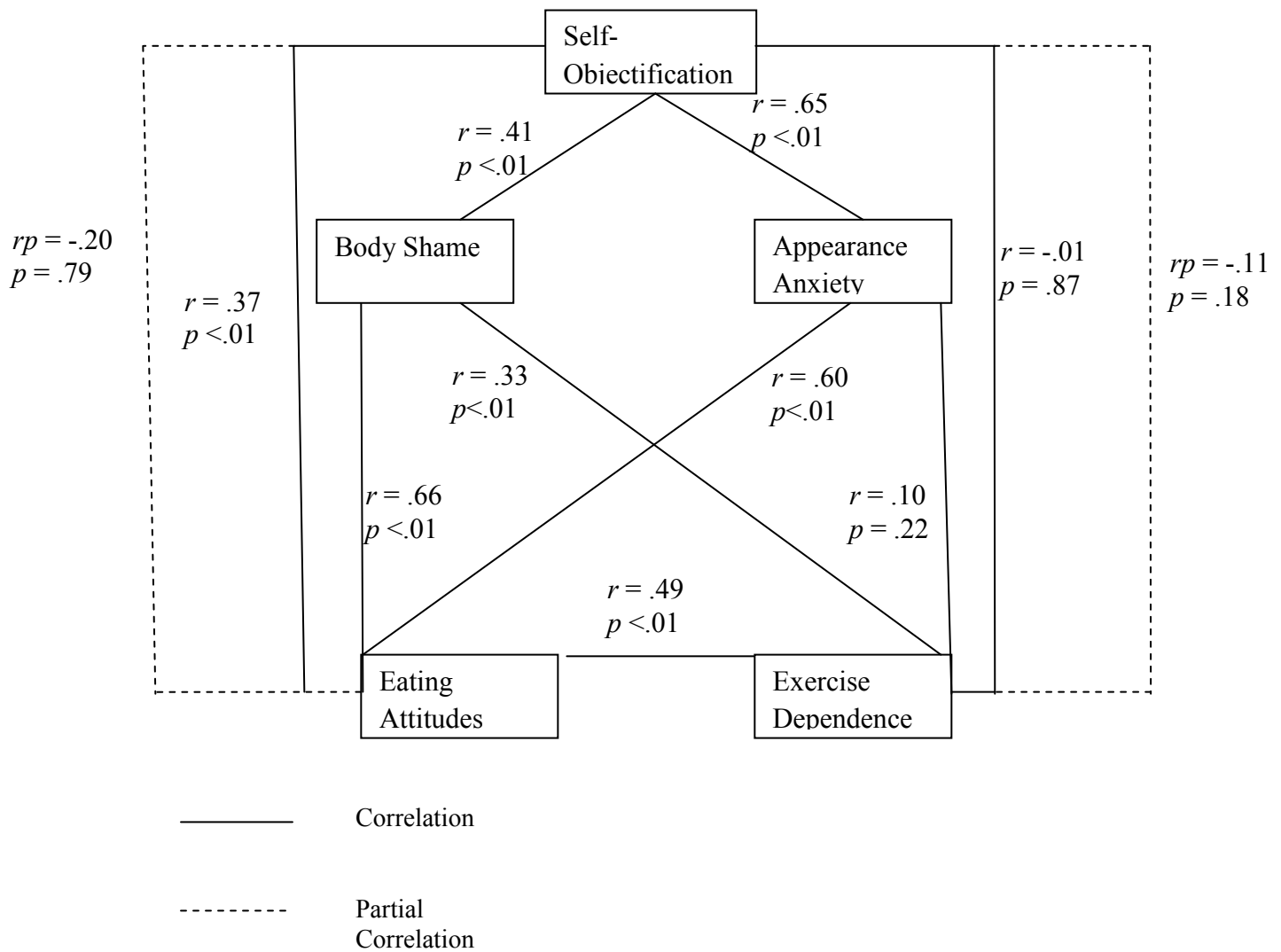


Figure 4. Correlations and partial correlations controlling for BMI, Body Shame, and Appearance Anxiety.

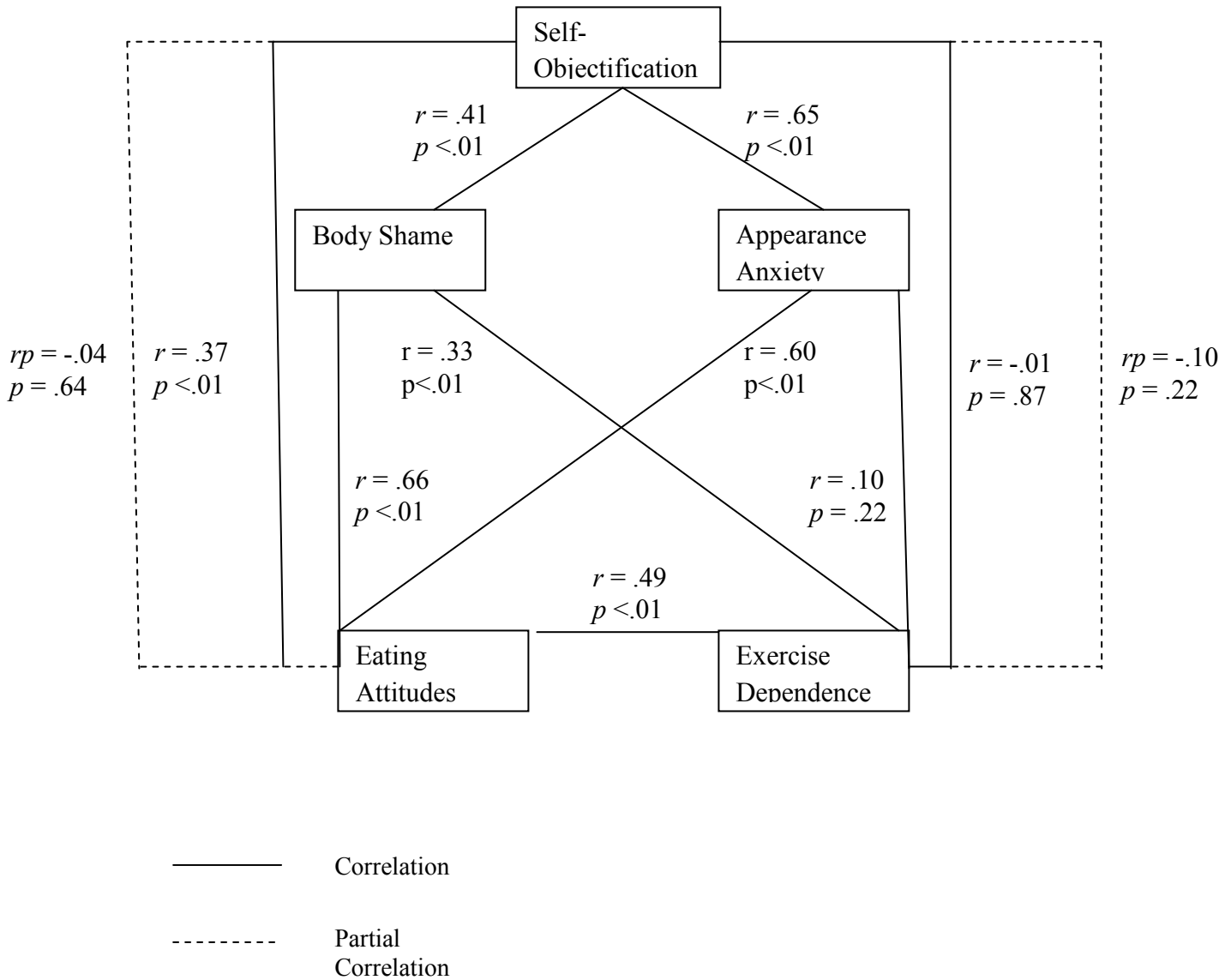


Figure 5. Correlations and partial correlations controlling for BMI and Appearance Anxiety.

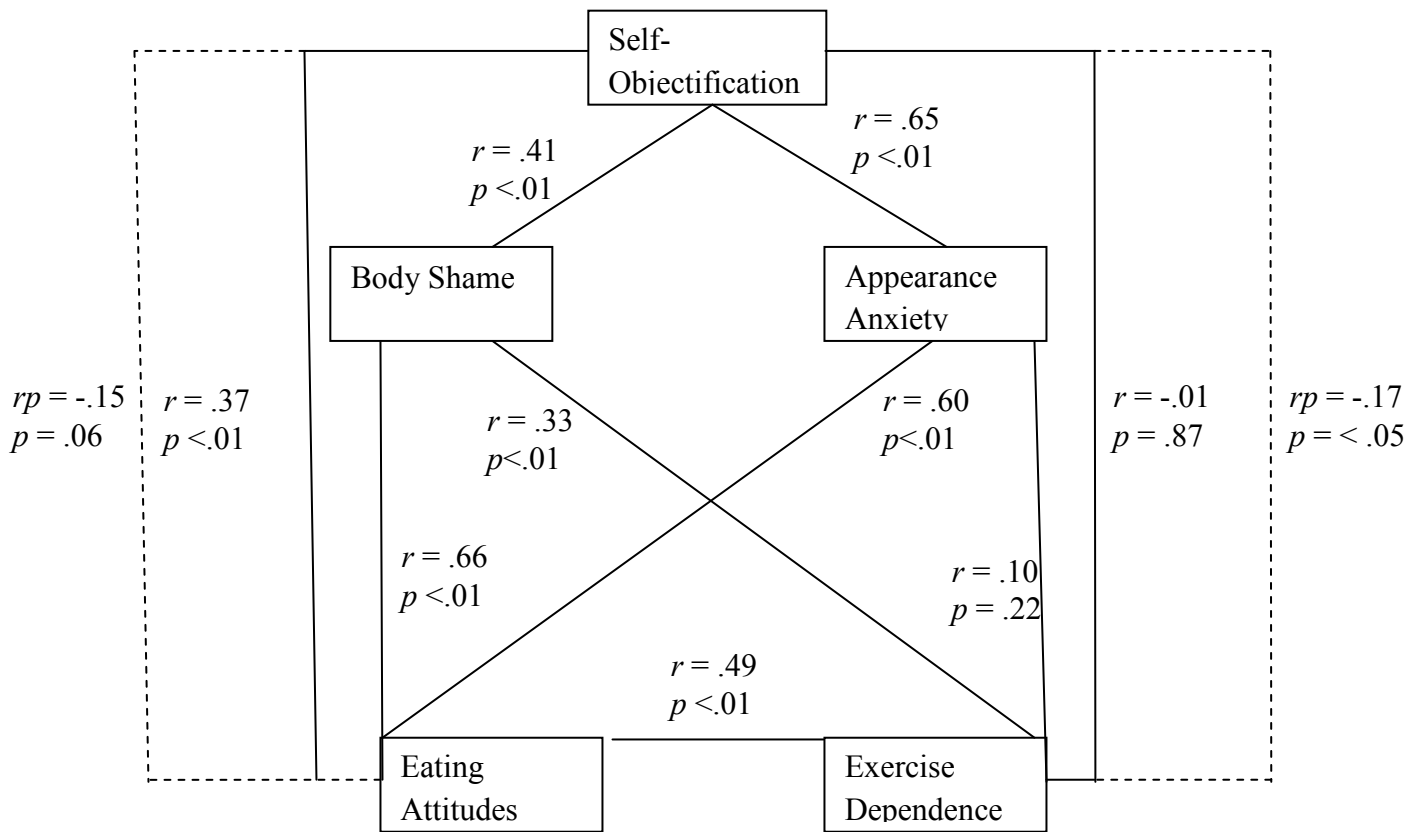


Figure 6. Correlations and partial correlations controlling for BMI and Body Shame.

Table 1

Participant Demographic Information

	Total Sample (<i>n</i> = 155)
Demographics	<i>M</i> (<i>SD</i>)
Age	20.85 (2.44)
Height	65.27 (3.04)
Weight	144.21 (31.81)
BMI	23.76 (4.56)
Ideal Weight	130.32 (18.71)
Ideal Body Figure	2.64 (0.64)
Current Body Figure	3.51 (1.03)
Societal Ideal Body Figure	2.17 (0.80)
Body Surveillance	4.45 (1.04)
Body Shame	3.32 (1.30)
Appearance Anxiety	1.68 (0.60)
Eating Attitudes Test	2.45 (0.69)
Exercise Dependence	2.47 (0.89)

Table 2

Correlations of Self-Objectification, Body Shame, Appearance Anxiety, Disordered Eating Attitudes, and Exercise Dependence

Variables	1	2	3	4	5
1. Self-objectification	-	-	-	-	-
2. Body Shame	.41**	-	-	-	-
3. Appearance Anxiety	.65**	.70**	-	-	-
4. Eating Attitudes	.37**	.66**	.60**	-	-
5. Exercise Dependence	-.01	.33**	.10	.49**	-
6. Body Mass Index	.18*	.37**	.33**	.15	.09

** $p < .01$, * $p < .05$

Table 3

Partial Correlations of Self-Objectification, Disordered Eating Attitudes, and Exercise Dependence controlling for Body Shame and Appearance Anxiety

Variables	Eating Attitudes Test	Exercise Dependence
Self-Objectification		
Controlling for Body Shame, Appearance Anxiety, and Body Mass Index	-.01	-.08
Controlling for Body Shame and Body Mass Index	.15	-.17*
Controlling for Appearance Anxiety and Body Mass Index	-.04	-.10

** $p < .01$, * $p < .05$

Table 4

Previous Research Findings

	Current Sample	Tylka & Hill, 2004	Greenleaf, 2005	Greenleaf & McGreer, 2006	Muehlenkamp & Saris- Baglama, 2002
	Self- Objectification	Self- Objectification	Self- Objectification	Self- Objectification	Self- Objectification
Body Shame	.41**	.62**	.58**	.46**	.51**
Appearance Anxiety	.65**	N/A	N/A	.65**	N/A
Eating Attitudes	.37**	.54**	.57**	.55**	.44**
Age groups	Ages 18-39	Ages 17-55	Ages 18-30	Mean Age: 20.52	Mean Age: 19.5

** $p < .01$

N/A: Constructs not measured in the study

APPENDIX
INFORMED CONSENT LETTER

University of North Texas Institutional Review Board

Informed Consent Form

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose, benefits and risks of the study and how it will be conducted.

Title of Study: Associations between exercise dependence, eating behaviors, and negative body image

Principal Investigator: Kelly Kessler, a graduate student in the University of North Texas (UNT) Department of Kinesiology, Health Promotion, and Recreation; Christy Greenleaf, Ph.D., Associate Professor, University of North Texas, Department of Kinesiology, Health Promotion, and Recreation.

Purpose of the Study: You are being asked to participate in a research study examining eating attitudes, body image, and exercise dependence in active females.

Study Procedures: You will be asked to fill out a series of questions in a survey packet that will take about 20 minutes of your time.

Foreseeable Risks: No foreseeable risks are involved in this study.

Benefits to the Subjects or Others: We expect the project to benefit you by gaining a better understanding of factors contributing to exercise dependence.

Procedures for Maintaining Confidentiality of Research Records: Your responses to the survey will be completely anonymous, and only the investigator will have access to the research data. The confidentiality of your individual information will be maintained in any publications or presentations regarding this study.

Questions about the Study: If you have any questions about the study, you may contact Kelly Kessler at telephone number 973-600-4726 or the faculty advisor, Dr. Christy Greenleaf, UNT Department of Kinesiology, Health Promotion, and Recreation, at telephone number 940-565-3415.

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants' Rights: By returning the completed survey, you are indicating that you have read or have had read to you all of the above and that you are voluntarily participating in this study.

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