

THE RELATIONSHIP OF YOGA, SELF-OBJECTIFICATION, DISORDERED  
EATING, AND DEPRESSED MOOD IN COLLEGE-AGED WOMEN

A DISSERTATION

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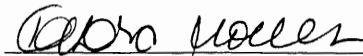
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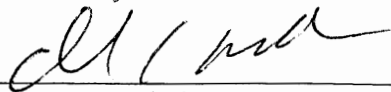
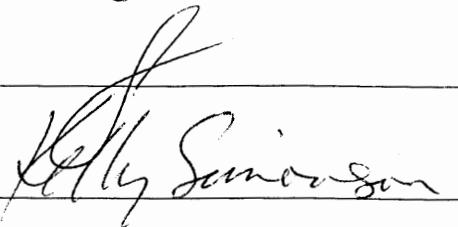
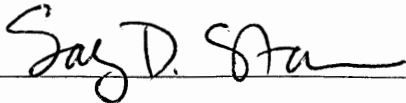
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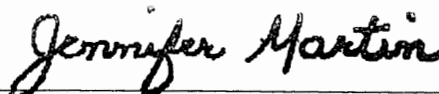
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Dean of the Graduate School

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## DEDICATION

To my partner Ken,  
for your unfailing love, support, and encouragement.

To my mother Catherine Gander,  
for encouraging me to sit up front and ask a lot of questions.

To my father Robert Woolley,  
for always reminding me, “You can do it L!”

To my sister, Aubrey Woolley Sunshine,  
for teaching me not to take myself too seriously.

To my extended family members, The Woolley’s and the Schmitz’s,  
for instilling in me the values of hard work, service, and faith.

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## ABSTRACT

LAUREN M. WOOLLEY

### THE RELATIONSHIP OF YOGA, SELF-OBJECTIFICATION, DISORDERED EATING, AND DEPRESSED MOOD IN COLLEGE-AGED WOMEN

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According to objectification theorists (Fredrickson & Roberts, 1997), sexual objectification of the female body contributes to mental health problems which disproportionately affect girls and women including eating disorders and depression. They postulated that living in a culture which sexually objectifies the female body socializes girls and women to view their bodies from a third-person perspective. Fredrickson and Roberts referred to this process as self-objectification and asserted it has negative mental health consequences (e.g, body shame, appearance anxiety) for girls and women. They posited participation in sports programs could buffer girls and women from the harmful effects of sexual objectification. Previous research (Daubenmier, 2005; Impett, Daubenmier, & Hirschman, 2006) indicated that yoga was an effective method for protecting women from engaging in self-objectification. This investigator tested whether yoga practice was associated with lower levels of self-objectification and its related consequences in college-aged women. The roles of habitual body monitoring, body shame, appearance anxiety, flow, and awareness of internal bodily states in the link between self-objectification and disordered eating and self-objectification and depressed mood in this population was also examined. Three hundred seventy-five college-aged

women completed measures of self-objectification and its proposed costs. The sample included women who practiced yoga (yoginis), physically active (PA) women (engaged in non-yoga physical activity three or more hours per week), and sedentary/low physically active (SLPA) women (engaged in non-yoga physical activity zero to two hours per week). The yoginis exhibited lower levels of self-objectification compared to women in the SLPA group and greater levels of flow and internal bodily awareness compared to women in the PA and SLPA groups. Participants in the SLPA group exhibited more depressive symptoms compared to participants in the PA group and the yoginis. For the entire sample, appearance anxiety fully mediated the relationship between self-objectification and disordered eating and depressive symptoms. These findings have implications for psychologists who treat college-aged women and university student wellness programs.



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## CHAPTER I

### INTRODUCTION

Prior to 1995, relatively few adolescent girls in Nadroga, Fiji suffered from an eating disorder. In fact, Fijian culture considered plump, full-figures, and hearty appetites desirable. By 1998, this trend had drastically changed. A significant number of Nadroga adolescent girls had developed body dissatisfaction and engaged in dieting and self-induced vomiting in efforts to lose weight (Becker, Burwell, Gilman, Herzog, & Hamburg, 2002). What might have contributed to this phenomenon? Becker et al. believe the introduction of Western television to the Nadroga community in 1995 played a significant role in this occurrence.

Becker et al. (2002) investigated the eating behavior of female adolescents in Nadroga a few weeks following the introduction of Western television in 1995 and again in 1998. In 1998, more than twice as many Nadroga female adolescents (29.2%) were engaging in self-induced vomiting and dieting in an effort to control their weight compared to Nadroga female adolescents three years prior (12.7%). The majority (74%) of respondents in Becker et al.'s 1998 study reported they were "too big or fat," and 69% reported they had dieted in an effort to lose weight (p. 511). Additionally, Nadroga adolescent girls living in households with a television set were at three times greater risk for developing an eating disorder compared to their peers without television sets. These

findings are worrisome given the longstanding Fijian cultural traditions embracing a large figure and robust appetite.

Becker et al. (2002) identified the strong role of Western media in the development of body dissatisfaction and eating disorders among adolescent girls. Western cultural standards of beauty embrace a thin, White ideal that very few women can achieve (Bartky, 1990; Wolf, 2002). Western media sends the message that engaging in time-consuming, often painful beauty rituals; purchasing the right clothes; and dieting will bring girls and women happiness and, for heterosexual girls and women, a desirable mate (American Psychological Association [APA] Task Force on the Sexualization of Girls, 2007; Bartky; Kilbourne, 2000; Wolf).

Western media frequently depicts the female body as an object to be gazed upon and utilized for the viewing pleasure of others (Ward & Harrison, 2005), and the sexual objectification of women in the media has been increasing over time (Allyn, 2006). Advertisements frequently feature scantily clad female bodies in sexually provocative poses (Ward, 2003). Oftentimes the person of the women is completely overlooked and parts of her body (e.g., breasts, legs) are used to sell a product (Dodd, Harcar, Foerch, & Anderson, 1989). Computer editing technology such as airbrushing, morphing, and film-stretching enable advertisers and television producers to create depictions of the female body that no real woman could obtain (Kilbourne, 2000). Given that most eight to 18 year olds spend 25% of their day taking in media (Roberts, Foehr, & Rideout, 2005), girls are constantly bombarded with sexually objectified female images and rigid, unattainable, standards of female beauty (APA Task Force on the Sexualization of Girls, 2007;



Kilbourne). Sexual objectification of girls is not just limited to the media; messages from parents, peers, and romantic partners also play a role in this process (Befort et al., 2001; Dohnt & Tiggemann, 2006; Graber, Archibald, & Brooks-Gunn, 1999; Sanchez & Kwang, 2007).

From an early age, girls begin to internalize media, parental, and peer messages regarding their how their bodies should look. Girls in kindergarten are aware that a slim body is desirable and dieting is a means to achieving this ideal (Lowes & Tiggemann, 2003). Body dissatisfaction (Lowes & Tiggemann) and appearance-related discussions (Dohnt & Tiggemann, 2006) begin appearing in girls as early as six years old. It is not uncommon for girls in the upper elementary school grades to be dieting (Neumark-Sztainer, 2005). Once girls enter puberty, they gain weight which makes their efforts to meet the thin ideal much more challenging (Dohnt & Tiggemann; Warren, 1983). During this period of development, negative body image (Levine, Smolak, & Hayden, 1994), maladaptive eating patterns (Story et al., 1991), and depression rapidly begin emerging in girls (Costello et al., 2002).

Ten to fifteen percent of girls and women in the United States suffer from eating disorders (Levine & Smolak, 2006). Maladaptive eating patterns (e.g., restricting food, overeating) in girls begin to emerge during late childhood and typically reach clinical significance during late adolescence and young adulthood (Piran, Levine, & Steiner-Adair, 1999). The mortality rate for individuals diagnosed with eating disorders is of great concern. Anorexia nervosa, one of the most common types of eating disorders, has the highest mortality rate of any mental illness (Torpy, 2006). Approximately 0.56% of

individuals with anorexia nervosa die each year, which is approximately 12 times greater than the death rate among females ages 15-24 in the general population (Sullivan, 1995). Additionally, individuals with anorexia nervosa (Harris & Barraclough, 1998) and bulimia nervosa (Crow, 2008) are at significantly greater risk for committing suicide compared to the general population. The mortality rate for individuals demonstrating clinical levels of disordered eating, but not meeting diagnostic criteria for anorexia nervosa or bulimia nervosa (eating disorders not otherwise specified), is two times greater than that found in the general population (Crow).

Many girls and women struggling with eating disorders also battle depression (Graber et al., 1999; Santos, Richards, & Bleckley, 2007). Ten to 20% of girls and women suffer from depression (American Psychiatric Association, 2000), and women are twice as likely to suffer from depression compared to men (American Psychological Association, 1996). Prior to puberty, girls and boys exhibit similar levels of depression (Twenge & Nolen-Hoeksema, 2002). After the onset of puberty, however, the prevalence of depression in girls steeply climbs (Jose & Brown, 2008) and reaches its peak during women's reproductive years (Kessler et al., 1994).

Objectification Theory (Fredrickson & Roberts, 1997) explains the complex link which connects sexual objectification of the female body in Western culture with the prevalence of eating disorders and depression among girls and women. According to this theory, repeated exposure to the sexualization of girls and women in the media socializes girls to view their bodies as objects for the viewing pleasure of others (Fredrickson & Roberts; McKinley & Hyde, 1996). Fredrickson and Roberts refer to this process as self-

objectification. When girls and women self-objectify they ask themselves, “how does my body look?” versus “what can my body do?” (Fredrickson & Roberts). Self-objectification can be a state-like condition. For example, individuals tend to self-objectify more in situations that call attention to their bodies, such as trying on a form-fitting bathing suit (Fredrickson, Noll, Roberts, Quinn, & Twenge, 1998; Hebl, King, & Lin, 2004). However, for some people, particularly girls and women, self-objectification becomes a trait-like, chronic state (Fredrickson & Roberts; McKinley & Hyde; Miner-Rubino, Twenge, & Fredrickson, 2002).

Girls and women who develop trait self-objectification engage in habitual body monitoring which contributes to a host of negative psychological outcomes, including body shame, anxiety, decreased peak motivational states, and decreased awareness of internal bodily states (Fredrickson & Roberts, 1997; McKinley & Hyde, 1996). These correlates appear to mediate the relationship between self-objectification and disordered eating and depression (Grabe, Hyde, & Lindberg, 2007; Myers & Crowther, 2008; Noll & Fredrickson, 1998; Slater & Tiggemann, 2002; Szymanski & Henning, 2007; Tiggemann & Kuring, 2004; Tiggemann & Lynch, 2001; Tiggemann & Slater, 2001). Fredrickson and Roberts hypothesized that self-objectification is also related to sexual dysfunction in women. However, researchers have devoted minimal attention to examining this postulate of Objectification Theory.

Given the proliferation of sexual objectification of the female body in Western culture, we need to identify ways to buffer girls and women from its harmful effects. Reducing the amount of sexual objectification of girls and women in the media is an

obvious yet incredibly daunting solution. Despite diligent efforts by groups such as the APA Task Force on the Sexualization of Girls (2007), the sexualization of girls and women, and now even boys and men, persists. Thus, efforts to protect girls and women from engaging in self-objectification are desperately needed.

Fredrickson and Roberts (1997) suggested media literacy program and sports programs could be effective ways of preventing self-objectification in girls. Media literacy involves the ability to critically evaluate, understand, and communicate messages through print, audio, video, and the internet mediums (Levine, Piran, & Stoddard, 1999). However, media literacy programs have shown limited success in reducing the correlates of self-objectification (e.g., body dissatisfaction, eating disorders; Chambers & Alexander, 2007; Irving & Berel, 2001). Additionally, many sports popular among girls such as dancing, cheerleading, aerobics, and swimming may actually increase their risk for body dissatisfaction, dieting, depression, and eating disorders (Davison, Earnest, & Birch, 2002; Parsons & Betz, 2001; Smolak, Murnen, & Ruble, 2000).

Some research has demonstrated that yoga reduces self-objectification in women (Daubenmier, 2005; Impett et al., 2006). Yoga emphasizes awareness of bodily movement and internal sensations (Daubenmier). Unlike traditional fitness clubs, yoga studios often do not utilize mirrors, forcing practitioners to focus on how their bodies feel versus how they look. Yoga appears to be helpful in facilitating the development of a competency-based, rather than appearance-based, self-concept (Daubenmier).

Research investigating the relationship between yoga and self-objectification has been conducted primarily with women in their mid-thirties and older (see Daubenmier,

2005; Impett et al., 2006). Consequently, the relationship between yoga and self-objectification for college-aged women, the age group most at risk for the development of eating disorders (American Psychiatric Association, 2000), is unknown. Additionally, the aforementioned research only investigated three of the proposed correlates of self-objectification — awareness of internal bodily states (Daubenmier; Impett et al.), habitual body monitoring (Impett et al.) and eating disorders (Daubenmier).

The purpose of this study was to investigate the relationship between yoga, self-objectification, and its proposed consequences among college-aged women and to investigate the roles of habitual body monitoring, body shame, appearance anxiety, flow, and awareness of internal bodily states in the link between self-objectification and disordered eating and self-objectification and depressed mood in this population. While the investigator recognizes a wide age-range of women attend college, the focus of this study was traditional college-aged women, ages 18-25. Therefore, this investigator utilized the term “college-aged women” throughout the manuscript to refer to women in this age group. This study addressed Objectification Theory’s postulate that women who participate in physical activity are less likely to engage in self-objectification. This investigator took Fredrickson and Robert’s (1997) hypothesis a step further and postulated that some types of physical activity, such as yoga, decreases self-objectification in women more than others. It was predicted that yoga practitioners would exhibit significantly lower levels of self-objectification and its consequences compared to participants who are physically active but do not practice yoga and sedentary participants.

## CHAPTER II

### LITERATURE REVIEW

#### Sexual Objectification of Girls and Women

##### *Definition*

According to the APA Task Force on the Sexualization of Girls (2007), sexual objectification occurs when a person, “is, made into a thing for others’ sexual use, rather than seen as a person with the capacity for independent action and decision making” (p. 2). Sexual objectification occurs within three different levels — cultural, interpersonal, and self (APA Task Force on the Sexualization of Girls).

##### *Cultural Level*

The media plays a significant role in propagating a culture that sexually objectifies girls and women (Aubrey, 2006a). Before proceeding with a discussion of sexual objectification in the media, clarification between sexual objectification and the *thin ideal* image is warranted. These two concepts share substantial similarities; however, one can define viewing sexually objectifying media “as being a broader class of exposure, as it incorporates media that focus and highlight women’s bodies, which do not necessarily, but often do, conform to the thin ideal” (Aubrey, 2006b, p. 161). In other words, sexually objectifying media typically features thin bodies; however, it may also include other body types.

The media frequently offers female bodies as “objects for others’ viewing pleasure, objects used to beautify and adorn” (Ward & Harrison, 2005, p. 3). It narrowly defines how girls and women should look and act (Ward & Harrison). It markets beauty as a thin, White ideal that the majority of women cannot achieve (Bartky, 1990; Gilbert, Keery, & Thompson, 2005; Kilbourne, 2000). Between 1950-1970, the figures of women in popular media, such as *Playboy* magazine and the Miss America pageant, increasingly diminished while the number of dieting articles significantly increased (Garner, Garfinkel, Schwartz, & Thompson, 1980). By the end of the 20<sup>th</sup> century, the female figure marketed by the media was 13-19% below average weight for age and height (Gilbert et al., 2005). Ironically, as the size of women featured in the media has decreased the average size of women in the U.S. has increased (Thompson & Heinberg, 1999). A review of primetime television shows by the National Organization of Women (2002) revealed that 82% of the women featured were “model thin” and a small minority of the women featured appeared to wear a size 10 or larger (p. 6). Consequently, the gap between real women’s bodies and the thin feminine ideal portrayed in media has widened, leaving many women dissatisfied with their bodies (Fredrickson & Roberts, 1997; Rodin, Silberstein, & Striegel-Moore, 1984).

The media sends definitive messages to girls and women that their bodies are sexual objects. Television shows and magazines sexually objectify girls and women more often than men (Ward, 2003). For example, in magazine advertisements, “female models are more likely to be scantily clad, nude, dressed in a sexually explicit manner, and posed in sexually exploitative and submissive postures” (Ward, p. 358). Moreover, print

advertisements frequently feature female body parts rather than faces to sell products (Dodd et al., 1989). Feminine heroines featured on prime time television frequently use their sex appeal rather than intellect to save the day (National Organization of Women, 2002). The majority of sexual harassment on television shows involves using debasing terms to describe women or the sexual objectification of their bodies (Grauerholz & King, 1997). Sexual objectification of girls and women is not limited to television and print media. Popular video games frequently portray female characters in an overly-sexualized manner with large breasts and tiny waists and hips (Huntemann, 2000).

Research investigating the sexualization of girls and women on the internet is quite limited. However, it appears that the sexual objectification of girls and women has found its way into cyberspace (Lambias, 2003). In addition to the large amount of pornography which fills the internet, one can also find sexual objectification of the female body in advertisements, celebrity websites, and personal webpages (e.g., myspace.com, facebook.com; APA Task Force on the Sexualization of Girls, 2007; Lambias). Additionally, the appearance of the *cyber-model*, an often scantily dressed video-game looking character with disproportional features such as extremely large breasts has dramatically increased the sexualization of girls and women on the internet (Lambias). For example, web banner advertisements from online dating services (e.g., singles.com) often feature young women in sexually provocative poses. In sum, the media tell girls and women that they should use their bodies to attract and please men.

The sexual objectification of adolescent girls and women in the media is increasing over time. Allyn (2006) reviewed 1,440 advertisements from magazines



targeted to adolescent girls and women during 1982 and 2002 and rated each advertisement according to (a) body parts shown, (b) dress/clothing, (c) position of the female in relation to the product or another person, and (d) slogan copy. She found sexually objectifying advertising in both the adolescent girls' and women's magazines significantly increased over the 20-year period. Advertisements in magazines targeted to women contained significantly more objectifying ads than those directed towards adolescent girls. However, the frequency of the positioning of the female body in a "sexual, subordinate, and provocative image" in adolescent girl magazines reached levels similar to those found in women's magazines in 2002 (Allyn, p. 78).

The level of sexually objectifying dress/clothing increased the most over the 20-year span. The use of body parts (e.g., cleavage, behind) shown also significantly increased. The number of sexually objectifying slogans used did not rise significantly suggesting that advertisers utilized the visual component of the advertisement to create the sexual part of the advertisement. Allyn (2006) posited that the results of her study suggested that in 20 years, adolescent girls' magazines will contain the same levels of sexually objectifying advertising as those currently directed towards adult women.

The aforementioned trends are particularly disturbing given the hours children spend consuming media. According to Roberts et al. (2005), today's 8-to 18-year-olds constitute a media generation, "generation M," and they fill more than 25% of their day utilizing media. In 2004, the Kasier Family Foundation surveyed 2,032 third through twelfth graders regarding the prevalence of media in their lives; 694 of these participants also kept a seven day diary regarding their media usage (Roberts et al.). The average

member of generation M lives in a home with multiple television sets, CD players, radios, video games, and at least one computer (Roberts et al.). Moreover, many of these children had the aforementioned sources of media in their bedrooms (Roberts et al.). Members of generation M consume a variety media.

The typical U.S. 8- to 18-year-old spends 45% of all leisure media time with screen media (35% with TV and 13% with videos, DVDs, and movies), 22% of media time with audio media (radio, tapes, CDs, and MP3s), 11% with print media (newspapers, magazines, and books), 11% with computers, and 9% with video games. (Roberts et al., p. 58)

The aforementioned data illustrate that the media has ample opportunities to inundate girls with very specific and unrealistic messages about how they should look, think, and behave (Kilbourne, 2000; Levine et al., 1994; Wolf, 2002). These messages can have negative repercussions for girls and women.

### *Consequences of Sexually Objectifying Media*

Sexual objectification of the female body in the media has significant costs for girls and women. Exposure to ultra-thin female media images plays a role in body dissatisfaction (Dohnt & Tiggemann, 2006; Stice, Spangler, & Agras, 2001; Ward & Harrison, 2005), appearance anxiety (Monro & Huon, 2005), negative affect (Stice, Spangler, & Agras) and weight concerns (Dohnt & Tiggemann; Ward & Harrison, 2005) among female audiences. It contributes to low self-esteem and appearance dissatisfaction in girls as young as six years old (Dohnt & Tiggemann).

Girls and women are negatively impacted by both print and screen media.

Heightened fashion magazine reading contributes to greater approval of the thin ideal (Borezowski, Robinson, & Killen, 2000), increased dieting (Field et al., 2001), and eating disorder symptomatology (Harrison, 2000). Television viewing also puts girls at risk for disordered eating attitudes and behaviors (Harrison & Cantor, 1997). Watching visual media such as soap operas, movies, and music videos contributes to body dissatisfaction in adolescent girls (Tiggemann & Pickering, 1996). Dohnt and Tiggemann (2006) found appearance dissatisfaction increased among elementary school girls who watched shows with an appearance emphasis such as *Friends*. Girls who internalize the thin-ideal and exhibit deficits in social support are particularly susceptible to the negative effects of media exposure (Stice et al., 2001).

Sexual objectification of girls and women in the media has negative implications for their physical health. The media's glorification of the thin ideal encourages girls and women to diet, engage in maladaptive eating habits, and exercise excessively (Ward & Harrison, 2005). Our society has created a culture of dieting. It is considered normative for girls and women to diet, and this behavior increases the risk for the onset of eating disorders and weight gain (Neumark-Sztainer et al., 2007; Rodin et al., 1984; Stice et al., 2001). Dieting begins early for girls. For example, it is not uncommon for girls in the later elementary school grades to be on a diet (Neumark-Sztainer, 2005).

Television viewing by adolescent girls impacts their sexual attitudes and behavior. It contributes to increased support of traditional sex roles (Ward, 2006), greater acceptance of sexual harassment (Ward & Harrison, 2005), and overestimates of the

occurrence of sex and casual sexual relationships in the general population (Ward & Harrison). It plays a role in the acceptance of stereotypes portraying women as sex objects (Ward & Harrison). Higher sexual content in adolescents' television viewing contributes to greater levels of sexual experience (Ward).

In sum, the media frequently portrays the female body as a sexualized object for the viewing pleasure of others. It tells girls and women they should shape and adorn their bodies to charm and satisfy men. The media often depicts the female body as an ultra-thin, White figure that is impossible for the majority of girls and women to achieve. These depictions of girls and women in the media are increasing over time which is alarming given the hours girls spend consuming screen, print, audio, and internet media. The growing sexual objectification of the female body in the media has significant costs for girls' and women's mental, physical, and sexual health such as depression, eating disorders, and risky sexual attitudes and behavior.

### *Interpersonal Influences*

Media is not the only entity responsible for the sexual objectification of girls and women; parents, peers, and romantic partners play a role in this process. Girls receive messages in their interpersonal relationships regarding the importance of meeting the thin, sexualized ideal of female beauty, and these messages have negative repercussions for them (APA Task Force on the Sexualization of Girls, 2007). Parental sexualization of girls can occur in direct ways such as entering one's young daughter in a beauty pageant, which emphasizes sexy behaviors such as wearing heavy make up and revealing outfits, or allowing one's teenage daughter to have breast enhancement surgery (APA Task Force

on the Sexualization of Girls). However, the majority of parental sexualization of girls is less direct but equally damaging. Girls who receive parental messages regarding the value of a slim figure and dieting are more likely to exhibit body dissatisfaction (Keel, Heatherton, Harnden, & Horning, 1997; Levine, Smolak, Moodey, Shuman, & Hessen, 1994; Lowes & Tiggemann, 2003; Schwartz, Phares, Tantleff- Dunn, & Thompson, 1999) and dieting behaviors (Keel et al.; Levine et al.; Neumark-Sztainer et al., 2007) than girls who do not receive these messages. Weight-teasing by family members is a significant predictor of being overweight, binge eating, and extreme weight control (e.g., use of laxatives to lose weight) among girls (Neumark-Sztainer et al.).

Mothers play a significant role in how girls experience their bodies. They model attitudes and behaviors regarding weight, dieting, and appearance, which often transfer to their daughters (Neumark-Sztainer et al., 2007; Pike & Rodin, 1991). Girls who witness their mothers engaging in efforts to achieve a slim figure tend to exhibit more body dissatisfaction (Levine et al., 1994), binge eating and extreme weight control behaviors (Neumark-Sztainer et al.) compared to girls who do not witness these behaviors. They are also apt to diet more often when their mothers describe them as overweight and make weight-related comments (Keel et al., 1997).

Maternal modeling of maladaptive attitudes and behaviors regarding appearance, weight, and food consumption appear to increase girls' risk for eating disorders. Pike and Rodin (1991) observed that the mothers of girls with eating disorders tended to have an extensive history of dieting and more disordered patterns of eating compared to mothers of girls without eating disorders. Additionally, the mothers of daughters with eating

disorders thought their daughters should lose weight and rated their daughters as less attractive than their daughters rated themselves. Woodside et al. (2002) found that mothers of daughters with the restrictive type of Anorexia Nervosa exhibited more concerns about their weight and shape compared to mothers of daughters without eating disorders. Consequently, it appears maternal modeling plays a significant role in the development of maladaptive attitudes and behaviors regarding appearance, weight, dieting, and eating behaviors in girls.

Messages from fathers also play a role in the weight satisfaction and dieting behaviors of adolescent girls. Fathers tend to promote sex-role stereotypes in children to a greater degree than mothers (Radin, 1986; Siegal, 1987) and subscribe to a thin female ideal of beauty (Dixon, Gill, & Adair, 2003). Compared to men, women tend to receive more appearance-related messages from fathers during childhood and adolescence (Schwartz, Phares, Tantleff-Dunn, & Thompson, 1999). Keel et al. (1997) observed a significant relationship between paternal comments regarding daughters' weight and daughters' weight dissatisfaction. Dixon et al. found that fathers who held strong beliefs about the importance of weight control and physical attractiveness of girls and women were significantly more likely to have daughters who engaged in self-induced vomiting as a means of controlling their weight. Research suggests that paternal modeling of weight satisfaction like maternal modeling might transfer to daughters. Keel et al. observed a significant positive relationship between fathers' weight dissatisfaction and daughters' weight dissatisfaction. Neumark-Sztainer et al. (2007) found that paternal

weight concerns and behaviors predicted being overweight, binge eating, and extreme weight control behaviors in girls.

The peer influence on the sexualization of girls begins quite early. Girls quickly learn that a sexy physical appearance is valued and that sexy is equated with being thin (APA Task Force on the Sexualization of Girls, 2007). Beginning at age six, appearance-related discussions with peers, modeling/imitating others, and perceptions of peers' desire for thinness contribute to decreased appearance satisfaction (Dohnt & Tiggemann, 2006). As girls approach adolescence their social relationships become a significant part of their identities, and a girl's status in and acceptance by her peer group becomes one of the most important aspects of her life (Bukowski, Hoza, & Boivin, 1993). Girls talk frequently with each other about appearance (Clark & Tiggemann, 2006; Jones & Crawford, 2006). Appearance-focused media which glamorizes sexualized and unrealistically thin girls and women heavily influences these conversations and shapes peer norms regarding attractiveness (Clark & Tiggemann). The frequency of appearance-related conversations and the importance of one's looks increase as girls age (Clark & Tiggemann; Jones & Crawford).

Girls often compare themselves with their female peers in order to determine if they meet social standards of beauty (Jones & Crawford). They are likely to exhibit a preoccupation with their weight and dieting if their female peers also demonstrate this concern (Shroff & Thompson, 2006). Moreover, girls who believe their friends value thinness are more likely to exhibit body dissatisfaction and disordered eating (Shroff & Thompson). Given appearance norms among preadolescent and adolescent girls focus on

a thin figure, girls who are overweight particularly struggle with body dissatisfaction (Jones & Crawford; Shroff & Thompson).

As girls age they encounter a powerful force utilized by girls to police other girls who do not meet sociocultural standards of attractiveness — relational aggression (Brown, 2003; Galen & Underwood, 1997). Some conflict exists among researchers regarding whether indirect (e.g., spreading rumors), relational (e.g., “I won’t be your friend unless you . . .”), and social aggression (e.g., excluding someone from a group) are distinct or very similar concepts (see Coyne, Archer, & Eslea, 2006). For the purpose of this discussion the investigator will use the term relational aggression to encompass the aforementioned types of aggression.

This investigator subscribes to Conye et al.’s (2006) definition of relational aggression: “a very manipulative and sneaky way of hurting others, particularly through the use of social groups and relationships” (p. 303). Relational aggression often involves behaviors such as spreading rumors to damage someone’s reputation, withdrawing friendship in an effort to hurt one’s peer, and writing mean notes (Coyne et al.; Crick & Grotpeter, 1995). Girls who do not meet sociocultural standards of attractiveness, especially overweight girls, commonly experience peer teasing and rejection (Jones & Crawford, 2006). Cash (1995) surveyed 111 female college students about their experiences of teasing during childhood and adolescence. Seventy-two percent of participants reported they had been teased about their physical appearance, especially about their weight and facial features. The teasing typically lasted for two to six years and peers were most often cited as perpetrators of the teasing. Cash reported that the severity,



frequency, longevity and emotional impact of the teasing were significantly related to body dissatisfaction.

Through witnessing or experiencing relational aggression girls often learn that peer acceptance equates with being thin (Jones & Crawford, 2006). Once girls reach adolescence, peer pressure to meet sociocultural standards of attractiveness and dating significantly increase (Brown, 2003). Girls also engage in relational aggression tactics, such as spreading negative rumors about a peer's sexuality, in order to control female peers they perceive as a threat (Brown). Peer norms of attractiveness combined with relational aggression can result in sexual objectification. Brown clearly captures this phenomenon in her book *Girlfighting: Betrayal and Rejection Among Girls*:

As we've seen, at the heart of this [heterosexual dating] script are traditional views of male-female romantic relationships in which boys desire and girls are desired, boys are subjects and girls are objects, boys look and girls are looked at, boys are central and girls are marginal. Within this script sexually active girls are sluts and worrying about one's reputation and appearance is a full-time job . . . girls blame "other" girls — girls who are not like them. (p. 137-138)

In sum, preadolescent and adolescent girls greatly value peer acceptance and are heavily influenced by sociocultural standards of beauty. They come to equate popularity with thinness. Consequently, girls will engage in extreme weight control behaviors in order to feel accepted and to avoid being targets of relational aggression. Parental and peer pressure to meet the thin ideal, combined with the normative changes that occur in adolescence such as menstruation, dating, and increased academic pressure, put girls at

risk for disordered eating (Levine et al., 1994; Phares, Steinberg, & Thompson, 2004), depression (Phares et al.), and decreased self-esteem (Phares et al.).

Pressure to meet unrealistic sociocultural standards of attractiveness do not necessarily fade for young women once they leave high school and enter college. Young women who choose to join sororities face pressure from fellow sorority sisters “to be thin, attractive, and social” (Basow, Foran, & Bookwala, 2007, p. 399). Compared to nonsorority women, women in sororities and women planning to pledge sororities exhibited a greater desire to be thin (Allison & Park, 2004; Schulken, Pinciario, & Sawyer, 1997), more body dissatisfaction (Basow et al.; Schulken et al.), and greater body shame and surveillance (Basow et al.). They also reported experiencing more social pressure than their nonsorority peers (Basow et al.). Once women pledge sororities their desire for thinness and bulimic tendencies increased (Allison & Park; Basow et al.). Basow et al. found that women living in sorority houses were at particular risk for developing bulimic behaviors.

One should note that the aforementioned studies of sorority culture included predominately White samples. The investigator only found one study specifically investigating body image among sorority women of color. Selzer (2006) conducted a qualitative study investigating the experience of body image among members of traditionally African American sororities. Selzer’s investigation revealed that weight, media, family health history and criticism, shopping for clothes, and age all played a role in body satisfaction among her participants. She noted that the majority of her participants expressed dissatisfaction with their weight. The final theme noted by Selzer

was “inter-cultural understanding of Black women’s bodies.” She stated, “some African American sorority women acknowledge that the African American community accepts women with larger body shapes and sizes. They also appear to acknowledge that African American women still struggle with issues of weight” (p. 52).

Parents and peers are not the only people who impact girls’ and women’s beliefs and attitudes regarding their bodies. Young women in Western culture experience immense pressure to find a heterosexual romantic partner and commonly define their self-worth in terms of their romantic partnership status (Befort et al., 2001; Sanchez & Kwang, 2007). Given men place a strong emphasis on physical attractiveness and tend to prefer slim women, young women experience body dissatisfaction and heightened risk for disordered eating when they base their self-esteem on being in a romantic relationship (Sanchez & Kwang). One might posit that having a heterosexual romantic partner would bring young women a sense of security and buffer them from experiencing body dissatisfaction; however, young women in heterosexual romantic relationships often continue to experience body dissatisfaction (Sanchez & Kwang). For example, Sheets and Ajmere (2005) found that more than half of their female undergraduate participants were trying to lose weight regardless of whether their romantic partner had suggested they do so. Heterosexual romantic relationships can prove particularly damaging to women’s body image (Befort et al.; Weller & Dziegielewski, 2004) and relationship satisfaction (Sheets & Ajmere) when male partners make negative comments about their physical appearance.

In sum, girls and women receive strong messages in their interpersonal relationships regarding the importance of meeting the sexy, thin ideal of female beauty exalted in Western culture. Girls and women who do not meet this unrealistic standard of beauty face negative repercussions such as parental teasing, relational aggression, and for heterosexual girls and women, difficulty finding a romantic partner. These negative outcomes in turn can result in body dissatisfaction, body shame, dieting, and disordered eating.

### *Self Sexual Objectification*

Perhaps the most damaging aspect of sexually objectifying media is its power to socialize girls and women to view themselves as objects for the viewing pleasure of others (Aubrey, 2006b; Bartky, 1990; Harrison & Fredrickson, 2003). Fredrickson and Roberts (1997) termed this process as self-objectification, and it is also commonly referred to as objectified body consciousness (McKinley & Hyde, 1996). They posited exposure to sexually objectifying media is an antecedent to self-objectification, and the emerging literature appears to support this contention.

Aubrey (2006b) found exposure to sexually objectifying television among college-aged women contributed to increased self-objectification up to a year later, particularly among those low in self-esteem. In a similar study, Aubrey (2006a) observed that exposure to both sexually objectifying television and magazines predicted an increase in self-objectification a year later in college-aged men and women. Aubrey (2006a) conjectured, "If exposure to sexual objectification in television *continuously*

activates self-objectification, then the overall picture of a college student's life is chronic, trait-like self-objectification" (p. 381, italics included in original source).

Kittler (2003) also found a relationship between exposure to sexually objectifying print media and self-objectification. She exposed women to a variety of magazine covers containing high and low levels of sexually objectifying images and text, and neutral wildlife covers. Kittler found that women exposed to the high levels of sexually objectifying text, sexually objectifying images, or both exhibited higher levels of self-objectification compared to women exposed to neutral images or covers containing low levels of objectifying text and images. Similarly, Morry, and Staska (2001) found that exposure to body ideals portrayed in beauty magazines for women and fitness magazines for men lead to internalization of sociocultural accepted definitions of attractiveness. Endorsement of these definitions of attractiveness related to increased levels of self-objectification, disordered eating behaviors, and body shame.

Harrison and Fredrickson (2003) examined the relationships between women's sports media and self-objectification among ethnic minority and White adolescent girls. They found that exposure to lean-athlete depictions (e.g., gymnasts, divers) increased self-objectification in White adolescent girls, whereas non-lean-athlete depictions (e.g., basketball, tennis) had a decreasing effect on self-objectification. In contrast, non-lean-athlete depictions increased self-objectification in adolescents of color whereas lean-athlete depictions had no effect. Harrison and Fredrickson posited this difference was related to White girls being more likely than girls of color to internalize the thin-ideal image purported by the media and girls of color tending to view bulkier female athletes

as a closer match to their ideal body image. The implications of this research suggest viewing non-lean female athletes may buffer White girls from self-objectification; however, a similar protective factor in the sports media is needed for girls of color (Harrison & Fredrickson). In sum, current research indicates that exposure to sexual objectifying print and visual media is an antecedent to self-objectification in girls, women, and men.

Exposure to sexual objectification of the female body in the media is not the only precursor to self-objectification in girls and women. Being gazed at in a sexual manner and sexual harassment by both men and women socializes women to view themselves as objects (Hill & Fischer, 2008). Hill and Fischer found that the frequency of sexualized gaze and sexual harassment was significantly and positively related to self objectification in women ages 18-79 years old (mean age = 31.1).

In conclusion, the sexualization of girls and women occurs on cultural, interpersonal, and intrapersonal levels. The Western media embraces an ultra-thin, White standard of feminine beauty and frequently poses women in a sexually provocative manner. The media sends girls and women the message that the purpose of their bodies is to entice and please men. The majority of girls spend a quarter of their day exposed to media; hence, they are inundated with sexualized messages regarding how they should look and act. Given most girls and women cannot achieve the media's unrealistic standard of beauty, they end up feeling dissatisfied with their bodies. Current research clearly demonstrates that the consumption of sexually objectifying media has negative implications for girls' and women's mental, physical, and sexual health. These damaging

outcomes are compounded by the sexual objectification of girls on the parental, peer, and heterosexual romantic partner levels. Negative messages from parents and peers regarding girls' physical appearance and sexuality and sexualized gazing/harassment by others can reinforce media's sexual objectification of female body and compound girls' risk for mental and physical health problems such as body dissatisfaction and eating disorder symptomatology. The most damaging aspect of these types of media and interpersonal messages is that they socialize girls and women to self-objectify. Consequently, they come to view their own bodies as an object for others' viewing pleasure, and this process results in a host of negative psychological outcomes for women including depression and eating disorders.

### Self-Objectification

#### *Objectification Theory*

Fredrickson and Roberts (1997) posited Objectification Theory to illuminate the mental health risks incurred by girls and women as a result of sexual objectification. Their theory borrows from the ideas of feminist theorists de Beauvoir (1953), Bartky (1990), Berger (1972), and Young (1990). These feminist scholars asserted that Western culture treats the female body as an object to be gazed upon and used for the pleasure of men. Fredrickson and Roberts defined sexual objectification as "the experience of being treated *as a body* (or collection of body parts) valued predominantly for its use to (or consumption by) others" (p. 174). They acknowledged that women's experiences of sexual objectification vary due to differences in cultural backgrounds. Nonetheless, they suggested sexual objectification of the female body is a shared experience of all girls and

women in the United States culture. Researchers have demonstrated this phenomenon is a common occurrence (Hill & Fischer, 2008; Swim, Hyers, Cohen, & Ferguson, 2001). Women's bodies are continuously being gazed at, judged, and potentially objectified by men (Fredrickson & Roberts; Kaschak, 1992). Sexual objectification of women occurs in everyday social encounters and in the media (APA Task Force on the Sexualization of Girls, 2007; Fredrickson & Roberts).

Over time, girls and women begin to internalize the stares, scrutiny, and surveillance of a culture which views them as sexual objects designed for male viewing pleasure (Fredrickson & Roberts, 1997; Hill & Fischer, 2008). They begin to monitor their own bodies from the perspective of an outside observer (Bartky, 1990; Huebner & Fredrickson, 1999). Instead of asking themselves, "What am I capable of?" or "How do I feel?," girls and women who self-objectify ask, "How do I look?" (Fredrickson & Harrison, p. 81). Fredrickson and Roberts referred to this process as self-objectification. Researchers also commonly refer to this process as objectified body consciousness (N. M. McKinley, personal communication, September 27, 2007). Women and girls who self-objectify engage in a type of self-surveillance characterized by habitual body monitoring. This activity gives girls and women a sense of control and empowerment (Bartky; McKinley & Hyde, 1996). By watching their bodies closely, girls can look for areas that do not meet cultural expectations and attempt to make adjustments (Bartky; Kaschak, 1992).

Meeting cultural standards of beauty brings rewards for girls and women including economic and political power (Bartky, 1990; Fredrickson & Roberts, 1997;



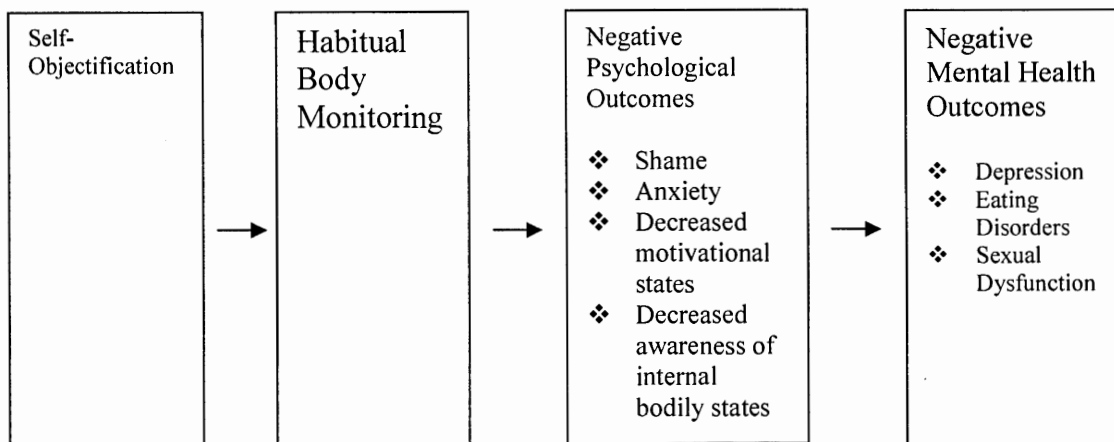
Kaschak, 1992). For example, thin White women earn higher wages than overweight White women, and there is some preliminary support for this phenomenon among Latina women (Cawley, 2004). Additionally, overweight women experience more perceived discrimination in the workplace compared to average-weight women (Roehling, Roehling, & Pichler, 2007). Thin women have a greater chance of finding a male romantic partner, which can be a source of power and economic stability in our patriarchal culture (Bartky). Not surprisingly, girls' and women's sense of self-worth frequently becomes closely tied to their perceived physical attractiveness (Fredrickson & Roberts; Kaschak).

Sexual objectification contributes to women's mental health problems both directly and indirectly. The visual media plays a strong role in perpetuating damaging sexual attitudes towards women. Music videos, pornography, men's magazines, as well as other forms of media, often portray women as sexual objects for the use and consumption by men (APA Task Force on the Sexualization of Girls, 2007; Kilbourne, 2000). These outlets frequently glamorize sexual violence towards women and perpetuate rape myths such as the claim that women mean yes when they say no. Exposure to sexual objectification of women and sexual violence contributes to greater acceptance of rape myths and sexually aggressive behavior in men (Koss & Dinero, 1988; Malamuth & Check, 1981).

Women immediately experience the damaging effects of sexual objectification when they are sexually victimized (Fredrickson & Roberts, 1997). They are significantly more likely to be survivors of sexual violence than men. Women comprise 78% of sexual

assault and rape survivors, with 54% of these rapes occurring prior to age 18 (Tjaden & Thoennes, 2006). Common psychological sequelae of sexual victimization include depression, attempted or completed suicide, alienation, post-traumatic stress disorder, and disordered patterns of eating (Centers for Disease Control and Prevention, 2007).

The second way sexual objectification harms women is less direct; however, the effects are no less damaging. The sexual objectification of girls and women in Western culture socializes them to view their bodies as objects (i.e., self-objectification) (Fredrickson & Roberts). Therefore, they monitor their bodies to ensure they meet thin ideal of feminine beauty. However, the majority of women in our culture cannot meet unrealistic cultural standards of female beauty, and the process of self-surveillance leads women to notice the ways their bodies fail to conform (Fredrick, Forbes, Grigorian, & Jarcho, 2007; Fredrickson & Roberts, 1997). They make internal, stable, and global attributions for their perceived shortcomings instead of recognizing socio-political sources of their dissatisfaction and distress (Fredrickson & Roberts). As seen in Figure 1, this process contributes to negative psychological and experiential consequences including shame, anxiety, decreased peak motivational states, and diminished awareness of internal bodily states (Fredrickson & Roberts). These negative effects can multiply to the point that they result in depression, eating disorders, and disorders of sexual arousal, desire, and pain, which are disorders disproportionately experienced by women (Fredrickson & Roberts; Laumann, Paik, & Rosen, 1999; Yoder, 2003).



*Figure 1.* Fredrickson's and Robert's Objectification Theory

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### *Trait Self-Objectification*

Self-objectification is both a stable and contextually induced state. It appears that individual, gender, and situational differences play roles in the extent to which individuals self-objectify (Fredrickson & Roberts, 1997). Trait objectification refers to enduring individual differences in viewing one's body from an outsider's perspective (Miner-Rubino et al., 2002). Women and girls tend to exhibit greater levels of trait self-objectification compared to men and boys (Fredrickson et al., 1998; Hebl et al., 2004; McKinley, 1998, 2006b).

Age, ethnicity, and sexual orientation may buffer girls and women from the effects of self-objectification (Fredrickson & Roberts, 1997). Self-objectification appears to decrease with age in women (McKinley, 2006a; Szymanski & Henning, 2007). A

significant decrease in self-objectification occurs once women transition from college-aged to young adulthood. They may feel less pressure to meet cultural expectations of feminine beauty once they enter committed partnerships (McKinley). Another noteworthy decrease in self-objectification occurs when women transition from middle-age to old age (Tiggemann & Lynch, 2001). U.S. culture considers women less attractive and sexually desirable as they age; hence, older women tend to experience less sexual objectification in the media compared to younger women (Bessenoff & Del Priore, 2007). Older women also appear to develop more resources for shielding themselves from the negative effects of sexual objectification as they age (Fredrickson & Roberts; Szymanski & Henning).

The research addressing ethnicity as protective factor against self-objectification is limited. Currently only two research teams have specifically investigated ethnic differences in self-objectification. Hebl et al. (2004) found that African American women were less susceptible to the effects of self-objectification compared to White and Latina women. Harrison and Fredrickson (2003) observed that exposing Black and White adolescent girls to female athletes that represent their ideal body types increased their risk for engaging in self-objectification. Specifically, White girls tended to engage in self-objectification when exposed to media depicting lean female athletes while African American girls tended to engage in self-objectification when shown media illustrating non-lean female athletes. These two studies yielded equivocal findings regarding race as a protective factor against self-objectification. These findings might be a result of the

objectification theory model not completely accounting for the experiences of women of color.

Buchanan, Fischer, Tokar, and Yoder (2008) posited that Objectification Theory does not fully capture African American women's experiences of self-objectification, because it overlooks skin tone concerns. They found that skin tone (with lighter skin being more desirable) plays a major role in body surveillance and body shame among African American women and that skin tone monitoring was significantly related to skin tone dissatisfaction. Their findings suggest that further research is needed to determine the role skin tone plays in self-objectification among women of color.

Although the research literature lacks studies investigating ethnicity and self-objectification, several researchers have examined the role ethnicity plays in body satisfaction among women of color. Some researchers posited that ethnicity may protect women of color from body dissatisfaction, a correlate of self-objectification. Roberts, Feingold, Cash, and Johnson (2006) observed that African American women exhibit greater overall body satisfaction compared to White women. This difference is greatest for women in their early 20s but slowly disappears by around age 40 (Roberts et al.). By the time women reach their 40s, African American and White differences in global body satisfaction disappear (Roberts et al.). Roberts et al. suggested this change may be due to White women becoming more satisfied with their appearance as they age versus African American women's body dissatisfaction increasing. This speculation also complements self-objectification research, which indicates that older White women engage in less self-objectification than younger White women (Tiggemann & Lynch, 2001).

Similar to Roberts et al. (2006), Poran (2002) found that college-aged African American women exhibited significantly higher body esteem compared to their White and Latina peers. Nichter (2000) observed that African American female high school students also exhibited greater body satisfaction compared to White female high school students (Nichter, 2000). African American women may be somewhat protected from body dissatisfaction compared to White women, because they recognize that African American men prefer a “thicker” body type (Nichter, 2000; Patel & Gray, 2001). White women tend to overestimate the level of thinness preferred by White men (Fallon & Rozin, 1985).

Research investigating the body image of Asian and Latina women is quite limited, and studies investigating body image in women of color frequently contain small samples of these women or eliminate them altogether (see González, 2004). Consequently, the possible protective factors within these ethnic subcultures are largely unknown (Warren, Gleaves, Cepeda-Benito, Fernandez, & Rodriguez-Ruiz, 2005). Much of the research that does exist suggests Asian and Latina women exhibit levels of body dissatisfaction similar to White women (see Grabe & Hyde, 2006). However, Mintz and Kashubeck (1999) observed that Asian American women exhibit fewer dieting and bingeing behaviors compared to White women. Warren et al. (2005) found that Mexican-American undergraduate women internalized sociocultural ideals of attractiveness less than their White peers, and in turn, exhibited lower levels of body dissatisfaction.

Current research is starting to negate the contention that belonging to an ethnic minority group buffers women of color from body dissatisfaction and eating disorders

(Algeria et al., 2007; Poran, 2006; Shaw, Ramirez, Trost, Randall, & Stice, 2004).

Women of color experience pressure to meet multiple, conflicting cultural definitions of beauty (Poran; Rubio, Rubio, & Wilson, 2005). The dominant culture tells women of color that they should emulate the White thin ideal. Skin tone and hair texture play a significant role in the body image of women of color (González, 2004). For example, African American women portrayed in the media often have straight hair, light skin, and Anglo features (Kilbourne, 1987, Nichter, 2000). Additionally, thinness is encouraged among African American celebrities. For example Dittrich (2008), reported that Janet Jackson, Toni Braxton, and Oprah Winfrey lost a significant amount of weight in the public eye. Body dissatisfaction and the drive for thinness is prevalent among young women of color. Although African American women tend to endorse a larger ideal body size compared to White women, they desire to be thinner (Patel & Gray, 2001; Poran).

Research specifically addressing rates of disordered eating among women of color is scarce. The largest study investigating disordered eating attitudes and behaviors among African American women was conducted 15 years ago. In June 1993, *Essence*, a large African American publication, produced a survey investigating the prevalence of eating disorders among its readers. Over 2,000 African American women completed this survey and Pumariega, Gustavson, Gustavson, Motes, and Ayers (1994) analyzed a subset of this data ( $N=600$ ).

Pumariega et al. (1994) found that this sample exhibited disordered eating attitudes and behaviors similar to a sample of White women who completed a *Glamour* magazine 1983-1984 eating disorders survey. Pumariega et al. (1994) found that 53.5%

of their sample was at risk for eating disorders, with a quarter of respondents suffering from “a serious eating disorder” (p.11). Compared to the *Glamour* sample the *Essence* sample had a higher incidence of laxative use to control weight and a lower incidence of self-induced vomiting. One should note that data was collected from the *Glamour* sample over 20 years ago, and the prevalence of eating disorders among White women has increased over time (Hoek & Van Hoeken, 2003). Consequently, it is quite possible that the rates of disordered eating attitudes and behaviors reported for the *Essence* sample were lower than those of White women at the time the *Essence* survey was conducted. Nonetheless, the *Essence* study demonstrated that disordered eating attitudes and behaviors and body satisfaction were prevalent among African American women 15 years ago.

The majority of Pumariega et al.’s sample exhibited body dissatisfaction, with 71.5% exhibiting a preoccupation with being thinner and almost one-half of the participants desiring a physique considered underweight according to their height. A large percentage of their sample (71.5%) also demonstrated a preoccupation with food. A strong Black identity emerged as a protective factor against a desire to be thinner and preoccupation with food. It should be noted that Pumariega et al.’s sample self-selected to participant in the study; hence, respondents may have had a stronger interest in eating disorders compared to the general population. Nonetheless, their findings indicate that eating disorders do exist within the African American community. Updated research is needed to determine if the rates disordered eating attitudes and behaviors among African American women have increased at a rate similar to that found among White women.



College-aged Latina and Asian women exhibit body dissatisfaction levels similar to their White peers (Fredrick et al., 2007; Mintz & Kashubeck, 1999; Poran, 2002). The percentage of eating disorders involving binge eating in the Latina population appears to mirror that found in the White population. Asian American women tend to express more dissatisfaction with their eyes and face than White women, which eludes to the devaluation of non-Western features in the U.S. (Mintz & Kashubeck). The number of women of color seeking plastic surgery to obtain more Western-looking features is increasing (American Society of Plastic Surgeons [ASPS], 2005; Kaw, 1994). For example, Asian American women who undergo cosmetic surgery commonly request eye lid surgery to create folds above the eyes (ASPS; Kaw).

In addition to experiencing pressure to meet the dominant culture's definitions of beauty, women of color experience pressure to meet their ethnic group's cultural standards of attractiveness. For example, African American men tend to prefer larger body sizes for women compared to White men (Patel & Gray, 2001) and curves and shapely buttocks comprise an African American standard a female beauty (Poran, 2006). The Latino culture tends to endorse a standard of beauty based on a fuller and more shapely body type compared to the White thin ideal (Harris & Koehler, 1992). A woman in Poran's (2002) study captured the multiple definitions of beauty that African American women frequently encounter.

I think that the cultural definition if you are not a woman of color is blone [*sic*] hair, or streaked, blue eyes and *skinny*. If you are a women of color, light skin, (Dark only if smooth & even toned.) thicke [*sic*], meaning breast and buttocks are

full, but waist is slim, with a fair amount of hair and nice legs. But overall women if you are tall and skinny (model like), you are the direct example of cultural definition of beauty. (p. 75)

Current research addressing body satisfaction in African American women often fails to address that weight satisfaction in women of color does not necessarily equate with body satisfaction (Poran, 2006). Measurement instruments traditionally used to measure body satisfaction are typically based on research with White participants and may lack the items needed to capture the types of body dissatisfaction found in women of color (Poran).

In sum, the aforementioned studies illustrate the complexity of determining if ethnicity buffers women of color from body dissatisfaction. The research cited provides some evidence that ethnicity may shield young African American women from overall body dissatisfaction. However, they still experience pressure to be thinner and to meet the dominant and African American cultural definitions of beauty. Asian and Latina women appear to experience levels of body dissatisfaction similar to White women. However, more research investigating the role race plays in self-objectification and body satisfaction among women of color, particularly Asian and Latina women, is needed. The relationships between ethnicity, self-objectification, and body satisfaction are complicated and variables such as age, class, acculturation, and immigration status also need to be examined in future research (Alegría et al., 2007; González, 2004; National Eating Disorders Association, 2005; Rubio, Rubio, & Wilson, 2005).

Sexual orientation is another variable proposed to protect women from self-objectification. Bartky (1990) suggested rejection of heterosexual standards of feminine beauty may buffer lesbian women from self-objectification. However, this assumption is questionable. Three research teams specifically examined self-objectification among lesbian women. Hill and Fischer (2008) examined the relationship between cultural sexual objectification (e.g., sexualized gaze/harassment) and self-objectification in heterosexual and lesbian women. Although lesbians reported lower levels of body surveillance compared to heterosexual women, sexual orientation did not appear to buffer them from engaging in self-objectification. Lesbians and heterosexual women exhibited similar levels of self-objectification, suggesting that lesbians internalize sexual objectification to the same degree as heterosexual women. Other studies (Haines et al., 2008; Kozee & Tylka, 2006) examining the relationship between sexual orientation and self-objectification suggest the objectification theory model is more complex for lesbians compared to heterosexual women.

Kozee and Tylka (2006) tested the objectification theory model as it related to disordered eating in lesbian and heterosexual women. They observed that lesbian and heterosexual women exhibited similar levels of self-objectification. Kozee and Tylka found support for the basic postulates of objectification theory among lesbians. Specifically, in lesbians, higher levels of body surveillance predicted higher levels of body shame which in turn predicted eating disorder symptomatology. Kozee and Tylka also observed a direct link between levels of body surveillance and disordered eating among lesbian women which was not found among heterosexual women. They noted this

finding was “interesting” and suggested further research was needed to determine if this was indeed a pathway in a model of objectification theory as it applied to lesbians. Kozee and Tylka concluded that “objectification theory variables could be different and more complex” for lesbian compared to heterosexual women (p. 355).

Haines et al. (2008) sought to replicate the work of Kozee and Tylka (2006) while also examining the roles feminist self-identification and internalized heterosexism play in self-objectification among lesbians. However, Haines et al. utilized a lesbian only sample. Like Kozee and Tylka they found support for the basic tenants of the objectification theory model among lesbian women and a direct path between levels of body surveillance and disordered eating symptomatology. Specifically, they observed that internalized heterosexism predicts levels of body surveillance which predicts levels of body shame which in turn predicts negative eating attitudes and depression. Haines et al. offered two explanations for the direct link between levels of body surveillance and disordered eating symptomatology found among lesbian women in their sample. They suggested these lesbians were aware of the social pressures for women to be thin, recognized the cultural rewards for a slim appearance, and altered their eating patterns to remain trim. However, their lesbian identity may have buffered them from feeling ashamed about their bodies. Haines et al. also speculated that some lesbians might have experienced body shame but did not want to report it.

Haines et al. (2008) conjectured that a strong lesbian identity may protect lesbians from the pressure and negative psychological outcomes that accompany adhering to heterosexual norms of feminine beauty. Feminist self-identification was not significantly

related to self-objectification and clinical outcomes among lesbians. Haines et al. suggested that identifying as lesbian is a stronger rejection of societal norms and gender roles than identifying as feminist. Thus, self identifying as feminist may not provide the same type of buffer from self-objectification among lesbians as it does among heterosexual women. In sum, the three aforementioned studies suggest that lesbian women do engage in self-objectification and experience negative mental health outcomes as a result of this behavior. However, the link between cultural sexual objectification, self-objectification and its correlates for lesbian women follows a more complex path than it does for heterosexual women.

Research suggests that sexual orientation may buffer lesbian women from negative body image. Wagenbach (2004) observed that lesbian women tend to exhibit lower investment in maintaining their appearance, and less concern with dieting and thinness compared to heterosexual women. Beren, Hayden, Wilfley, and Striegel-Moore (1997) found that sexual intimacy with another women enhanced body acceptance among their sample of college-aged lesbian women. Morrison, Morrison, and Sager (2004) conducted a meta-analysis of studies investigating body image in lesbian women and found that lesbian women appear to exhibit “slightly more” body satisfaction compared to heterosexual women (p. 136).

Although the lesbian subculture appears to provide lesbian women some protection from body dissatisfaction, lesbian women face multiple sources of pressure regarding their physical appearance. Like heterosexual girls and women, lesbian girls and women are raised in a culture which adheres to rigid heterosexual standards of feminine

beauty (Kelly, 2007). Given that many lesbian women typically do not come out before their late teens, they have spent many years receiving very specific messages from the dominant culture regarding how they should look (Kelly). Consequently, lesbian women recognize that it is “socially adaptive” to meet mainstream standards of beauty (Kozee & Tylka, 2006, p. 350). They wrestle with many of the same body image issues common to heterosexual women including a desire to be thinner, body shame, and body monitoring (Kelly; Kozee & Tylka; Beren et al., 1997). Unlike heterosexual women, lesbian women often do not have a safe space to share their body image concerns with other women (Kelly). They fear other lesbian women might misconstrue their body image worries in a sexual manner (Kelly). Moreover, lesbian women who appear too feminine often receive criticism from the lesbian community (Beren et al.; Kelly), while those who are too butch or androgynous receive disapproval from the dominant culture (Kelly; Rothblum, 2004). In sum, sexual orientation may offer lesbian women some protection from body dissatisfaction; however, these women tend to face many of the body image issues common to heterosexual women.

### *State Self-Objectification*

State self-objectification occurs when certain situations increase individuals’ attention to their bodies (Miner-Rubino et al., 2002). For example, Hebl et al. (2004) asked women and men from diverse ethnic backgrounds to complete measures of self-objectification and math problems while wearing either a swimsuit (a one piece swimsuit for women and a Speedo swimsuit for men) or a sweater. They found participants in the swimsuit condition experienced higher levels of state self-objectification compared to

those in the sweater condition regardless of gender or ethnicity. Additionally, Calogero (2004) found that merely the anticipation of meeting with a male peer increased self-objectification in college-aged women.

Girls and women who participated in judged sports, sports in which leanness was encouraged (e.g., ballet, gymnastics, figure skating), frequently found themselves in settings in which others looked at and evaluated their bodies. Performing in these settings put girls and women at risk for self-objectification. For example, Tiggemann and Slater (2001) found that ballet dancers exhibited higher levels of self-objectification than non-dancers.

To the author's knowledge, no other studies have directly examined the Objectification Theory model among women who participated in judged sports, besides ballet. However, Parsons and Betz (2001) investigated the relationship between two correlates of self-objectification, habitual body monitoring and body shame, and history of high school sports participation in first-year college women. They found that women who participated in sports which focused on appearance (e.g., gymnastics) had significantly higher levels of body shame compared to women who participated in less-appearance focused sports (e.g., softball). It is important to note that the sports Parsons and Betz labeled *appearance-focused* (i.e., a high amount of emphasis is placed on the female's appearance and body) are also judged sports (e.g., cheerleading, dance team, gymnastics, synchronized swimming).

Several researchers have observed relationships between participation in judged sports and appearance concerns and eating disorders in female athletes. Davison et al.

(2002) found that young girls who participated in sports such as dance, gymnastics, cheerleading, baton twirling, swimming, aerobics, and figure skating exhibited significantly greater weight concerns compared to girls in refereed sports like volleyball and soccer, and girls who did not participate in sports. Similarly, collegiate female athletes who participated in judged sports, including cheerleading, diving, and gymnastics, reported higher concern with body size, greater unhappiness with body size, and a greater drive for thinness than their peers in non-judged sports (Zucker, Womble, Williamson, & Perrin, 1999). A meta-analysis by Smolak et al. (2000) investigating eating problems in female athletes revealed women participating in dance/performance sports, such as ballet and cheerleading, showed significantly more eating problems compared to female non-athletes. Although the aforementioned studies did not specifically address self-objectification, they suggested that female athletes who participate in judged sports are at risk for viewing their bodies as objects and exhibiting a chronic preoccupation with their appearance.

One should note that the types of dance referenced in the aforementioned studies refer to appearance-focused and judged forms of dance. It appears that non-judged, informal types of dance which focus on connecting with one's body (e.g., Middle Eastern dance, dance/movement therapy) may be helpful in reducing self-objectification and its correlates (e.g., disordered eating; Austin, 1995; Krantz, 1999). Practicing informal dance in groups of women may prove beneficial in reducing the body self-consciousness that arises for women when performing in front of men (Austin).



*Differentiating Self-Objectification from Body Dissatisfaction and Habitual Body Monitoring*

Self-objectification refers to the process of viewing one's body from an outsider's perspective (Fredrickson & Roberts, 1997). More specifically, it involves internalizing a picture of oneself as an object for other's viewing pleasure (Fredrickson & Roberts). Individuals who engage in self-objectification do not necessarily judge their bodies negatively or experience dissatisfaction with their appearance (Calogero, Davis, & Thompson, 2005; Fredrick et al., 2007; Noll & Fredrickson, 1998). Conversely, body dissatisfaction refers to the discontent that arises when individuals experience a discrepancy between their real and ideal body images (Silberstein, Striegel-Moore, & Rodin, 1987). Given the unrealistic parameters for feminine beauty which exist in our culture, it is quite common for women who self-objectify to also experience body dissatisfaction (Strelan, Mehaffey, & Tiggemann, 2003). However, these two phenomena are not mutually inclusive.

The focus of habitual body monitoring is a concern regarding how one appears to others. Unlike self-objectification, it does not involve an "internalized definition" of oneself as an object (Aubrey, 2006a). Habitual body monitoring typically involves one exchanging comfort for appearance needs (e.g., women wearing high-heeled shoes in order to make their legs appear longer; Aubrey). Self-objectification, on the other hand, involves exchanging a self-concept based on body competence (e.g., what the body can do) for one based on appearance (e.g., how the body looks; Aubrey). Consequently, the outcome of habitual body monitoring (i.e., discomfort for the sake of appearance) is less

problematic than the outcomes of the self-objectification such as eating disorders and depression (Aubrey).

### *Negative Psychological Outcomes of Self-Objectification*

*Shame.* The authors of objectification theory posited that self-objectification contributes to increased experiences of body shame among women (Fredrickson & Roberts, 1997). This process begins quite early. Peer and media influences impact girls' desire for thinness as early as seven years old and dissatisfaction with their bodies by age eight (Dohnt & Tiggemann, 2006). Meeting cultural standards of female thinness becomes particularly challenging during puberty, because girls' body fat increases (Dohnt & Tiggemann). Girls must reach a critical body and fat mass in order to begin puberty (Warren, 1983). Given that children are weighing more at younger ages and girls are entering puberty sooner, it is not uncommon for girls to gain up to 24 pounds of body fat during this time (Warren). Consequently, girls who engage in frequent self-surveillance begin to notice the ways their bodies no longer meet the thin ideal, and hence, experience shame (Grabe et al., 2007; Lindberg, Hyde, & McKinley, 2006). Significant relationships between self-surveillance and body shame have been observed in girls as young as 11 years old (Grabe et al.; Lindberg et al.).

The relationship between self-objectification and body shame only strengthens once girls enter womanhood (Lindberg et al., 2006; McKinley & Hyde, 1996). As a group, women in their 20's and 30's tend to exhibit the highest levels of self-objectification compared to women aged 40 and older (Tiggemann & Lynch, 2001). They experience consequences beyond teasing and sexual harassment by peers (Lindberg et

al.). Women who fail to meet cultural standards of feminine beauty often experience job discrimination and cruel treatment by others (Bartky, 1990). Heterosexual women also learn that their level of attractiveness impacts their ability to attract a romantic partner (Bartky).

It appears that self-surveillance mediates the relationship between self-objectification and body shame in women (Szymanski & Henning, 2007; Tiggemann & Kuring, 2004; Tiggemann & Slater, 2001). Aging and biological milestones unique to women including menarche, childbirth, and menopause cause weight gain (Rodin et al., 1984; Warren, 1983). Consequently, women's self-surveillance efforts often highlight their failure to meet the unrealistic standards of beauty despite their attempts to do so. Typically, women attribute this failure to internal attributes rather than socio-political factors, and this process results in body shame (Fredrickson et al., 1998; Lindberg et al., 2006; McKinley & Hyde, 1996; Miner-Rubino et al., 2002; Noll & Fredrickson, 1998; Tiggemann & Kuring). Even women who engage in self-objectification and demonstrate satisfaction with their weight may engage in restricted eating in order to avoid body shame (Noll & Fredrickson).

Research investigating the relationship between self-objectification and body shame in adolescent girls is limited and unclear. Slater and Tiggemann (2002) found a direct relationship between self-objectification and body shame in adolescent girls. However, they did not hypothesize why this link was found among adolescent girls but not men or women. One possible explanation for this discrepancy may lie in their instrumentation. They utilized the scales from the Objectified Body Consciousness

(OBC) scale (McKinley & Hyde, 1996) to measure self-monitoring and body shame. The OBC was developed using a sample of young and middle age women, not adolescents. Consequently, the validity and reliability of the OBC may have been compromised by using it with a population that had not been included in the norming sample.

Lindberg et al. (2006) recently published the OBC-Youth scale, which has demonstrated reliability and validity for use with pre-adolescents and adolescents. Grabe et al. (2007) used this instrument, along with measures of rumination and depression, to investigate the relationships between self-surveillance, body shame, rumination, and depression. They found that body shame and rumination mediated the relationship between self-surveillance and depression in adolescent girls.

The relationship between self-objectification and body shame has also been demonstrated in boys and men (Grabe et al., 2007; Hebl et al., 2004; Lindberg et al., 2006; McKinley, 1998, 2006b; Tiggemann & Kuring, 2004). Grabe et al. found that body shame, but not rumination, mediated the relationship between self-surveillance and depression in adolescent boys. These researchers suggested that boys have more opportunities to receive accolades outside of their appearance compared to girls. These opportunities might buffer them from engaging in repetitive thoughts about their bodies' perceived shortcomings, which may account for the insignificant relationship between self-surveillance and rumination in boys (Grabe et al.). Tiggemann and Kuring found that similar to women, self-surveillance appears to mediate the relationship between self-objectification and body shame in men. However, the relationship between self-

objectification and self-surveillance is much stronger in women as compared to men (McKinley, 1998; Tiggemann & Kuring).

*Anxiety.* Anxiety develops when individuals fear they might fail, experience calamity, or danger (Colman, 2006). Anxious individuals experience extreme worry accompanied by feelings of restlessness, fatigue, difficulty concentrating, irritability, tension, and sleep disturbance (American Psychiatric Association, 2000). Living in a culture which sexually objectifies the female body creates anxiety-provoking experiences for women (Fredrickson & Roberts, 1997). Calogero (2004) reported that women who merely anticipated a male gaze experienced more body shame and appearance anxiety than women anticipating a female gaze. This finding indicated that the presence of men was not necessary for women to experience body shame and anxiety. Just believing men would observe them produced these negative effects. Women never know when or where men will scrutinize and gaze at them (Fredrickson & Roberts). Consequently, women experience more anxiety and distress related to appearance compared to men (Dion, Dion, & Keelan, 1990; Muth & Cash, 1997).

Anxiety also arises from the prevalence of sexual violence against women. A disproportionately larger number of women are sexually assaulted compared to men (Tjaden & Thoennes, 2006). Women can never know the exact motivation behind male gazing. Therefore, they have to remain vigilant that these stares could lead to sexual violence towards them (Fredrickson & Roberts, 1997). Consequently, a male glance can produce anxiety in women when it is a perceived threat to safety. Even in situations when

women do not perceive the threat of sexual violence, they can experience anxiety from knowing men can scrutinize their physical appearance (Calogero, 2004).

It appears self-surveillance mediates the relationship between self-objectification and appearance anxiety in both women and men. Self-objectification leads to habitual body monitoring, which draws individuals' attention to the ways their bodies do not conform to cultural definitions of attractiveness. Hence, this discrepancy appears to produce anxiety (Miner-Rubino et al., 2002; Szymanski & Henning, 2007; Tiggemann & Kuring, 2004; Tiggemann & Slater, 2001).

However, the role self-surveillance plays in the relationship between self-objectification and appearance anxiety in adolescents is unclear. Slater and Tiggemann (2002) observed a direct relationship between self-objectification and appearance anxiety in adolescent girls. However, they did not explain why this relationship was direct in adolescents but not in women and men. Again, this difference may have resulted from using instrumentation not designed for adolescents.

*Decreased peak motivational states.* Peak motivational states occur when individuals find themselves fully absorbed in tasks they find both enjoyable and relatively challenging. Csikszentmihalyi (1990) labeled this mental state *flow* and posited it consists of the following components: clear goals, intense concentration, loss of self-consciousness and sense of time, rapid feedback, a sense of personal control over the task, and the benefit of intrinsic rewards. Some may refer to this state as being *in the zone*. Objectification theory posited living in a culture which sexually objectifies women decreases women's opportunities to achieve peak motivational states in two ways. First,

women's activities are frequently disrupted when others call attention to their bodies (Fredrickson & Roberts, 1997). For example, a *cat call* from the crowd could interrupt the peak motivational state of a woman participating in marathon. It could shift her awareness from running to evaluating her body from the perspective of the person who made the *cat call* (i.e., self-objectification). Second, the self-surveillance that results from self-objectification produces self-consciousness in women (Fredrickson & Roberts). This attention to self is incompatible with the state of flow. In sum, these obstacles to achieving peak motivation states could negatively impact women's overall well-being (Fredrickson & Roberts).

Research demonstrates that self-objectification disrupts the focus and attention needed to achieve peak motivational states. For example, college students required to wear skin-tight swimsuits experienced higher levels of self-objectification and decreased math performance compared to peers wearing sweaters (Fredrickson et al., 1998; Hebl et al., 2004). The results of the swimsuit studies suggested that individuals in the swimsuit condition devoted a significant amount of their attentional resources to self-objectification; consequently, they had limited mental energy to devote to completing the mathematics problems (Fredrickson et al.; Hebl et al.). Other researchers have found support for the relationship between self-objectification and a decrease in the mental resources needed to achieve peak motivational states (see Quinn, Kallen, Twenge, & Fredrickson, 2006; Szymanski & Henning, 2007; Tiggemann & Slater, 2001). In sum, these findings suggest that engaging in self-objectification may rob individuals of the mental resources required (e.g., sustained attention and focus) to achieve a state of flow.

*Decreased awareness of internal bodily states.* Compared to men, women are less attuned to internal bodily states (Fredrickson & Roberts, 1997). Body awareness involves sensitivity to changes in bodily processes (e.g., recognizing hunger), prediction of bodily reactions (e.g., expecting muscle soreness after rigorous exercise), awareness of sleep-wake cycle (e.g., knowing how much sleep one needs in order to feel rested), and detecting the onset of illness (Shields, Mallory, & Simon, 1989). Self-surveillance, dieting, and restricted eating appear to play critical roles in suppressing women's attention to their bodies' internal states (Fredrickson & Roberts; Spoor, Bekker, Van Heck, Croon, & Van Strien, 2005). Self-objectification may contribute to decreased internal bodily awareness by monopolizing women's cognitive resources for self-surveillance (Fredrickson et al., 1998; Tiggemann & Slater, 2001). Specifically, women who spend much of their time monitoring their appearance may have less mental energy to devote towards acknowledging and interpreting bodily cues. Although researchers have demonstrated a significant relationship between self-objectification and decreased internal awareness, the role awareness of internal states plays in the development of mental health disorders, such as depression and disordered eating, is unclear (Muehlenkamp & Saris-Baglama, 2002).

#### *Negative Mental Health Outcomes of Self-Objectification*

Self-objectification theory provides a useful framework for understanding why women experience disproportionately higher instances of depression, eating disorders, and sexual problems compared to men. The U.S. culture sexually objectifies women more than men (APA Task Force on the Sexualization of Girls, 2007; Bartky, 1990).



Consequently, women are more likely than men to develop an outsider's perspective of themselves. This process leads to a heightened awareness of one's appearance and increased body surveillance (Fredrickson & Roberts, 1997). Habitual body monitoring contributes to body shame, appearance anxiety, decreased awareness of bodily states (Myers & Crowther, 2008), and decreased flow which in turn leads to depression and disordered eating (Calogero et al., 2005; Greenleaf & McGreer, 2006; Miner-Rubino et al., 2002; Muehlenkamp, Swanson, & Brausch, 2005; Noll & Fredrickson, 1998; Szymanski & Henning, 2007; Tiggemann & Kuring, 2004).

*Eating disorders.* Ten to 15% of girls and women engage in disordered patterns of eating (Levine & Smolak, 2006). Girls and women comprise 90% of those individuals coping with eating disorders (Smolak & Murnen, 2001). A significantly lower number of men and boys meet diagnostic criteria for eating disorders (approximately 1.5%; American Psychiatric Association, 2000). A spectrum of disordered eating exists, from behaviors that do not reach clinical significance such as dieting and over eating to clinically diagnosable disorders including Bulimia Nervosa (BN) and Anorexia Nervosa (AN).

BN and AN typically develop during adolescence, and individuals with these disorders share an exaggerated concern with body weight and size (American Psychiatric Association, 2000). Diagnostic criteria for AN includes a refusal to maintain a reasonable body weight (body weight below 85% of expected weight); extreme, unrealistic fear of gaining weight; distorted body image (e.g., denying the gravity of being underweight); and absence of menstruation in postmenarchal females (American Psychiatric

Association). Individuals exhibiting the Binge Eating/Purging type of AN binge and purge during the course of this disorder. Binging involves eating an unusually large amount of food within a short period of time (American Psychiatric Association). During a binge episode individuals typically feel like they cannot control their ability to regulate food intake or stop eating (American Psychiatric Association). Purging entails using methods to prevent weight gain such as self-induced vomiting, misuse of laxatives, fasting, and excessive exercise (American Psychiatric Association). Individuals with AN who do not regularly binge or purge fall under the classification of Restricting Type (American Psychiatric Association). Regardless of the type of AN, restricting or binge-purging, all individuals with AN do not maintain at least 85% of their expected body weight (American Psychiatric Association).

Individuals with BN engage in recurrent episodes of bingeing and purging. These behaviors typically occur at least twice a week over a period of three months (American Psychiatric Association, 2000). BN is characterized by one's body weight and shape excessively influencing one's self-evaluation and is classified according to purging and nonpurging types (American Psychiatric Association). Although individuals with AN and BN share common eating attitudes and behaviors, individuals with BN maintain weight at or above expected levels.

The mortality rate for all types of eating disorders is greater than that found in the general population (Crow, 2008; Harris & Barraclough, 1998). Fewer successful psychotherapy interventions exist for AN compared to BN (Hollon & Beck, 2004). The annual mortality rate for AN is .56 %, which is the highest among all mental disorders

(Sullivan, 1995; Torpy, 2006). The mortality rate for BN (crude mortality rate .3%) is lower than AN (Keel & Mitchell, 1997). Individuals with AN (Harris & Barraclough) and BN (Crow) are significantly more likely to commit suicide compared to members of the general population.

A small percentage of individuals with clinically significant patterns of disordered eating who do not match the diagnostic criteria for AN or BN meet criteria for Eating Disorder Not Otherwise Specified (NOS). For example, a woman may meet all the diagnostic criteria for AN but have a regular menstrual cycle. These behaviors are typically less severe than AN or BN; however, individuals meeting criteria for Eating Disorder NOS exhibit significant levels of body dissatisfaction (Herzog & Delinski, 2001). The mortality rate for individuals with Eating Disorder NOS is two times greater compared to members of the general population (Crow, 2008).

Criteria for Binge-Eating disorder are currently under development. Like individuals with AN and BN, individuals exhibiting Binge-Eating disorder exhibit deep dissatisfaction with body weight and shape (American Psychiatric Association, 2000). However, unlike BN, those with Binge-Eating disorder do not engage in compensatory behaviors to prevent weight gain (American Psychiatric Association). This disorder tends to develop equally in men and women and these individuals are more likely to be older and overweight compared to individuals with BN (Herzog & Delinski, 2001). Preliminary research suggested individuals with Binge-Eating disorder exhibit better treatment outcomes compared to individuals with BN (Herzog & Delinski). Many individuals with Eating Disorders also exhibit comorbid disorders such as mood and

anxiety disorders, substance abuse, and personality disorders (American Psychiatric Association).

Eating disorders are most common in Western cultures which place an emphasis on female thinness (American Psychiatric Association, 2000). The media has played a significant role in the rise of eating disorders over the past several decades. The advent of television advertising in the 1950s provided women with a standard against which to compare themselves (Garfinkel & Dorian, 2001). Rapidly, the media equated female success with achieving a thin, perfect body (Garfinkel & Dorian). However, the media purported an unrealistic exemplar of female beauty; consequently, many women developed negative feelings about their bodies (Garfinkel & Dorian). Disordered patterns of eating became a method by which women could attempt to achieve bodily control (Garfinkel & Dorian; Kaschak, 1992).

Eating disorders are most prevalent among adolescent and college-aged White women (American Psychiatric Association, 2000). The research examining the prevalence eating disorders among women of color is quite limited (Smolak & Striegel-Moore, 2001). However, researchers suggested that the frequency of eating disorders is slowly increasing among Latina and African American women (Pernick et al., 2006; Smolak & Striegel-Moore; White & Grilo, 2005). Particular groups of women including dancers (e.g., ballet, judged forms of dance), models, and competitive athletes are especially vulnerable to the development of eating disorders (Garfinkel & Dorian, 2001).

Myers and Crowther (2008) conducted tests of mediation to examine how interoceptive awareness mediates the relationship between self-objectification and

disordered eating attitudes. They defined interoceptive awareness as, “an awareness of one’s internal states and encompasses an awareness of both physical and emotional states” (p.173). Myers and Crowther found that interoceptive awareness partially mediated the relationship between self-objectification and disordered eating attitudes. Their study is unique, because they utilized a measure that addressed both the physical and emotional states related to awareness of internal bodily states.

Several researchers have tested path analyses of the Objectification Theory model as it relates to disordered eating (Calogero et al., 2005; Muehlenkamp et al., 2005; Noll & Fredrickson, 1998; Slater & Tiggemann, 2002; Tiggemann & Kuring, 2004; Tiggemann & Lynch, 2001; Tiggemann & Slater, 2001). In general, these studies have demonstrated that self-objectification contributes to habitual body monitoring, which leads to body shame, appearance anxiety, and body dissatisfaction, which contribute to disordered eating. However, two of these models showed that self-objectification had a direct relationship with disordered eating (Muehlenkamp et al.; Noll & Fredrickson).

Noll and Fredrickson (1998) observed that self-objectification had both an indirect and direct effect on disordered eating. They posited that body shame does mediate self-objectification and disordered eating in women who both self-objectify and demonstrate dissatisfaction with their appearance. They further hypothesized that self-objectification had a direct effect on disordered eating in women who both self-objectify and demonstrate satisfaction with their appearance. Noll and Fredrickson suggested these women experienced “anticipated body shame,” and engaged in disordered patterns of eating to avoid an appearance that would result in body shame (p. 633). However, unlike

many researchers investigating the relationship between self-objectification and disordered eating (see Slater & Tiggemann, 2002; Tiggemann & Kuring 2004; Tiggemann & Slater, 2001), they did not include a measure of self-surveillance in their path analysis. Had they included this construct, they might have observed that body shame mediates the relationship between self-surveillance and disordered eating rather than observing a direct relationship between self-objectification and disordered eating. Muehlenkamp and Saris-Baglama (2002) also found a direct relationship between self-objectification and disordered eating. Yet, this finding might have resulted from not including measures of body surveillance and shame as separate variables (please see discussion of Muehlenkamp & Saris-Baglama's [2002] findings under the Depression section of this manuscript).

Overall, the majority of path analyses investigating the relationship between self-objectification and disordered eating suggest an indirect relationship between these constructs. It appears that self-objectification leads to self-surveillance, which produces body shame (Slater & Tiggemann, 2002; Tiggemann & Kuring, 2004; Tiggemann & Lynch, 2001; Tiggemann & Slater, 2001) and appearance anxiety (Tiggemann & Kuring, 2004; Tiggemann & Lynch, 2001), which contributes to disordered eating.

Calogero et al. (2005) conducted the only study which examined the relationship between self-objectification and disordered eating among women in residential treatment for eating disorders. Another unique feature of their study included their examination of media influence in relation to the Objectification Theory Model. Calogero et al. found that their participants exhibited significantly higher levels of self-objectification

compared to non-clinical samples and that internalization of media ideals for thinness predicted self-objectification among women with eating disorders. Similar to previous findings (see Slater & Tiggeman, 2002; Tiggemann & Kuring, 2004; Tiggemann & Slater, 2001), they found body shame mediated the relationship between self-objectification and drive for thinness.

In sum, these studies support the portion of the Objectification Theory model which purports the process of internalizing an outsider's observation of oneself leads to habitual body monitoring. This process in turn results in feelings of shame and anxiety, which can result in disordered patterns of eating.

*Depression.* Depression affects a significantly larger number of women than men (American Psychiatric Association, 2000; Burt & Stein, 2002; Neumark-Sztainer et al., 2006). Once girls enter puberty, they exhibit significantly higher incidences of depression than boys do (Hankin & Abramson, 1999). Common depressive symptoms include changes in appetite, sleep difficulties, low energy level, low self-esteem, difficulty focusing, lack of interest in pleasurable activities, and feelings of hopelessness (American Psychiatric Association). Women suffer from depression at a rate two to three times greater than that of men (Hankin & Abramson).

Most studies of the Objectification Theory model as it relates to depression in women have suggested that a direct relationship between self-objectification and depression does not exist. Instead, factors such as self-surveillance, body shame/dissatisfaction, rumination, decreased motivational states, and appearance anxiety

appear to mediate this relationship (Grabe et al., 2007; Szymanski & Henning, 2007; Tiggemann & Kuring, 2004).

Conversely, Muehlenkamp and Saris-Baglama (2002) found a direct relationship between self-objectification and depression. However, they lumped together the Surveillance and Body Shame scales of the OBCS (McKinley & Hyde, 1996) as their measure of self-objectification and did not order these two variables in their path analysis. Other researchers investigating the relationship between self-objectification and depression analyzed the strength of the relationship between surveillance, body shame, and depression (Grabe et al., 2007; Szymanski & Henning, 2007; Tiggemann & Kuring, 2004). Had Muehlenkamp and Saris-Baglama ordered these variables in their model, they may have found that body shame actually mediates the relationship between self-surveillance and depression.

*Comorbidity of eating disorders and depression.* Depression and eating disorders commonly co-occur in women (American Psychiatric Association, 2000). Self-objectification theorists asserted this phenomenon is largely the result of women's experiences of living in a culture that sexually objectifies them (Fredrickson & Roberts, 1997). Women internalize these experiences and begin to self-objectify (Fredrickson & Roberts); this process leads to negative psychological consequences which contribute to the development of depression and disordered eating (McKinley & Hyde, 1996; Muehlenkamp & Saris-Baglama, 2002; Noll & Fredrickson, 1998; Slater & Tiggemann, 2002; Tiggemann & Kuring, 2004; Tiggemann & Slater, 2001).



Even though positive significant relationships exist between self-objectification and its correlates (e.g., self-surveillance and body shame), depression and disordered eating, what causes the relationships between these variables is not entirely clear (Muehlenkamp & Saris-Baglama, 2002; Tiggemann & Kuring, 2004). The concept of learned helplessness provides one possible explanation for the ways self-surveillance and body shame mediate the relationship between self-objectification and depression and disordered eating (Fredrickson & Roberts, 1997; Muehlenkamp & Saris-Baglama). Learned helplessness theory suggests depression occurs when individuals experience repeated situations in which they have little (perceived or actual) control and attribute these experiences to personal shortcomings rather than external events (Abramson, Seligman, & Teasdale, 1978).

Women who self-objectify monitor the ways in which their bodies fail to meet cultural standards of beauty (Fredrickson & Roberts, 1997). Consequently, they might engage in efforts such as dieting and disordered eating to alter their appearance. However, these women quickly discover they have very limited control over their bodies when their efforts fail to significantly change their physiques. Instead of attributing their limited success to genetic factors and unrealistic cultural standards of beauty, they blame themselves for their failures and experience shame. They continue to experience repeated disappointment when their efforts (e.g., dieting) do not lead to an ideal feminine body. Therefore, these women eventually feel helpless when it comes to changing their bodies and become depressed.

Another possible explanation for the relationship between self-objectification and depression is the anxiety that arises from women not knowing when they might experience sexual objectification (Muehlenkamp & Saris-Baglama, 2002). This sense of helplessness may leave women susceptible to depression (Muehlenkamp & Saris-Baglama). The cross-sectional nature of studies examining the relationship between self-objectification and depression prohibit conclusive answers regarding the directionality of variables proposed by Objectification Theory (Szymanski & Henning, 2007). Conversely, women who are depressed may self-objectify more than non-depressed women.

*Sexual dysfunction.* Women report significantly higher levels of sexual dysfunction (40-45%) than men (20-30%), with younger women reporting higher levels of dysfunction than older women (Laumann et al., 1999; Lewis et al., 2004). One explanation for the higher number of younger women reporting sexual dysfunction might be that they experience more sexual objectification than older women. Hence, they are at greater risk for engaging in self-objectification. Fredrickson and Roberts (1997) suggested the correlates of self-objectification, including self-surveillance, body shame, and decreased attention to internal bodily states, thwart women's sexual satisfaction. Specifically, focusing on perceived inadequacies with their bodies during sexual activity compromises their attention and sensitivity to pleasurable sensations.

Currently, no one has specifically investigated the mediational model proposed in Objectification Theory as it relates to sexual dysfunction. However, a couple of studies provide some support for the relationship between self-objectification and subclinical sexual problems. Roberts and Gettman (2004) found that women experiencing state-

induced self-objectification, via exposure to sexually objectifying words, exhibited a decreased interest in the physical aspects of sex. Impett, Schooler and Tolman (2006) observed that adolescent girls who engaged in self-objectification exhibited a diminished ability to act on their own desires in sexual relationships, and this lack of sexual self-efficacy contributed to less sexual experience and less use of condoms. They concluded that girls who self-objectify may find it challenging to declare their needs during ongoing sexual activity when their bodies are exposed and susceptible to evaluation. In sum, these studies suggest self-objectification has negative implications for girls' and women's sexual functioning. However, further research investigating this relationship and its potential mediating variables is needed.

*Other negative outcomes.* Investigators are beginning to explore negative mental health consequences of self-objectification not originally included in Objectification Theory such as self-harm and negative attitudes towards the menstrual cycle. Muehlenkamp et al. (2005) found that negative body regard and depressive symptoms mediated the relationship between self-objectification and self-harmful behavior (e.g., self-mutilation) in women. Consequently, self-objectification appears to be a risk factor for engaging in self-harmful behavior. Roberts (2004) observed that women who exhibited high levels of self-objectification tended to have more negative attitudes towards their menstrual cycles than women who exhibited low levels of self-objectification. This finding is disconcerting given the fact that girls frequently begin to self-objectify once they enter puberty, characterized in part by menarche. Not only does self-objectification put them at risk for feeling ashamed about pubertal weight gain, it

also puts them at risk for feeling embarrassed and disgusted by their menstrual cycles (Roberts). Roberts' results speak to the importance of teaching premenarchal girls ways to buffer themselves from engaging in this behavior (e.g., learning how to critique unrealistic media portrayals of women) in order to help them develop positive feelings about the physical changes which accompany puberty.

In addition to negative mental health outcomes, recent research suggested that self-objectification also adversely impacts the physical performance of adolescent girls. Fredrickson and Harrison (2005) observed that self-objectification predicted poorer throwing performance in White and African American girls ages 10-17. This finding indicated that, just as self-objectification limits women's cognitive performance (see Fredrickson et al. 1998), it can also limit their physical performance. It also supports the feminist philosophy of Bartky (1990) which posited that society teaches women not to occupy too much physical space. For example, the so-called feminine practice of sitting with one's legs crossed prevents women from taking up too much space in public places (Bartky). Similarly, tossing a ball limply with their arm prevents girls' bodies from occupying too much space when they throw. A society that teaches girls and women to limit their physical activity in order to look good results in a large number of girls and women missing opportunities to experience their bodies in motion. Women who experience their bodies in the process of an activity (e.g., running) have more positive feelings about their bodies compared to women who simply evaluate their bodies in a static state (e.g., simply looking in a mirror) (Franzoi, 1995). Additionally, they miss out

on chances to enjoy the physical and mental health benefits of exercise (Fredrickson & Harrison, 2005).

### *Preventing Self-Objectification*

Fredrickson and Roberts (1997) made several suggestions for reducing self-objectification among girls and women. First, they asserted that social scientists need to target their energies towards the reduction of the objectification of girls and women in the media. Second, they encouraged the development of educational programs to teach girls and women about the harmful psychological effects of sexual objectification in the media. Fredrickson and Roberts also suggested that sports programs for girls might buffer them from the damaging effects of self-objectification. Currently, the majority of self-objectification literature focuses on the negative outcomes of engaging in self-objectification. However, research addressing the prevention of self-objectification is starting to emerge.

Findings regarding the efficacy of media literacy programs targeted at girls and young women are equivocal. Some investigators have shown that media literacy programs are effective in increasing skepticism about the media (Irving & Berel, 2001) reducing the internalization of the thin ideal (Piran, Levine, & Irving, 2000; Wilksch, Tiggemann, & Wade, 2006), increasing self-acceptance and sense of empowerment (Piran et al.), and reducing the risk of eating disorders (Wade, Davidson, & O'Dea, 2003). However, other investigators suggest media literacy programs have demonstrated limited success regarding the reduction of internalization of the thin ideal (Chambers &

Alexander, 2007), body dissatisfaction (Irving & Berel), dieting and disordered eating (Smolak, Levine, & Schermer, 1998).

Research by Choma, Foster, and Radford (2007) provided one explanation for the ambivalent findings regarding the effectiveness of media literacy programs. They showed the media literacy film *Slim Hopes* (Kilbourne & Jhally, 1995), a film about how the media portrays women's bodies, by Jean Kilbourne to college-aged women. After viewing the film, Choma et al. (2007) evaluated participants' critical thinking skills, emotions, and self-objectification levels. They found participants exhibited increased critical thinking about the media and positive emotions about their bodies. Their participants also experienced an increase in negative feelings such as anger, horror, shock, and heightened state self-objectification. Consequently, media literacy programs utilizing a video format may produce both positive and negative effects. Overall, media literacy programs appear to have some beneficial effects such as increasing individuals' ability to critically evaluate the media and buffering them internalization of the thin ideal. However, these programs appear to have limited power in shielding girls and women from negative mental health outcomes such as poor body image and eating disorders.

Fredrickson and Roberts (1997) suggested participating in exercise programs could insulate girls from some of the harmful effects of self-objectification. However, not all types of exercise appear effective in the reduction of this behavior. As mentioned previously, judged sports such as ballet, or other activities that require women to wear tight-fitting attire, tend to heighten their awareness of their bodies and increase their propensity to self-objectify (Fredrickson et al., 1998; Hebl et al., 2004; Tiggemann &

Slater, 2001). These types of sports also appear to increase body shame (Parsons & Betz, 2001). Greenleaf and McGreer (2006) examined Objectification Theory as it relates to physically active and sedentary female college students. Level of self-objectification did not vary according to the women's level of physical activity. Greenleaf and McGreer did not require participants to report the types of physical activities in which they engaged. Consequently, the percentage of the physically active women who engaged in judged sports (e.g., diving), sports in which they are likely to be objectified, is unknown. However, women in the physically active group had more experiences of flow compared to the sedentary women.

Parsons and Betz (2001) found differences in body shame, a correlate of self-objectification, in first-year college women according to history of physical activity. They observed a significant positive relationship between physical activity and body shame. In other words, women who had a history of physical activity in high school demonstrated *higher* levels of body shame during their first year of college. In sum, research examining the impact of physical activity on self-objectification and its correlates is unclear.

Exercise that focuses on internal sensations versus outward appearance, such as yoga, may prove beneficial in buffering girls and women from the harmful effects of self-objectification. Daubenmier (2005) found that women who practiced yoga regularly exhibited lower levels of self-objectification compared to women who regularly attended aerobics classes and women who engaged in nonyoga/nonaerobic physical activity. Daubenmier also found a positive relationship between hours of yoga practiced and body

awareness, positive affect, and life satisfaction. In other words, yoga increased students' sense of well-being and body awareness increased with duration of yoga practice.

Impett et al. (2006) examined the utility of yoga in buffering individuals from the harmful effects of self-objectification, increasing body awareness and responsiveness, and promoting well-being. They found that women demonstrated significantly lower levels of habitual body monitoring after a two-month Anusara yoga immersion program; however, no significant changes in body awareness, body responsiveness, and well-being were observed. In sum, these two studies suggest that yoga could be a useful intervention for safeguarding girls and women from the harmful effects of self-objectification.

## Yoga

### *History of Yoga*

The word yoga comes from the Sanskrit language, and it means “union.” Yoga involves the blending of the mind and body, self and others, and self and spirit (Feuerstein, 1996). One can trace the origins of yoga back 5,000 years to the religious and spiritual practices to the Vedic people of India (Feuerstein). Female yoga practitioners are referred to as yoginis and male practitioners as yogis (Feuerstein). Because the investigator of the current study is focusing on the experiences of women, the term yoginis will be used throughout the manuscript to refer to yoga practitioners. Yoginis in Western culture often associate yoga with exercise. However, its foundation lies in ancient Indian spiritual practices (Feuerstein). Yogic philosophy and practice is traditionally passed down from teacher (guru) to yoginis (Worby, 2002).



In the second century BCE, Patanjali wrote the *Yoga Sutra*, which contained 195 verses explaining the philosophy of yoga (Feuerstein, 1998). This text included an eight-limbed path to yoga which is commonly practiced by yoginis today (Feuerstein). Following Patanjali, several branches of yoga developed which focused on the mind-body connection (Feuerstein). The eight principal branches of yoga include: Jnana yoga, Karma yoga, Bhakti yoga, Mantra yoga, Raja yoga, Guru yoga, Tantra yoga, and Hatha yoga. For the purposes of this study the investigator will focus on Hatha yoga, because it is the most commonly practiced form of yoga in Western culture (Feuerstein, 1996; Worby, 2002).

Hatha yoga is the branch of yoga most familiar to Western culture. Ha meaning sun and tha meaning moon, represent the joining of two dynamic forces –the body and the mind (Feuerstein, 1998). According to the philosophy of Hatha yoga, illness and distress result from the imbalance of energy in the body (Choudhury, 2007; Feuerstein, 1996). Hatha yoginis achieve balance and transformation through physical practice designed to strengthen and cleanse the body (Feuerstein, 1996). Without a purified body, one cannot achieve the higher yogic stages of concentration and meditation (Feuerstein, 1996).

Hatha yoginis use several techniques to activate the universal life force (kundalini-shakti) within them, including asanas (physical postures), pranayama (increasing energy in the body by lengthening the breath), and the movement of prana (energy; Feuerstein, 1996). Originally, the practice of Hatha yoga contained more than 840,000 asanas; however, over time, 84 commonly practiced asanas emerged (Feuerstein,

1998). Asanas are designed to regulate prana and prepare the body for dhyana (meditation; Feuerstein, 1998). Asanas often involve positioning the body in ways which stretch and compress the spine, open the joints, and lengthen the muscles (Feuerstein & Payne, 1999). Many of the asanas are labeled by plant or animal names (e.g., tree pose, lotus, cobra pose). Hatha yoginis believe that asanas activate various chakras, psychoenergy centers in the body, which promote the balance of energy and well-being (Feuerstein, 1998).

Pranayama, breath control, is considered the bridge which connects the mind and the body (Feuerstein, 1996). By slowing their breath, yoginis can calm and relax their minds. Common pranayama techniques involve slowly inhaling for several seconds then exhaling for several seconds and forcefully pushing the breath out by vigorously pulling in the stomach in quick succession (Feuerstein & Payne, 1999). Common styles of Hatha yoga practiced in the West include Iyengar, Bikram, Viniyoga, Kundalini, Anusara, and Ashtanga. Traditional yoga practitioners and researchers argue that Western yoginis often do not reap the full benefits of Hatha yoga, because Western yoga instructors often focus on the physical aspects of the practice and neglect its spiritual components (Feuerstein, 1996).

The goal of Hatha yoga is Self-Realization (Feuerstein, 1996). The yoga literature contains a variety of terms to describe this phenomenon including liberation, awakening, wisdom, independence, perfection, and extinction (Feuerstein). Put simply, Self-Realization involves discovering one's true self.

### *Popularity in Western Culture*

Yoga arrived in the United States (U.S.) in the late 19<sup>th</sup> century when Swami (i.e. master) Vivekenanda attended the Parliament of Religions in Chicago and gave a lecture on yoga (Worby, 2002). Following this presentation he traveled around the U.S. and promoted yoga and Eastern philosophies (Worby). Yoga slowly grew in popularity as changes in the immigration laws allowed more Indian yoga teachers to enter the country. During the 1920s and 1930s famous yoga masters such as Paramahansa Yogananda and Jiddu Krishnamurti traveled through the U.S. and introduced people to yoga (Worby). In the late 1940s some of the U.S.'s most influential yoga teachers, including Iyengar and Devi, began instructing students in the practice of Hatha yoga (Worby). The Beatles' interest in Maharishi Mahesh Yogi's form of Transcendental Meditation (TM) created surging interest in yoga in the West in the late 1960s (Feuerstein & Payne, 1999; Worby). The popularity of yoga continued to grow during the last three decades of the 20<sup>th</sup> century with the proliferation of studios opening in the U.S. and yoga publications (Worby).

The popularity of yoga in the U.S. has recently skyrocketed. In 2005, 16.5 million people practiced yoga and 25 million indicated they planned to try yoga within the year (Yoga Journal, 2005). More women (68%) than men (32%) practice yoga, the majority of yoginis are between 34 and 53 years old and White (77%) (Saper, Eisenberg, Davis, Culpepper, & Phillips, 2004). Eighteen- to 24-year-olds comprise the fastest growing group of yoga practitioners, and the majority of yoginis have graduated college (Yoga Journal; Saper et al.). Yoginis are more likely than non-yoginis to live in a metropolitan area and to utilize both conventional and alternative medical therapies (e.g., herbs,

homeopathy; Saper et al.). One can find yoga classes in a variety of settings including private studios, fitness clubs, and medical facilities.

Much of the yoga literature claims yoga has a low risk of harm or injury; hence, almost anyone can safely practice (Feuerstein & Payne, 1999; Worby, 2002). Practice can be modified for individuals who are pregnant, have a physical injury, or health condition (Feuerstein & Payne, 1999). However, the literature lacks an empirical investigation of the physical and mental risks of yoga (Saper et al., 2004).

### *Benefits*

Indian researchers have conducted the majority of therapeutic yoga research. This finding is not surprising given the Indian origin of yoga and the widespread medical application of yoga in India beginning in the early 20<sup>th</sup> century (Khalsa, 2004). Western researchers have recently started contributing to and expanding this body of literature (Khalsa). Many of the published studies on yoga contain methodological shortcomings including high attrition rates, lack of randomization, and small sample sizes (Khumar, Kaur, & Kaur, 1993; Kirkwood, Rampes, Tuffrey, Richardson, & Pilkington, 2004; Pilkington, Kirkwood, Rampes, & Richardson, 2005; Saper et al., 2004). Additionally, the diversity of conditions treated with yoga and differences in participant samples makes meta-analyses examining the beneficial effects of yoga difficult (Kirkwood et al.). This investigator hopes, the generalizability of yoga studies will improve given its growing popularity in the west.

Most yoga research focuses on the medical benefits of various yoga practices. Yoga techniques have been associated with the reduction of stress hormones, decrease in

sympathetic nervous system activity (fight or flight response), an increase in parasympathetic activity (e.g., slowing of the heart rate), lower metabolic rate and oxygen usage, and increased brain activity (Harinath et al., 2004; Khalsa, 2004). Yoga has been successfully used to manage a host of physical conditions including asthma (Nagendra & Nagarathna, 1986), hypertension (McCaffrey, Ruknui, Hatthakit, & Kasetsoomboon, 2005), diabetes (Bijlani et al., 2005), and irritable bowel syndrome (Taneja et al., 2004).

Yoga has special benefits for particular groups of women. It appears to have a positive impact on mood, quality of life, and stress levels in breast cancer patients and survivors (Banerjee et al., 2007; Culos-Reed, Carlson, Daroux, & Hately-Aldous, 2006). Pregnant women who practice yoga regularly experience more positive birth outcomes including higher birth weight and lower levels of preterm labor and health complications, compared to women who do not practice yoga during their pregnancies (Narendran, Nagarathna, Narendran, Gunasheela, & Nagendra, 2005).

Research investigating the psychological benefits of yoga is starting to grow. Hatha, Mantra, and Raja yoga are primarily used for the treatment of psychological distress, because they focus on self-regulation (Singh, 2006). Yogic practices commonly used to treat mental health problems include: asanas (postures), pranayama (breath control), dhyana (meditation), and samadhi (state of merging with the object of meditation; Singh). Asanas reduce distress through decreasing muscle tension, relaxing the central nervous system, and altering blood flow (e.g., sending large volumes of blood to particular areas of the body such as the brain.) Pranayama and dhyana induce relaxation, reduce blood pressure, and increase concentration (Singh). In sum, these yoga techniques

allow individuals to gain control over the physiological manifestations of psychological distress.

Only a small number of controlled studies examining the use of yoga in treating depression and anxiety exist (Kirkwood et al., 2004; Pilkington et al., 2005). Cross-comparison among studies proves challenging, because investigators often use diverse yoga practices and measures of anxiety and depression (Khalsa, 2004; Kirkwood et al.; Pilkington et al.). Despite these limitations, some evidence suggests yoga can reduce depressive symptoms and anxiety. Asanas focused on back bends, yoga relaxation techniques, and rhythmic breathing techniques appear to reduce depression (Broota & Dhir, 1990; Janakiramaiah et al., 2000; Khumar et al., 1993; Woolery, Myers, Stemliebm, & Zeltzer, 2004).

Asanas, pranayama, and relaxation techniques also appear to lower anxiety (Gupta, Khera, Vempati, Sharma, & Bijlani, 2006; Smith, Hancock, Blake-Mortimer, & Eckert, 2007). Specifically, yoga relaxation techniques can counteract the physiological manifestations of anxiety such as increased heart rate and high blood pressure (Gupta et al.). Individuals coping with obsessive-compulsive disorder (OCD) may also benefit from yoga therapy. Shannahoff-Khalsa et al. (1999) observed that Kundalini yoga techniques such as mantra chanting, alternate nostril breathing, and meditation significantly reduced the symptoms of OCD compared to members of a control group participating in a mindfulness-based meditation group.

Depression and anxiety are characterized by low levels of the neurotransmitter GABA. Streeter et al. (2007) measured the GABA levels of experienced yoginis (length

of practice  $M=4$  years) engaging in various yoga practices (e.g., Asthanga, Vinyasa, Iyengar, Bikram) before and after one 60-minute yoga session. They observed significant post-intervention increases in the yoginis' GABA. Streeter et al. also found a significant difference between the yoginis' GABA change levels compared to those of the controls.

Yoga can play a positive role in stress reduction and mood. It can decrease perceived stress, negative emotion, and cortisol (a hormone involved in stress response) levels (Granath, Ingvarsson, von Thiele, & Lundberg, 2006; Watanabe, Fukuda, Hara, & Shirakawa, 2002; West, Otte, Geher, Johnson, & Mohr, 2004). For example, practicing Shavasana, a relaxation posture typically performed in between asanas, can decrease the physiological manifestations of stress such as blood pressure, and pulse and respiratory rates (Sharma, Mahajan, & Sharma, 2007). Netz and Lidor (2003) demonstrated mindful, low impact exercise activities such as yoga can produce mood-enhancing benefits after just one session of exercise.

Longitudinal studies investigating the benefits of yoga are needed, because the cross-sectional nature of current yoga research may fail to capture its full relaxation benefits. Learning to practice yoga correctly takes time. Hence, realizing the relaxation benefits of yoga may take longer than profiting from simple relaxation techniques (Smith et al., 2007).

### *Yoga and Body Image*

Yoga can enhance body satisfaction in both children and adults. Clance, Mitchell, and Engelman (1980) found that a combination of tri-weekly yoga and awareness exercises increased body satisfaction in eight-year-old girls. Scime, Cook-Cottone, Kane,

and Watson (2006) developed a mind-body-wellness prevention program targeted towards fifth-grade girls. Each group session consisted of 30 minutes of yoga and discussion topics included body image, media, thinness-ideal, self-esteem, coping, and competence. At the conclusion of the program participants exhibited a significant reduction in body dissatisfaction and drive for thinness, and increased recognition of the media's influence on body image. A continuation study investigating the efficacy of this program further revealed that participants exhibited a significant increase in social self-concept and a significant decrease in bulimic tendencies (Scime & Cook-Cottone, 2008). Yoga practice is also positively related to body satisfaction in adults (please see the following discussion of Daubenmier's [2005] research).

#### *Yoga and Eating Disorders*

Research investigating the effect of yoga on disordered eating attitudes and behaviors is quite limited. To this author's knowledge, only two studies have specifically examined this relationship. Daubenmier (2005) investigated whether yoga practice is associated with greater body awareness and responsiveness, decreased self-objectification, greater body satisfaction, and fewer disordered eating attitudes. She compared female yoga students, aerobics practitioners, and non-yoga/non-aerobic physically active women and found that the yoga students reported significantly greater body awareness and responsiveness, body satisfaction, and less self-objectification than the aerobic or baseline comparison groups. Additionally, the yoga and baseline groups demonstrated significantly lower levels of disordered eating patterns compared to the aerobic group.



Mitchell, Mazzeo, Rausch, and Cooke (2007) evaluated the effectiveness of an intervention based on cognitive dissonance theory and yoga interventions for eating disorders. They found that the participants in the yoga group did not experience any significant changes in eating disordered attitudes or behaviors as a result of a six-week yoga program. Mitchell et al. suggested differences in their and Daubenmier's (2005) findings likely resulted from assignment procedures. Mitchell et al. randomly assigned their participants to groups. Additionally, the majority of participants in their yoga group did not have previous yoga experience, whereas Daubenmier's participants self-selected for participation in Iyengar and Astanga-based yoga classes and had previous yoga experience. Additionally, the participants in Daubenmier's study practiced yoga for a significantly longer time period ( $M = 6$  years and 2 months, 5 hours per week) than the participants in Mitchell et al.'s study (6 weeks, 45 minutes per week). Consequently, Miller et al.'s intervention may have lacked the length and intensity needed to achieve a positive result or this type of intervention may only be successful with individuals who have an interest in or history of yoga practice. Clearly, more research is needed to determine the effectiveness of yoga as intervention for disorder eating.

Despite a lack of empirical research, it appears yoga is gaining popularity as a treatment intervention for disordered eating. An internet search on November 12, 2007, using the Google search engine and the search terms "yoga" and "eating disorders," yielded 1,860,000 entries. Some psychologists utilizing yoga interventions to treat clients with disordered eating suggested yoga sensitizes clients to experiences and sensations that are often lost in the development of eating disorders such as relaxation, focus on

internal sensations, and balance (Berman, 2000; Boudette, 2006). An empirical study by Rani and Rao (1994) provided preliminary support for the use of yoga to increase body awareness. However, this investigation utilized a small, predominantly male participant pool. Consequently, further research investigating the use of yoga to increase body awareness, particularly in women, is needed.

Robin Boudette (2006), a licensed psychologist who uses yoga in her treatment of clients with eating disorders, posited yoga gives her clients opportunities to increase self-acceptance, develop healthy personal boundaries, and cultivate adaptive ways to cope with discomfort. Therapists utilizing yoga as an eating disorder intervention have cautioned that clients may require modifications to their practice such as practicing without mirrors, avoidance of postures that could induce a conditioned purging response, and practicing individually before moving into a group setting (Berman, 2000; Wyer, 2001).

### Summary

The sexual objectification of girls and women in Western culture is pervasive and continues to increase over time (Allyn, 2006; APA Task Force on the Sexualization of Girls, 2007; Bartky, 1990; Kilbourne, 2000; Ward & Harrison, 2005). Media, parental, and peer messages can socialize girls and women to see themselves as objects for the viewing pleasure of others, and hence, promote self-objectification (Aubrey, 2006a; Bartky; Fredrickson & Roberts, 1997; Harrison & Fredrickson, 2003). This process results in negative psychological implications for girls and women including habitual body monitoring, body shame, anxiety, decreased peak motivational states, and decreased

awareness of internal bodily states (Fredrickson & Roberts; McKinley & Hyde, 1996). Girls and women who engage in self-objectification are at increased risk for depression and eating disorders (Calogero et al., 2005; Greenleaf & McGreer, 2006; Miner-Rubino et al., 2002; Muehlenkamp et al., 2005; Noll & Fredrickson, 1998; Szymanski & Henning, 2007; Tiggemann & Kuring, 2004). Fredrickson and Roberts recommended the use of media literacy and sports programs to buffer girls from engaging in self-objectification. Research suggests that media literacy programs and many predominantly female sports (e.g., dance, cheerleading) are limited in decreasing the correlates of self-objectification (e.g., body dissatisfaction, eating disorders; Chambers & Alexander, 2007; Davison et al., 2002; Irving & Berel, 2001; Smolak et al., 2000). However, yoga appears to be a promising method for reducing self-objectification in women (Daubenmier, 2005; Impett et al., 2006).

The primary purpose of this study is to test Objectification Theory's (Fredrickson & Roberts, 1997) proposition that physical activity allows girls women to "... experience their bodies in more direct and more positive ways," (p. 198) and hence, reduces self-objectification and its consequences. Like Daubenmier's (2005) investigation, this study takes Fredrickson and Robert's hypothesis a step further and postulates that some types of physical activity, such as yoga, decrease self-objectification in women more than others. To the author's knowledge, no investigator has specifically tested this postulate in the population at the greatest risk for self-objectification and its consequences, college-aged women (American Psychiatric Association, 2000; Tiggemann & Lynch, 2001).

Daubenmier (2005) investigated the physical activity hypothesis of Objectification Theory in a sample of adult women and observed that the women who practiced yoga exhibited lower levels of self-objectification and some of its consequences. Her sample included women ages 18-87, and the mean age of this sample was 37.16 years old. Although Daubenmier included college-aged women in her sample, she did not specifically examine the relationship between self-objectification and yoga in this age group. Additionally, she only investigated two of the proposed consequences of self-objectification — awareness of internal bodily states and eating disorders. Consequently, a need exists to examine the physical activity hypothesis of Objectification Theory in college-aged women and to explore the correlates of self-objectification not addressed in Daubenmier's study which include: body surveillance, body shame, appearance anxiety, decreased flow, and depression. It is predicted that yoga practitioners will exhibit significantly lower levels of self-objectification and its consequences compared to participants who are physically active but do not practice yoga and sedentary participants. The primary hypotheses of the proposed study are as follows:

1. Compared to the sedentary and physically active groups, the yoga practitioners will exhibit lower levels of self-objectification, habitual body monitoring, body shame, appearance anxiety, disordered eating, and depressed mood; and higher levels of awareness of flow and internal bodily states.
2. Participants with greater levels of self-objectification will experience greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states; participants who

exhibit greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states, in turn, will report more disordered eating symptoms.

3. Participants with greater levels of self-objectification will experience greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states; participants who exhibit greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states, in turn, will report more depressive symptoms.
4. Compared to the sedentary and physically active groups, the yoga practitioners will report lower levels of self-objectification, and in turn, will report lower levels of habitual body monitoring, body shame, appearance anxiety, and higher levels of flow and awareness of internal bodily states.

## CHAPTER III

### METHOD

#### Participants

Participants consisted of 395 women, who ranged in age from 18 to 25 years old. The investigator chose to study this particular age group, because college-aged women are most at risk for engaging in self-objectification (Tiggemann & Lynch, 2001). Additionally, they are at high risk for developing an eating disorder (Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). Thus, preventative efforts should target this age group.

Approximately 19% ( $n=73$ ) of the participants participated in yoga practice on average at least twice a week for a period of two months. The investigator selected the aforementioned demarcation because consistent practice and comfort with the asanas is needed to reap the full mental and physical benefits from yoga (Feuerstein & Payne, 1999; Worby, 2002). Slightly over half (53.4%,  $n=211$ ) of the participants participated in some type of non-yoga physical activity (e.g., running, cycling) on average at least twice a week, three or more hours per week, for a period of two months. Prior to data collection, the investigator anticipated that at least one-third of the participants would not have participated in regular physical activity, yoga or otherwise, for the past two months. However only 26 (6.6%) participants reported engaging in physical activity zero hours per week. In regards to a physically active lifestyle, the United States Surgeon General

(Centers for Disease Control and Prevention, 1996) recommended that, “All people over the age of 2 should accumulate at least 30 minutes of endurance-type activity, of at least moderate intensity, on most — preferably all — days of the week” (p. 28). Consequently, participants exercising two or less hours per week would not meet this recommendation. Therefore, the investigator decided to combine these participants with the sedentary participants to create a sedentary/low physically active group which contained approximately 28% (n=111) of participants. The investigator decided not to include men in this study because Objectification Theory focuses on the experiences of girls and women in our culture. Moreover, the psychological correlates of self-objectification, including eating disorders, depression, and sexual dysfunction are significantly higher among women compared to men (Yoder, 2003).

Yoga participants were recruited from yoga studios in a Southwestern state and by employing snowball sampling, while non-yoga participants were recruited from universities in a Southwestern state and snowball sampling.

### Measures

Each participant completed the following questionnaires: the Self-Objectification Questionnaire (Noll & Fredrickson, 1998), the Body Surveillance and Body Shame subscales of the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996), Appearance Anxiety Scale (Dion et al., 1990), Flow Scale (Szymanski & Henning, 2007), the Body Awareness Questionnaire (Shields et al., 1989), the Eating Attitudes Test (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982), The Center for Epidemiological Studies of Depression (CES-D) Scale (Radloff, 1977), and

Demographics Questionnaire (see Appendix A). The investigator created four different orders of the first eight measures to prevent order effects. The Demographics Questionnaire was placed at the end of each order to decrease demand characteristics that could result from previewing it prior to completing the other measurement instruments.

### *Trait Self-Objectification*

The Self-Objectification Questionnaire (Noll & Fredrickson, 1998) was used to measure the extent to which participants exhibited a non-evaluative, appearance-based self concept versus a competency-based one. The questionnaire required participants to rank-order five appearance-based attributes (physical attractiveness, weight, sex appeal, measurements, and firm/sculpted muscle tone) and five competency-based attributes (strength, physical coordination, energy level, health, and physical fitness). The attribute ranked most important received a score of 1 and the one ranked least important received a score of 10. Scores were calculated by reverse coding all the items, summing the competency-based items and subtracting them from the sum of the appearance-based items. Resulting scores ranged from -25 to 25 with higher scores reflecting higher levels of self-objectification. Noll and Fredrickson (1998) reported the Self-Objectification Questionnaire exhibits satisfactory construct validity.

Scores on the questionnaire were shown to correlate positively with scores on (a) the Appearance Anxiety Questionnaire (Dion, Dion, & Keelan, 1990) . . . ( $r=.52$ ); and (b) The Body Image Assessment (Williamson, Davis, Bennett, Goreczny, & Gleaves, 1985) . . . ( $r=.46, p<.01$ ) (Noll, 1996). These correlations suggest that the Self-Objectification Questionnaire does indeed tap into preoccupation with



appearance, but is not equivalent to these related constructs. In particular, the moderate correlation with body dissatisfaction is consistent with the assertion that self-objectification is not limited to women who are dissatisfied with their physical appearance. (p. 629)

### *Habitual Body Monitoring*

Habitual body monitoring was measured via the Body Surveillance subscale of the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996). This subscale consisted of eight items which participants responded to on a seven-point Likert scale ranging from one (*strongly disagree*) to seven (*strongly agree*). The Body Surveillance subscale is designed to measure the extent to which participants watch their appearance. Examples of items included “During the day, I think about how I look many times” and “I rarely compare how I look with how other people look.” Higher scores indicated higher levels of body surveillance. McKinley (1999) reported the Body Surveillance subscale demonstrated adequate internal consistency ( $\alpha = .79$ ) among undergraduate women. In the present study, internal consistency was adequate ( $\alpha = .78$ ).

### *Body Shame*

Body shame was measured by the Body Shame subscale of the OBCS (McKinley & Hyde, 1996). This subscale consisted of eight items which participants responded to on a seven-point Likert scale ranging from one (*strongly disagree*) to seven (*strongly agree*). The Body Shame subscale is designed to measure the extent to which participants feel like they are bad people if they do not meet cultural expectations for their bodies. Examples of items included, “When I can’t control my weight, I feel like something must

be wrong with me” and “When I’m not exercising enough, I question whether I am a good enough person.” Higher scores indicated higher levels of body shame. McKinley (1999) reported the Body Shame subscale demonstrated adequate internal consistency ( $\alpha = .84$ ) among undergraduate women. The internal consistency was .74 in the present study.

### *Appearance Anxiety*

Appearance anxiety was measured using the Appearance Anxiety Scale (Dion et al., 1990). This scales consisted of 30 items which participants responded to on a five-point Likert scale ranging from one (*never*) to five (*almost always*). Examples of items include “I feel nervous about my appearance” and “I wish that I was better looking.” With permission of Karen Dion (personal communication January 22, 2008), the primary investigator changed the wording of item 28, “I am concerned or worried about my ability to attract members of the opposite sex” to “I am concerned or worried about my ability to attract a romantic partner.” Higher scores indicated higher levels of appearance anxiety. Dion et al. reported the Appearance Anxiety Scale demonstrated adequate internal consistency ( $\alpha = .89$ ) for both women and men. In the present study, internal consistency was high ( $\alpha = .92$ ).

### *Flow*

Peak motivational states or “flow” was measured by the Flow Scale (Szymanski & Henning, 2007). This scale consisted of 18 items which participants responded to on a five-point Likert scale ranging from one (*never*) to five (*always*). Examples of items included, “I feel so involved that nothing else seems to matter,” and “I have no worries of

failure.” Szymanski and Henning derived scale items from Csikszentmihalyi’s (1990) concept of flow which focuses on clear goals, intense concentration, loss of self-consciousness and sense of time, rapid feedback, a sense of personal control over the task, and the benefit of intrinsic rewards. Higher scores indicated greater levels of flow. Szymanski and Henning (2007) reported the Flow Scale demonstrated adequate internal validity among women ages 18 to 63 years ( $\alpha = .82$ ). Internal consistency in the present study was adequate ( $\alpha = .85$ )

#### *Awareness of Internal Bodily States*

Awareness of internal bodily states was measured by the Body Awareness Questionnaire (BAQ; Shields et al., 1989), an 18-item questionnaire designed to measure self-reported awareness of normal, nonemotive body processes. Participants rated items on a seven-point Likert scale ranging from one (*not at all true about me*) to seven (*very true about me*). Examples of items included, “I know I’m running a fever without taking my temperature” and “I notice distinct body reactions when I am fatigued.” Higher scores indicated higher levels of awareness of internal bodily states. Shields et al. (1989) reported the BAQ demonstrated adequate internal validity among undergraduate women ( $\alpha = .80$ ). The internal consistency in the present study was .85.

#### *Disordered Eating*

Disordered eating was measured by the Eating Attitudes Test (EAT-26) (Garner et al., 1982), a 26-item questionnaire consisting of three subscales, Dieting, Bulimia, and Oral Control. Participants rated items on a six-point Likert scale ranging from *always* to *never*. Examples of items included “Avoid eating when I am hungry” and “feel extremely

guilty after eating.” Summing the scores of all three subscales produced an overall EAT-26 score. Scores of 20 or higher suggested high concerns regarding one’s body weight, body shape, and eating, and risk for an eating disorder. Garner et al. demonstrated the EAT-26 exhibits adequate internal consistency ( $\alpha = .83$ ) among a non-clinical population. Internal consistency in the present study was .86.

### *Depressed Mood*

Depressed mood was measured by The Center for Epidemiological Studies of Depression (CES-D) Scale, a 20-item questionnaire designed for use with a non-clinical population (Radloff, 1977). Participants rated items on a four point Likert scale ranging from *rarely or none of the time* to *most or all of the time*. Examples of items included “I was bothered by things that usually don’t bother me” and “I felt sad.” Scores ranged from zero to 60, with higher scores indicating more depressive symptomatology. Radloff (1991) reported the CES-D demonstrated adequate internal consistency ( $\alpha = .87$ ) among a non-clinical, college student population. In the present study, internal consistency was high ( $\alpha = .90$ ).

### *Demographic Information*

The author-generated Demographics questionnaire obtained general participant information. This information included age, gender, sexual orientation, race/ethnicity, height, weight, highest level of completed education, frequency of physical activity, current primary form of physical activity, (if primary form of physical activity) type of yoga practiced, frequency of yoga practice, and location of yoga practice, duration of participation in primary form of physical activity, and previous physical activity history

(see Appendix A). This investigator calculated Body Mass Index (BMI) for each participant by multiplying each participant's body weight in pounds by 703 and dividing this product by the square of her height (see pg. 92 for BMI formula).

### Procedures

Participants were recruited by the investigator. The investigator distributed the Request for Assistance Letter (see Appendix B) electronically, via U.S. mail, and in-person to yoga teachers, university instructors, friends, and family members. The Request for Assistance Letter included a copy of the Request for Participation Letter (see Appendix C) so that recipients could distribute this request to potential participants.

The investigator used several additional recruiting strategies to attract female yoga practitioners. First, the investigator posted flyers, along with the Request for Participation letter, in several yoga studios in a Southwest state. Second, she posted the Request for Participation letter to yoga discussion groups and yoga networking sites (e.g., yogamates.com) on the internet. Third, she emailed the Request for Assistance Letter to yoga instructors listed on yoga teacher association sites in Southwestern states. Finally, she placed an ad seeking participation from female yoga practitioners on Facebook®, an internet social networking site.

The Request for Participation Letter provided participants with instructions to participate in this study. It also encouraged participants to forward the electronic message to all the women they knew who met the demographic parameters of this study. Hence, the investigator utilized snowball sampling (Loewenthal, 2001). The investigator offered participants the opportunity to enter a drawing for a \$100 Amazon.com gift card as an

incentive to participate in the study. Participants had the chance to receive a summary of the study if they chose to request it.

Participants from undergraduate Introduction to Psychology and Developmental Psychology courses at a university in a Southwestern state also had the opportunity to earn a course credit towards a class research requirement in exchange for their participation. To ensure there was no coercion involved in obtaining participation from students in these courses, the students were allowed to choose from a variety of studies to participate in, complete journal article reviews, or attend research symposiums in order to receive their required research credit.

Participation entailed answering a set of questions via a web interface. This web interface was created on Psychdata, an internet company which allows psychological researchers to create surveys for a fee. The investigator chose an online administration because research participants are more likely to report sensitive behaviors such as drinking and smoking in this format versus a traditional paper-and-pencil survey (Wright, Aquilino, & Supple, 1998). Participants could mouse-click on the hyperlink (URL address) provided in the Request for Participation Letter to access the questionnaire, or if they received a paper copy of the Request for Participation, they could type the hyperlink into their browser. When the participants arrived at the designated website, they saw an Introduction/Informed Consent screen (see Appendix D). This screen stated the purpose of the study and provided participants with contact information for the investigator and the research advisor. It also provided participants with information regarding the potential risks and benefits of participating in the study, as well as other general information. This

screen included the phone number to the American Psychological Association referral service (1-800-964-2000) and hyperlinks to the American Psychological Association (<http://locator.apa.org/>), National Eating Disorders Association ([www.nationaleatingdisorders.org](http://www.nationaleatingdisorders.org)), National Institute of Mental Health (<http://www.nimh.nih.gov/health/topics/getting-help-locate-services/index.shtml>), and the National Mental Health Information Center (<http://mentalhealth.samhsa.gov/databases/>) mental health referral web pages. If the participants found any of the questions upsetting, they could call the referral number or click on one of the aforementioned hyperlinks and locate mental health resources. Finally, this screen advised participants that they could withdraw from the study at any time by exiting the web browser. A statement at the bottom of the Information/Informed Consent screen read, “If you have read and agree to the above statements, please click on the ‘Continue’ button below to indicate your consent to participate in this study.”

After consenting to participate in the study, the participants were presented with the nine instruments noted previously: Self-Objectification Questionnaire (Noll & Fredrickson, 1998), the Body Surveillance subscale of the OBCS (McKinley & Hyde, 1996), the Body Shame subscale of the OBCS (McKinley & Hyde), Appearance Anxiety Scale (Dion et al., 1990), Flow Scale (Szymanski & Henning, 2007), the Body Awareness Questionnaire (BAQ; Shields et al., 1989), the Eating Attitudes Test (EAT-26; Garner et al., 1982), CES-D (Radloff, 1977), and the Demographics Questionnaire. At the conclusion of the questionnaire, participants were presented with a debriefing screen which explained the full nature of the study (see Appendix E).

In order to maintain anonymity and confidentiality, participants were not required to submit identifying information unless they chose to receive a summary of the study results or to participate in the drawing for the Amazon.com certificate. If participants did choose to provide the investigator with identifying information, it was kept in a data file which could not be linked to the questionnaires. In other words, the investigator was not able to match participants' identifying information with their questionnaires. In order to participate in the drawing for the gift card or receive a summary of the study results, participants were prompted twice to type in their email address at the conclusion of questionnaire. The prompts informed participants that the investigator could not link their email address to their questionnaire responses. The collected data were stored in a data base until the completion of the study. Then, the investigator stored the data on a USB flash drive that will remain at her residence for a period of no less than five years.

The participants' confidential information was protected in several ways. First, Psychdata protected the viewing of data by a third party by utilizing security measures that prevented participants from using the web browser's back button to view completed survey results or retrieving responses from their computer. Psychdata automatically eliminated temporary history files once participants closed the survey window. Second, all surveys were encrypted using 128-bit Secure Socket Layer technology which encrypted both the survey questions and the participants' responses. Third, the participants' data could only be accessed through the primary investigator's username and password. Fourth, all data were backed up by Psychdata on a daily basis and once data were deleted they were overwritten within seven days. Fifth, IP addresses were



excluded from data collection to further enhance confidentiality and anonymity of participants. Finally, all participants were given a unique respondent identification number which was disconnected from their survey.

### Analyses

The investigator calculated power and sample size using *G\*Power* software (Buchner, Erdfelder, & Faul, 2007). These calculations indicated a minimum sample size of  $N=252$  was needed in order to conduct post analyses with .95 statistical power and  $\alpha = .05$ . Consequently, the present sample size ( $N=395$ ) provided adequate statistical power for rejecting a false null hypothesis.

### *Hypothesis One*

Compared to the sedentary/low physically active (SLPA) and physically active (PA) groups the yoga practitioners will exhibit lower levels of self-objectification, habitual body monitoring, body shame, appearance anxiety, disordered eating, and depressed mood; and higher levels of flow and awareness of internal bodily states. The investigator utilized a one-way multivariate analysis of covariance (MANCOVA) to analyze self-objectification, habitual body monitoring, body shame, appearance anxiety, disordered eating, depressed mood, flow, and awareness of internal bodily states with BMI,  $\frac{weight(lbs) \times 703}{height^2(in^2)}$ , as the covariate and exercise group as the independent variable.

### *Hypothesis Two*

Participants with greater levels of self-objectification will experience greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states; participants who exhibit greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states, in turn, will report more disordered eating symptoms.

### *Hypothesis Three*

Participants with greater levels of self-objectification will experience greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states; participants who exhibit greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states, in turn, will report more depressive symptoms.

### *Hypothesis Four*

Compared to the sedentary/low physically active and physically active groups the yoga practitioners will report lower levels of self-objectification, and in turn, will report lower levels of habitual body monitoring, body shame, appearance anxiety, and higher levels of flow and awareness of internal bodily states.

## CHAPTER IV

### RESULTS

#### Preliminary Data Screening

Prior to conducting analyses, the data set was examined for missing and unusable data and outliers. A total of 517 surveys were completed. This investigator discarded 90 surveys (17.4%) due to missing data. All of these surveys were missing at least one scale, and the majority of them were missing multiple scales. It appears that many of these participants who started these surveys grew bored or fatigued and exited the survey prematurely. Twenty surveys (3.8%) were excluded, because participants completed the SOQ incorrectly, and it could not be scored. In a similar study, Myers and Crowther (2008) discarded 13.6% of their surveys, because participants completed the SOQ incorrectly. They hypothesized that participants' unfamiliarity with the rank-order procedure on the SOQ contributed to this problem. Myers and Crowther noted that one cannot use mean imputation to account for missing data on the SOQ because of its rank-order procedure. Based on the variables that the investigator could obtain from the aforementioned surveys, there were no significant differences between the participants whose surveys were kept or excluded. This investigator discarded 12 surveys containing outliers (2.3%). Outliers were defined as scores which were more than plus or minus three standard deviations from the mean of the variable, and they were removed in order to prevent skewed linear regressions.

Tests of normality were conducted on the remaining 395 surveys. In general, all measures were normally distributed with the exception of the EAT-26 and CES-D. Given these instruments are designed to screen for clinically significant symptomatology, one would expect skewed distributions on these instruments for a nonclinical sample. A one-way MANOVA was conducted to detect order effects. No significant order effects were found, Wilk's  $\Lambda = .99$ ,  $F(6, 780) = .84$ ,  $p < .54$ . Hence, participants' responses did not differ significantly based on the order of the instruments they completed.

### Descriptive Analyses

As shown in Table 1, participants ranged in age from 18 to 25 years old. Over half the participants were White (63.0%). The remaining participants were African/African American/Black, non-Hispanic (16.2%), Hispanic/Latina (11.1%), Asian/Asian American (4.1%), Native American/Pacific Islander/Eskimo/Aleutian (1.0%), Indian (.8%) and roughly 3.8% of participants identified as other (.8%) or biracial (3.0%). The majority of the participants identified as heterosexual (89.6%), while approximately 2.3% identified as lesbian, 6.3% as bisexual and 1.3% as other. The majority of participants had some college education (55.7%), approximately 19.5% had completed college, and roughly 17.0% had pursued post-baccalaureate classes. A small number of participants did not have college experience with approximately 7.8% having only a high school diploma.

Table 1

*Frequencies and Percentages of Age, Race, Sexual Orientation, Education Level, and Survey Order*

	n	%
Age		
18	66	16.7
19	84	21.3
20	49	12.4
21	25	6.3
22	20	5.1
23	48	12.2
24	35	8.9
25	64	16.2
Race/Ethnicity		
African/African American/Black, Non Hispanic	64	16.2
Asian/Asian American	16	4.1
Biracial	12	3.0
White	249	63.0
Hispanic/Latina	44	11.1
Native American/Pacific Islander/Eskimo/Aleutian	4	1.0
Indian	3	0.8
Other	3	0.8
Sexual Orientation		
Heterosexual	354	89.6
Lesbian	9	2.3
Bisexual	25	6.3
Other	5	1.3

*Note.* Frequencies not adding to 395 and percentages not adding to 100% reflect missing data.

Table 1, continued

*Frequencies and Percentages of Age, Race, Sexual Orientation, Education Level, and Survey Order*

	n	%
Highest Level of Education		
High School Diploma	31	7.8
Some College	220	55.7
College Graduate	77	19.5
Post Baccalaureate Classes	67	17.0
Survey Order		
One	78	19.7
Two	100	25.3
Three	101	25.6
Four	116	29.4

*Note.* Frequencies not adding to 395 and percentages not adding to 100% reflect missing data.

Table 2 reports the frequencies and percentages of participants by physical activity group. The majority of participants met criteria for the PA group (53.4%), participants who reported engaging in a non-yoga physical activity three or more hours per week. Approximately 28% of participants met criteria for the SLPA group, participants who reported engaging in non-yoga physical activity 0 to 2 hours per week. A small percentage of participants met criteria for the yoga group (18.5%), participants who reported practicing yoga two or more hours per week.

Table 2

*Frequencies and Percentages of Physical Activity Group*

	n	%
Sedentary/Low Physically Active	111	28.1
Physically Active	211	53.4
Yoga	73	18.5

Table 3 displays the means and standard deviations of participants' BMIs according to physical activity group. A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between physical activity group and BMI. The independent variable, physical activity group, included three levels; sedentary/low physically active, physically active, and yoga. The dependent variable was BMI. The ANOVA was significant,  $F(2, 332) = 5.13, p < .01$ . Post hoc comparisons using Scheffé's test revealed that the SLPA group had significantly higher BMIs ( $M = 25.25, SD = 6.74$ ) than the yoga group ( $M = 22.50, SD = 3.69$ ). There were no significant differences in BMI between the PA group ( $M = 24.60, SD = 4.94$ ) and the SLPA and yoga groups. According the Centers for Disease Control and Prevention weight status criteria (CDC; 2009), the mean BMIs of the yoga and PA groups were in the normal range (18.5 – 24.9) while the mean BMI of the SLPA group was in the lower end of the overweight range (25.0 – 29.9).

Table 4 reports the frequencies and percentages of hours per week of physical activity by group. The majority of participants in the SLPA group (76.6%) reported exercising 1-2 hours per week. In the PA group, roughly half of the participants (49.3%) reported exercising 3-4 hours per week. Among the yoga group, the majority of participants were divided between practicing 3-4 hours per week (23.3%), 5-6 hours per week (27.4%), and 9 or more hours per week (26.0%).

Table 3

*Analysis of Variance, Means, and Standard Deviations of Participant's Body Mass Index (BMI) by Physical Activity Group*

	N	Mean	SD	F	p
Exercise group				5.13	.006
Sedentary/Low Physically Active	95	25.25	6.74		
Physically Active	176	24.26	4.94		
Yoga	64	22.50	3.69		



Table 4

*Frequencies and Percentages of Hours Per Week of Physical Activity by Group*

	0 hours		1-2 hours		3-4 hours		5-6 hours		7-8 hours		9+ hours	
	n	%	n	%	n	%	n	%	n	%	n	%
Sedentary/Low Physically Active	26	23.4	85	76.6	–	–	–	–	–	–	–	–
Physically Active	–	–	–	–	104	49.3	47	22.3	20	9.5	40	19.0
Yoga	–	–	7 <sup>a</sup>	9.6	17	23.3	20	27.4	10	13.7	19	26.0

*Note.* Percentages not adding to 100% reflect missing data.

<sup>a</sup>These participants engaged in 2 hours per week of physical activity.

The most frequently occurring form of physical activity among the SLPA group was walking (35.1%) (see Table 5), while the most frequently occurring form of physical activity among the PA group was cardio machines (22.7) followed by walking (19.4) and running (18.0).

Table 5

*Frequencies and Percentages of Current Primary Form of Physical Activity by Group*

	Low Physically Active		Physically Active		Yoga	
	n	%	n	%	n	%
Primary form of exercise						
Aerobics	2	1.8	9	4.3	—	—
Basketball	2	1.8	2	0.9	—	—
Biking	—	—	13	6.2	—	—
Cardio machines	13	11.7	48	22.7	—	—
Dancing	7	6.3	11	5.2	—	—
Gymnastics	—	—	2	0.9	—	—
Pilates	1	0.9	5	2.4	—	—
Running	10	9.0	38	18.0	—	—
Soccer	2	1.8	5	2.4	—	—
Softball	—	—	2	0.9	—	—
Swimming	1	0.9	2	0.9	—	—
Tennis	—	—	1	0.5	—	—
Volleyball	—	—	1	0.5	—	—
Walking	39	35.1	41	19.4	—	—
Weight training	1	0.9	15	7.1	—	—
Yoga	—	—	—	—	73	100.0
Other	7	6.3	16	7.6	—	—
Total	85	76.6	211	100.0	73	100.0

*Note.* Sedentary participants were not included; therefore, the total percentage does not add to 100%.

Table 6 displays the means and standard deviations of total years of participation in current primary form of physical activity by physical activity group. Participants in the SLPA group who exercised one to two hours per week reported participating in their current primary form of physical activity an average of 4.60 years ( $SD = 5.55$ ). Participants in the PA group reported participating in their current primary form of physical activity an average of 5.81 years ( $SD = 5.65$ ). Participants in the yoga group reported practicing yoga an average of 3.31 years ( $SD = 3.11$ ).

Table 6

*Length of Time Participating in Current Physical Activity by Physical Activity Group*

	N	Mean	SD
Low Physically Active	81	4.60	5.55
Physically Active	199	5.81	5.65
Yoga	69	3.31	3.11

The most commonly practiced types of yoga included Vinyasa (35.6%) and Bikram (27.4%; see Table 7). The majority of yoga practitioners practiced yoga two to three times per week (52.1%). The majority of yoga practitioners reported practicing at a yoga studio (69.9%) while roughly 18% practiced at home and 12% practiced at a gym.

Table 7

*Frequencies and Percentages of Type, Frequency, and Location of Yoga Practice*

	n	%
Type		
Anusara	1	1.4
Ashtanga	6	8.2
Bikram	20	27.4
Iyengar	2	2.7
Power	4	5.5
Vinyasa	26	35.6
Don't know	5	6.8
Other	9	12.3
Total	73	100.0
Frequency		
2-3 times per week	38	52.1
4-5 times per week	24	32.9
6-7 times per week	11	15.1
Total	73	100.0
Location		
Yoga studio	51	69.9
Gym	9	12.3
Home	13	17.8
Total	73	100.0

Table 8 displays the frequencies and percentages of SLPA, PA, and yoga participants who participated in a different form of physical activity in the past. It also displays the frequency and percentage of sedentary (currently engages in physical activity zero hours per week) SLPA participants who participated in a physical activity in the past. The majority of low physically active (LPA; 53.2%), PA (90%) and yoga (83.6%)

participants reported participating in a different physical activity in the past. The majority of sedentary participants (69.2%) reported participating in physical activity in the past.

Table 8

*Frequencies and Percentages of Different\* Past Physical Activity by Group*

	Sedentary		Low Physically Active		Physically Active		Yoga	
	n	%	n	%	n	%	n	%
Yes	18	69.2	59	53.2	190	90.0	61	83.6
No	7	26.9	26	23.4	20	9.5	12	16.4
Total	25	96.2	85	76.6	210	99.5	73	100.0

*Note.* Frequency totals not adding to 100% reflect missing data.

\*Reflects past participation in physical activity for sedentary participants

Table 9 displays the frequencies and percentages of different/past physical activity by group. The most popular physical activities among the SLPA group included dancing (9.9%), running (9.9%), cardio machines (9.0%), and aerobics (9.0%). The top physical activities among the PA participants included yoga (12.3%), cardio machines (11.8%), and running (10.9%). Cardio machines (21.9%), dancing (15.1%), and running (13.7%) were the most popular activities among the yoga participants.

Table 9

*Frequencies and Percentages of Past/Different Primary Form of Exercise by Group*

	Sedentary/Low Physically Active		Physically Active		Yoga	
	n	%	n	%	n	%
Primary form of exercise						
Aerobics	10	9.0	8	3.8	1	1.4
Basketball	2	1.8	14	6.6	—	—
Biking	—	—	2	0.9	3	4.1
Cardio machines	10	9.0	25	11.8	16	21.9
Dancing	11	9.9	19	9.0	11	15.1
Figure Skating	—	—	—	—	1	1.4
Gymnastics	—	—	4	1.9	1	1.4
Pilates	2	1.8	1	0.5	—	—
Running	11	9.9	23	10.9	10	13.7
Soccer	3	2.7	7	3.3	1	1.4
Softball	2	1.8	9	4.3	—	—
Swimming	—	—	9	4.3	2	2.7
Tennis	—	—	4	1.9	1	1.4
Volleyball	5	4.5	8	3.8	1	1.4
Walking	6	5.4	12	5.7	4	5.5
Weight training	3	2.7	8	3.8	2	2.7
Yoga	6	5.4	26	12.3	3	4.1
Other	6	5.4	11	5.2	4	5.5
Total	77	69.4	190	90.0	61	83.6

*Note.* Total percentages not adding up to 100% reflect missing data.

As shown in Table 10, the average number of years participating in a past different physical activity among the LPA participants was 3.62 ( $M = 3.17$ ). PA participants reported participating in a different physical activity for an average of 6.18 years ( $SD = 4.80$ ), and yoga participants reported participating in a different past physical activity for an average of 6.88 years ( $SD = 4.82$ ).

Table 10

*Length of Time Participating in a Different Past Physical Activity by Physical Activity Group*

	N	Mean	SD
Low Physically Active	73	3.62	3.17
Physically Active	188	6.18	4.80
Yoga	61	6.88	4.82

Zero-order correlations, means, and standard deviations for all measures are displayed in Table 11. Concerning the dependent measures, the means of the current sample paralleled previously reported data on all measures, except the SOQ. Participants' mean SOQ score was -2.50 ( $SD = 11.13$ ), which is lower than Fredrickson and Noll's (1998) reported means of 5.7 ( $SD = 18.4$ ) and 7.7 ( $SD = 17.6$ ) among their two samples ( $N = 93$ ,  $N = 111$ ) of undergraduate women (see Table 12). This finding indicates that the

current sample exhibited lower levels of self-objectification compared to Fredrickson and Noll's sample.

Table 11

*Correlation Matrix for All Measures*

Variables	1	2	3	4	5	6	7	8
1. SOQ	—							
2. OBCS Habitual		—						
3. Body Monitoring	.39**		—					
4. OBCS Body	.22**	.47**		—				
5. Shame	.37**	.57**	.68**		—			
6. AAS	-.20**	-.18**	-.16**	-.24**		—		
7. Flow	-.20**	-.12*	-.13*	-.20**	.30**		—	
8. BAQ	.26**	.31**	.47**	.54**	-.05	0.01		—
9. EAT-26	.17**	.21**	.31**	.44**	-.35**	-.16**	.28**	
10. CES-D								—
Mean	-2.50	4.52	3.41	1.71	3.37	86.09	11.41	16.90
SD	11.13	1.05	1.22	0.64	0.52	16.16	10.1	10.45

*Note.*  $N = 395$ . SOQ = Self-Objectification Questionnaire; OBCS = Objectified Body Consciousness Scale; AAS = Appearance Anxiety Scale; Flow = Flow Scale; BAQ = Body Awareness Questionnaire; EAT-26 = Eating Attitudes Test; CES-D = Center for Epidemiologic Studies Depression Scale.

\* $p < .05$ . \*\* $p < .01$ .



Table 12

*Means and Standard Deviations of Dependent Measures: Initial Versus Current Sample*

	Initial Sample <sup>a</sup>		Current Sample	
	Mean	SD	Mean	SD
SOQ	5.7	18.4	-2.5	11.13
OBCS Body Surveillance	4.22	.91	4.52	1.05
OBCS Body Shame	3.25	1.04	3.41	1.22
AAS	1.80	—	1.71	0.64
Flow	3.41	.42	3.37	0.52
BAQ	85.30	14.90	86.09	16.16
EAT-26	9.9	9.2	11.41	10.1
CES-D	15.46	9.67	16.9	10.45

<sup>a</sup>SOQ (Fredrickson & Noll, 1998) ; OBCS (McKinely & Hyde, 1996); AAS (Keelan et al., 1992); Flow (Syzmanski & Henning, 2007); BAQ (Shields et al., 1989); EAT-26 (Garner et al., 1982); CES-D (Radloff, 1991).

As shown in Table 12, participants' mean levels of habitual body monitoring ( $M = 4.52$ ,  $SD = 1.05$ ) and body shame ( $M = 3.41$ ,  $SD = 1.22$ ) on the OBCS were similar to previously reported data on the OBCS among undergraduate college-aged women .

McKinley and Hyde (1996) reported a mean score of 4.22 ( $SD = .91$ ) for the OBCS Surveillance subscale and a mean of 3.25 ( $SD = 1.04$ ) for the OBCS Body Shame subscale among a sample of 121 undergraduate women. In sample of 102 undergraduate women, the AAS yielded mean score of 1.8 (standard deviation was not reported; Keelan, Dion, & Dion, 1992). In the current study the mean score for the AAS was 1.71 ( $SD = .64$ ). Participants' mean Flow score was 3.37 ( $SD = .52$ ) which is similar to the mean ( $M = 3.41$ ,  $SD = .42$ ) obtained by Syzmanski and Henning (2007) in their sample of women, who ranged from 18 to 63 years old. In the current study the mean score for the BAQ was 86.09 ( $SD = 16.16$ ), which was similar to the mean 85.30 ( $SD = 14.9$ ) obtained in Shields et al.'s (1989) sample of 156 undergraduate women. The current sample yielded a mean score of 11.41 ( $SD = 10.1$ ) on the EAT-26. This score is well below the cut off score ( $\geq 20$ ) suggestive of disordered eating symptomatology (Garner et al., 1982). For the EAT-26, Garner et al. reported a mean of 9.9 ( $SD = 9.2$ ) for a non-clinical sample ( $N = 140$ ) of first and second year college-aged women and a mean of 36.1 ( $SD = 17.0$ ) for a sample ( $N = 160$ ) of college-aged women diagnosed with anorexia nervosa. Radloff (1991) reported a mean of 15.46 ( $SD = 9.67$ ) among a sample of college students ( $N = 214$ ) who completed the CES-D. The mean CES-D score among the current population was ( $SD = 16.90$ ) which is slightly above the cut-off score ( $\geq 16$ ) for probable depression.

Bivariate correlations are displayed in Table 11. Correlation coefficients were computed among the eight dependent variables. The results of the correlational analyses presented in Table 11 show that 26 out of the 28 correlations were statistically significant and were greater than or equal to  $-.12$ . The correlations of the EAT-26 with the Flow scale and the BAQ were not significant. In general, these results suggest that if college-aged women engage in self-objectification, they are also likely to report experiencing habitual body monitoring, body shame, appearance anxiety, decreased flow and awareness of internal bodily states, disordered eating attitudes and behavior and depressive symptoms.

### Analyses of Hypotheses

#### *Hypothesis One*

A one-way multivariate analysis of covariance (MANCOVA) was conducted to test the hypothesis that *compared to the sedentary/low physically active and physically active participants, the yoga practitioners will exhibit lower levels of self-objectification, habitual body monitoring, body shame, appearance anxiety, disordered eating, and depressed mood; and higher levels of flow and awareness of internal bodily states*. BMI was used as the covariate, physical activity group (SLPA, PA, yoga) as the independent variable and scores on the SOQ, Surveillance and Shame subscales of the OBCS, AAS, Flow Scale, BAQ, EAT-26, and C-ESD as the dependent variables. Hypothesis One was partially supported.

As shown in Table 13, findings revealed significant differences among the physical activity groups on the dependent measures, Wilk's  $\Lambda = .88$ ,  $F(16, 646) = 2.74$ ,  $p$

= .001. Analyses of covariances (ANCOVA) on each dependent variable were conducted as follow-up tests to the MANCOVA. Examination of the ANCOVAs revealed significant differences between the physical activity groups on the Flow scale  $F(2, 330) = 7.65, p < .00$ , BAQ  $F(2, 330) = 5.86, p < .00$ , and C-ESD,  $F(2, 330) = 3.07, p < .05$ . The differences between physical activity groups on the SOQ was partially significant  $F(2, 330) = 2.47, p < .09$ .

Table 13

*Group ANCOVAs: SOQ, OBCS Surveillance, OBCS Body Shame, AAS, Flow, BAQ, EAT-26, C-ESD (N = 330)*

				Univariate		
	<i>n</i>	Mean	<i>SD</i>	<i>F</i>	<i>p</i>	Partial $\eta^2$
SOQ				2.470	.090	.015
SLPA	95	.10	.11			
PA	175	.02	.08			
Yoga	64	-.26	.13			
OBCS Surveillance				2.100	.120	.013
SLPA	95	-.03	.10			
PA	175	.11	.08			
Yoga	64	-.18	.13			
OBCS Body Shame				.498	.610	.003
SLPA	95	-.02	.10			
PA	175	.10	.08			
Yoga	64	.10	.13			

Table 13, continued

*Group ANCOVAs: SOQ, OBCS Surveillance, OBCS Body Shame, AAS, Flow, BAQ, EAT-26, C-ESD (N = 330)*

				Univariate		
	<i>N</i>	Mean	<i>SD</i>	<i>F</i>	<i>p</i>	Partial $\eta^2$
AAS				.824	.440	.005
SLPA	95	.12	.10			
PA	175	.03	.07			
Yoga	64	-.08	.12			
Flow				7.650	.001	.044
SLPA	95	-.25	.10			
PA	175	-.02	.08			
Yoga	64	.38	.13			
BAQ				5.860	.003	.034
SLPA	95	-.28	.10			
PA	175	.03	.08			
Yoga	64	.25	.13			
EAT-26				2.220	.110	.013
SLPA	95	-.16	.10			
PA	175	.10	.08			
Yoga	64	.08	.13			
C-ESD				3.070	.050	.018
SLPA	95	.18	.10			
PA	175	-.08	.07			
Yoga	64	-.18	.12			

Post hoc analysis to the univariate ANCOVA for the Flow scale revealed the mean standardized score for the yoga practitioners was significantly higher ( $M = .38, SD = .13$ ) than participants in the SLPA ( $M = -.25, SD = .10$ ) and PA ( $M = -.02, SD = .08$ ) groups. This finding suggests yoga practitioners experienced significantly greater levels of flow compared to participants in the SLPA and PA groups. Post hoc analysis to the univariate ANCOVA for the BAQ revealed the mean standardized score for the yoga practitioners was significantly higher ( $M = .25, SD = .13$ ) than participants in the SLPA ( $M = -.28, SD = .10$ ) and PA ( $M = .03, SD = .08$ ) groups. The mean standardized score for the PA participants was significantly higher ( $M = .03, SD = .08$ ) than participants in the SLPA ( $M = -.28, SD = .10$ ). This finding suggests that the yoga practitioners have significantly higher levels of awareness of internal bodily states compared to participants in the SLPA and PA groups, and the participants in the PA group have significantly higher levels of awareness of internal bodily states compared to participants in the SLPA group. Post hoc analysis to the univariate ANCOVA for the C-ESD revealed the mean standardized score for participants in the SLPA group ( $M = .18, SD = .10$ ) was significantly higher than participants in the PA group ( $M = -.08, SD = .07$ ) and yoga practitioners ( $M = -.18, SD = .12$ ). This finding suggests participants in the SLPA group experience significantly more depressive symptoms compared to participants in the PA group and the yoga practitioners.

Post hoc analysis to the univariate ANCOVA for the SOQ revealed the mean standardized score for participants in the SLPA group ( $M = .10, SD = .11$ ) was significantly higher than the yoga practitioners ( $M = -.26, SD = .13$ ). This finding

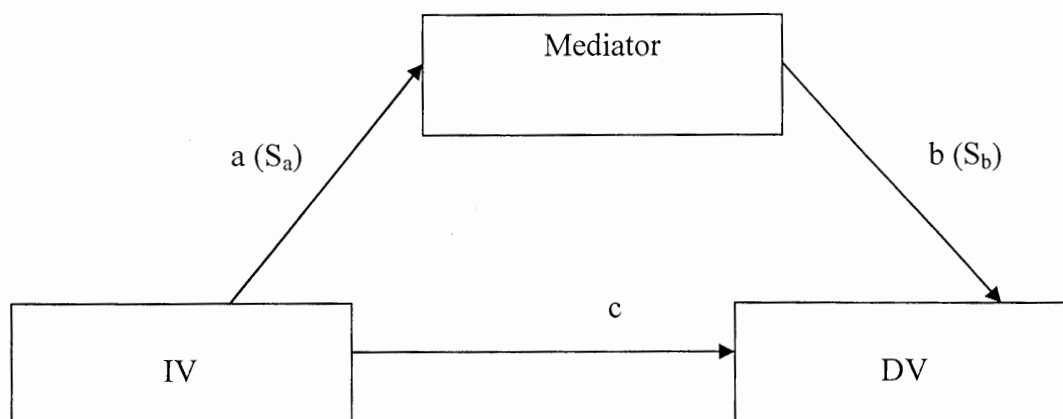
suggests a trend that participants in the SLPA group experience higher levels of self-objectification compared to yoga practitioners.

### *Hypothesis Two*

*A series of regressions were used to test the hypothesis that participants with greater levels of self-objectification will experience greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states; participants who exhibit greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states, in turn, will report more disordered eating symptoms.*

The following three steps proposed by Baron and Kenny (1986) were used to determine if mediation could be tested: (a) the independent variable (IV) must correlate with the dependent variable (DV), (b) the IV must correlate with the mediator variable, and (c) the mediator variable must correlate to the DV. If a mediated effect is present, the strength of the relationship between the IV and the DV will be significantly reduced when the mediator variable is added to the equation (see Figure 2; Frazier, Tix, & Barron, 2004).

To test these conditions the investigator examined whether habitual body monitoring, body shame, appearance anxiety, flow, and awareness of internal bodily states mediated the relationship between self-objectification and disordered eating symptoms. The investigator chose these variables, because mediation requires that the mediator be related to both the independent and dependent variables. To test the mediation models, the investigator tested five sets of three regression analyses.



*Figure 2.* Test of mediation diagram.

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First, the investigator tested whether self-objectification (IV) predicted disordered eating symptoms (DV). Second, the investigator tested whether level of self-objectification significantly predicted habitual body monitoring (the mediator). Finally, the investigator simultaneously tested whether self-objectification and habitual body monitoring significantly predicted disordered eating symptoms. In the final regression, in order to demonstrate mediation, habitual body monitoring must have been a significant predictor of disordered eating symptoms, while self-objectification must not have been a significant predictor of disordered eating symptoms. The investigator repeated the aforementioned procedure for the remaining four mediators (body shame, appearance anxiety, flow, and awareness of internal bodily states).



*Habitual body monitoring.* In the first regression equation, self-objectification significantly predicted disordered eating ( $\beta = .26, t = .5.34, p < .001$ ). In the second regression equation self-objectification significantly predicted habitual body monitoring ( $\beta = .39, t = 8.30, p < .001$ ). In the last regression equation habitual body monitoring significantly predicted disordered eating ( $\beta = .25, t = 4.82, p < .001$ ). When self-objectification and habitual body monitoring were entered simultaneously, the relationship between self-objectification and disordered eating was reduced (from  $\beta = .26$  to  $\beta = .16$ ) but remained significant.

The investigator used the Sobel method (1982) to test for significant reduction in the final regression. The Sobel test was calculated using the following formula:

$$z = \frac{b_a b_b}{\sqrt{(b_a^2 se_b^2 + b_b^2 se_a^2)}}, \text{ where } b_a \text{ referred to the regression coefficient for the prediction of}$$

habitual body monitoring from level of self-objectification,  $b_b$  referred to the regression coefficient for the prediction of disordered eating from habitual body monitoring, and  $se$  referred to their respective standard errors. Results of the Sobel test indicated this reduction was statistically significant  $z = 4.24, p < .001$  (Preacher & Leonardelli, 2006). However, this significant finding was based on the relatively large standard errors of the two beta coefficients; thus, the Sobel test was deemed non-significant. Consequently, body shame did not mediate the relationship between self-objectification and disordered eating (see Table 14).

*Body shame.* In the first regression equation, self-objectification significantly predicted disordered eating ( $\beta = .26, t = .5.34, p < .001$ ). In the second regression

equation self-objectification significantly predicted body shame ( $\beta = .22, t = 4.42, p < .001$ ). In the last regression equation body shame significantly predicted disordered eating ( $\beta = .43, t = 9.61, p < .001$ ). When self-objectification and habitual body monitoring were entered simultaneously, the relationship between self-objectification and disordered eating was reduced ( $\beta = .26$  to  $\beta = .17$ ) but remained significant. Results of the Sobel test indicated this reduction was statistically significant  $z = 4.30, p < .001$  (Preacher & Leonardelli, 2006). Again, this significant finding was based on the relatively large standard errors of the two beta coefficients; thus, the Sobel test was deemed non-significant. This finding indicated that body shame did not mediate the relationship between self-objectification and disordered eating (see Table 14).

*Appearance anxiety.* In the first regression equation, self-objectification significantly predicted disordered eating ( $\beta = .26, t = .5.34, p < .001$ ). In the second regression equation self-objectification significantly predicted appearance anxiety ( $\beta = .37, t = 7.94, p < .001$ ). In the last regression equation appearance anxiety significantly predicted disordered eating ( $\beta = .52, t = 11.34, p < .001$ ). When self-objectification and appearance anxiety were entered simultaneously, the relationship between self-objectification and disordered eating was reduced (from  $\beta = .26$  to  $\beta = .07$ ) and no longer remained significant.

Table 14

*Tests of Mediation: Self-Objectification (IV), Habitual Body Monitoring, Body Shame, Appearance Anxiety, Flow, Awareness of Internal Bodily States (Mediators), and Disordered Eating (DV)*

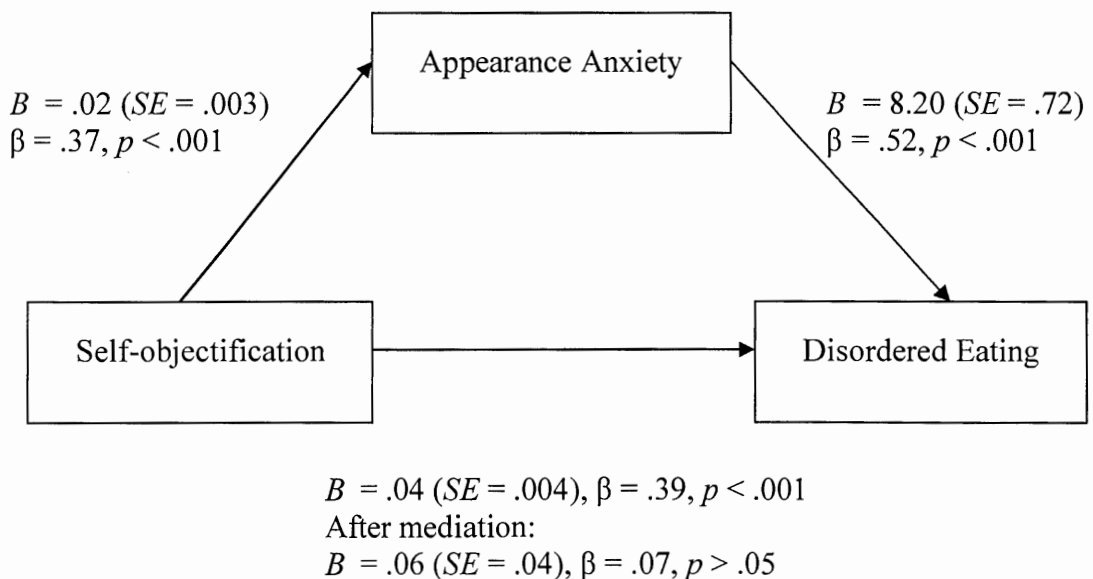
	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>
Step 1 - Self-objectification (IV) Disordered Eating (DV) ( $F(1, 393) = 28.53, R^2 = .07$ )	.24	.04	0.26***	5.34
Step 2 - Self-objectification (IV) Habitual body monitoring (mediator) ( $F(1, 392) = 68.88, R^2 = .15$ )	.04	.00	0.39***	8.30
Body shame (mediator) ( $F(1, 393) = 19.54, R^2 = .05$ )	.02	.01	0.22***	4.42
Appearance anxiety (mediator) ( $F(1, 393) = , R^2 = .14$ )	.02	.00	0.37***	7.94
Flow (mediator) ( $F(1, 393) = 16.88, R^2 = .04$ )	-.01	.00	-.20***	-4.11
Awareness of internal bodily states (mediator) ( $F(1, 393) = 16.92, R^2 = .04$ )	-.02	.00	-0.20***	-4.11
Step 3 - Disordered eating (DV) Habitual body monitoring (mediator) ( $F(2, 391) = , R^2 = .12$ )	2.38	.50	0.25***	4.82
Body shame (mediator) ( $F(2, 392) = 63.72, R^2 = .25$ )	3.58	.37	0.43***	9.61
Appearance anxiety (mediator) ( $F(2, 392) = 83.18, R^2 = .30$ )	8.20	.72	0.52***	11.34
Flow (mediator) ( $F(2, 392) = 14.24, R^2 = .07$ )	.12	.96	0.01	0.12
Awareness of internal bodily states (mediator) ( $F(2, 392) = 15.24, R^2 = .07$ )	.77	.56	0.07	1.37

Table 14, continued

*Tests of Mediation: Self-Objectification (IV), Habitual Body Monitoring, Body Shame, Appearance Anxiety, Flow, Awareness of Internal Bodily States (Mediators), and Disordered Eating (DV)*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>
Step 4 - Self-objectification (IV)				
Habitual body monitoring (mediator)	.15	.05	.16**	3.18
Disordered eating (DV)				
( $F(2, 391) = $ , $R^2 = .12$ )				
Body shame (mediator)				
Disordered eating (DV)	.15	.04	.17***	3.70
( $F(2, 392) = 63.72$ , $R^2 = .25$ )				
Appearance anxiety (mediator)	.06	.04	.07	1.50
Disordered eating (DV)				
( $F(2, 392) = 83.18$ , $R^2 = .30$ )				

This result indicated that participants who reported high levels self-objectification reported high levels of disordered eating; participants who reported high levels of appearance anxiety reported high levels of disordered eating; and the relationship between self-objectification and disordered eating was mediated by appearance anxiety (see Figure 3).



*Figure 3.* Mediation of the relationship between self-objectification and disordered eating by appearance anxiety.

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*Flow.* In the first regression equation, self-objectification significantly predicted disordered eating ( $\beta = .26, t = 5.34, p < .001$ ). In the second regression equation self-objectification significantly predicted flow ( $\beta = -.20, t = -4.11, p < .001$ ). In the last regression equation flow did not significantly predict disordered eating ( $\beta = .01, t = .12, p < .90$ ). The third condition of Baron and Kenny's (1986) procedure for testing mediation requires that the mediator variable must correlate to the DV. Since this condition was not met, further regression analyses to test for mediation were not conducted (see Table 14).

*Awareness of internal bodily states.* In the first regression equation, self-objectification significantly predicted disordered eating ( $\beta = .26, t = .5.34, p < .001$ ). In

the second regression equation self-objectification significantly predicted awareness of internal bodily states ( $\beta = -.20, t = -4.11, p < .001$ ). In the last regression equation awareness of internal bodily states did not significantly predict disordered eating ( $\beta = .07, t = 1.50, p < .17$ ). As was the case with flow, Baron and Kenny's (1986) third requirement was not met; hence, further regression analyses to test for mediation were not conducted (see Table 14).

### *Hypothesis Three*

A series of regressions was used to test the hypothesis that *participants with greater levels of self-objectification will experience greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states; participants who exhibit greater levels of habitual body monitoring, body shame, and appearance anxiety, and lower levels of flow and awareness of internal bodily states, in turn, will report more depressive symptoms.*

Again, the investigator utilized the procedures outlined by Baron and Kenny (1986) to test for mediation amongst the aforementioned variables.

*Habitual body monitoring.* In the first regression equation, self-objectification significantly predicted depressive symptoms ( $\beta = .17, t = 3.40, p < .001$ ). In the second regression equation self-objectification significantly predicted habitual body monitoring ( $\beta = .39, t = 8.30, p < .001$ ). In the last regression equation habitual body monitoring significantly predicted depressive symptoms ( $\beta = .17, t = 3.09, p < .01$ ). When self-objectification and habitual body monitoring were entered simultaneously, the relationship between self-objectification and depressive symptoms was reduced (from  $\beta =$

.17 to  $\beta = .10$ ) but remained significant. Results of the Sobel test indicated this reduction was statistically significant,  $z = 2.92, p < .01$  (Preacher & Leonardelli, 2006). This significant finding was based on the relatively large standard errors of the two beta coefficients; thus, the Sobel test was deemed non-significant. This finding indicated that habitual body monitoring did not mediate the relationship between self-objectification and depressive symptoms (see Table 15).

*Body shame.* In the first regression equation, self-objectification significantly predicted depressive symptoms ( $\beta = .17, t = 3.40, p < .001$ ). In the second regression equation self-objectification significantly predicted body shame ( $\beta = .22, t = 4.42, p < .001$ ). In the last regression equation body shame significantly predicted depressive symptoms ( $\beta = .28, t = 5.77, p < .001$ ). When self-objectification and body shame were entered simultaneously, the relationship between self-objectification and depressive symptoms was reduced (from  $\beta = .17$  to  $\beta = .10$ ) but remained significant. Results of the Sobel test indicated this reduction was statistically significant,  $z = 4.24, p < .01$  (Preacher & Leonardelli, 2006). Again, this significant finding was based on the relatively large standard errors of the two beta coefficients; thus, the Sobel test was deemed non-significant. This finding indicated that body shame did not mediate the relationship between self-objectification and depressive symptoms (see Table 15).

*Appearance anxiety.* In the first regression equation, self-objectification significantly predicted depressive symptoms ( $\beta = .17, t = 3.40, p < .001$ ). In the second regression equation self-objectification significantly predicted appearance anxiety ( $\beta = .37, t = 7.94, p < .001$ ). In the last regression equation appearance anxiety significantly

predicted depressive symptoms ( $\beta = .43, t = 8.86, p < .001$ ). When self-objectification and appearance anxiety were entered simultaneously, the relationship between self-objectification and depressive symptoms was reduced (from  $\beta = .43$  to  $\beta = .01$ ) and no longer remained significant.

Table 15

*Tests of Mediation: Self-Objectification (IV), Habitual Body Monitoring, Body Shame, Appearance Anxiety, Flow, Awareness of Internal Bodily States (Mediators), and Depressive Symptoms (DV)*

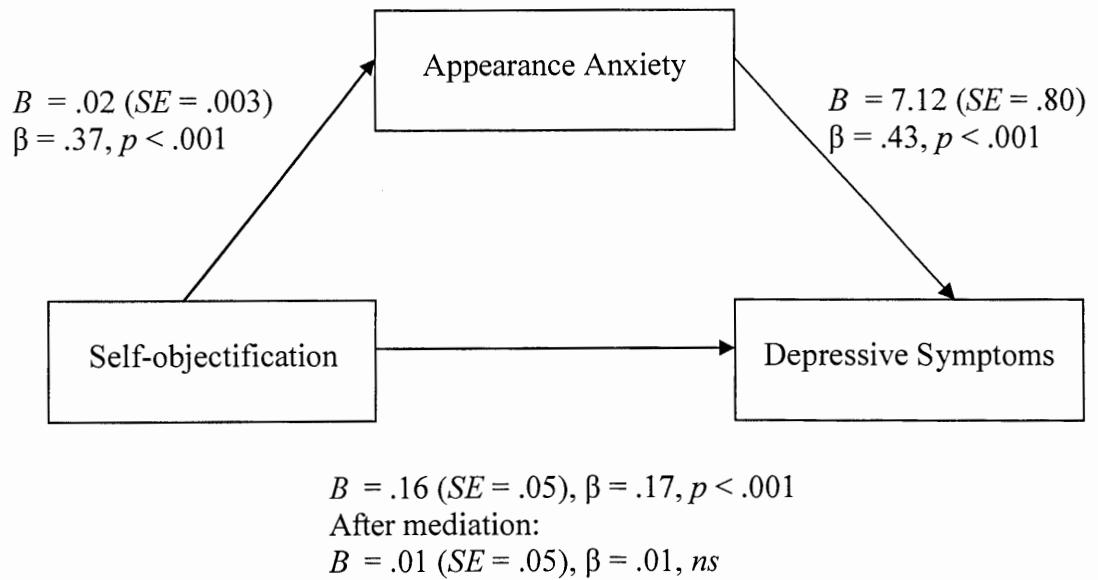
	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>
Step 1 - Self-objectification (IV)				
Depressive symptoms (DV) ( $F(1, 393) = , R^2 = .03$ )	0.16	0.05	0.17***	3.40
Step 2 - Self-objectification (IV)				
Habitual body monitoring (mediator) ( $F(1, 392) = 68.88, R^2 = .15$ )	0.04	0.00	0.39***	8.30
Body shame (mediator) ( $F(1, 393) = 19.54, R^2 = .05$ )	0.02	0.01	0.22***	4.42
Appearance anxiety (mediator) ( $F(1, 393) = 62.99, R^2 = .14$ )	0.02	0.00	0.37***	7.94
Flow (mediator) ( $F(1, 393) = 16.88, R^2 = .04$ )	-0.01	0.00	-0.20***	-4.11
Awareness of internal bodily states (mediator) ( $F(1, 393) = 16.92, R^2 = .04$ )	-0.02	0.00	-0.20***	-4.11



Table 15, continued

*Tests of Mediation: Self-objectification (IV), Habitual Body Monitoring, Body Shame, Appearance Anxiety, Flow, Awareness of Internal Bodily States (Mediators), and Depressive Symptoms (DV)*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>
Step 3 - Depressive symptoms (DV)				
Habitual body monitoring (mediator) ( $F(2, 391) = 10.55, R^2 = .05$ )	1.64	0.53	0.17**	3.09
Body shame (mediator) ( $F(2, 392) = , R^2 = .10$ )	2.42	0.42	0.28***	5.77
Appearance anxiety (mediator) ( $F(2, 392) = 46.14, R^2 = .19$ )	7.12	0.80	0.43***	8.86
Flow (mediator) ( $F(2, 392) = 29.82, R^2 = .13$ )	-6.57	0.96	-.33***	-6.84
Awareness of internal bodily states (mediator) ( $F(2, 392) = 9.30, R^2 = .05$ )	-1.55	0.59	-.13**	-2.63
Step 4 - Self-objectification (IV) and Depressive Symptoms (DV)				
Habitual body monitoring (mediator) ( $F(2, 391) = 10.55, R^2 = .05$ )	0.10	0.05	0.10*	1.94
Body shame (mediator) ( $F(2, 392) = , R^2 = .10$ )	0.10	.05	0.10*	2.19
Appearance anxiety (mediator) ( $F(2, 392) = 46.14, R^2 = .19$ )	0.01	0.05	0.01	0.15
Flow (mediator) ( $F(2, 392) = 29.82, R^2 = .13$ )	0.10	0.05	0.10*	2.12
Awareness of internal bodily states (mediator) ( $F(2, 392) = 9.30, R^2 = .05$ )	0.13	0.05	0.14**	2.81



*Figure 4.* Mediation of the relationship between self-objectification and depressive symptoms by appearance anxiety.

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This result indicated that participants who reported high levels self-objectification reported high levels of depressive symptoms; participants who reported high levels of appearance anxiety reported high levels of depressive symptoms; and the relationship between self-objectification and depressive symptoms was mediated by appearance anxiety.

*Flow.* In the first regression equation, self-objectification significantly predicted depressive symptoms ( $\beta = .17, t = 3.40, p < .001$ ). In the second regression equation self-objectification significantly predicted flow ( $\beta = -.20, t = -4.11, p < .001$ ). In the last regression equation flow significantly predicted depressive symptoms ( $\beta = -.33, t = -6.84,$

$p < .001$ ). When self-objectification and flow were entered simultaneously, the relationship between self-objectification and disordered eating was reduced (from  $\beta = .17$  to  $\beta = .10$ ) but remained significant. Results of the Sobel (1982) test indicated this reduction was statistically significant  $z = 4.04, p < .001$ . Again, this significant finding was based on the relatively large standard errors of the two beta coefficients; thus, the Sobel test was deemed non-significant. This finding indicated that flow did not mediate the relationship between self-objectification and depressive symptoms.

*Awareness of internal bodily states.* In the first regression equation, self-objectification significantly predicted depressive symptoms ( $\beta = .17, t = 3.40, p < .001$ ). In the second regression equation self-objectification significantly predicted awareness of internal bodily states ( $\beta = -.20, t = -4.11, p < .001$ ). In the last regression equation awareness of internal bodily states significantly predicted depressive symptoms ( $\beta = -.13, t = -2.63, p < .01$ ). When self-objectification and awareness of internal bodily states were entered simultaneously, the relationship between self-objectification and disordered eating was reduced (from  $\beta = .17$  to  $\beta = .14$ ) and but remained significant. Results of the Sobel (1982) test indicated this reduction was statistically significant  $z = 2.20, p < .05$ . Again, this significant finding was based on the relatively large standard errors of the two beta coefficients; thus, the Sobel test was deemed non-significant. This finding indicated that awareness of internal bodily states did not mediate the relationship between self-objectification and depressive symptoms.

#### *Hypothesis Four*

A series of regressions was used to test the hypothesis that *compared to the sedentary/low physically active and physically active groups the yoga practitioners will report lower levels of self-objectification, and in turn, will report lower levels of habitual body monitoring, body shame, appearance anxiety, and higher levels of flow and awareness of internal bodily states*. Again, the investigator utilized the procedures outlined by Baron and Kenny (1986) to test for mediation amongst the aforementioned variables. In order to conduct tests of mediation using categorical predictor variables, the investigator dummy coded the PA and yoga groups and used SLPA as the reference group. The first condition of Baron and Kenny's procedure for testing mediation requires that the IV (physical activity group) must be significantly related the DVs (habitual body monitoring, body shame, appearance anxiety, flow, and awareness of internal bodily states). Physical activity group significantly predicted flow (PA:  $\beta = .12$ ,  $t = 2.05$ ,  $p < .05$ ; Yoga:  $\beta = .27$ ,  $t = 4.68$ ,  $p < .001$ ) and awareness of internal bodily states (PA:  $\beta = .15$ ,  $t = 2.68$ ,  $p < .01$ ; Yoga:  $\beta = .25$ ,  $t = 4.29$ ,  $p < .001$ ). The second condition for testing mediation requires that physical activity group (IV) must be significantly related to self-objectification (DV). Since this condition was not met, further regression analyses to test for mediation were not conducted (see Table 16).

Table 16

*Tests of Mediation: Physical Activity Group (IV), Self-Objectification (Mediator), and Habitual Body Monitoring, Body Shame, Appearance Anxiety, Flow, and Awareness of Internal Bodily States (DVs)*

	Group	$R^2$	$\beta$
Step 1 - Physical activity group (IV)			
Habitual body monitoring (DV)	PA	.01	.06
	Yoga	.01	-.07
Body shame (DV)	PA	.00	.01
	Yoga	.00	.01
Appearance anxiety (DV)	PA	.01	-.05
	Yoga	.01	-.12*
Flow (DV)	PA	.05	.12*
	Yoga	.05	.27***
Awareness of internal bodily states (DV)	PA	.05	.15**
	Yoga	.05	.25***
Step 2 - Physical Activity Group (IV)			
Self-objectification (mediator)	PA	.03	-.07
	Yoga	.03	-.18**
Step 3 - Self-objectification (mediator)			
Habitual body monitoring (DV)		.16	.38***
Body shame (DV)		.05	.23***
Appearance anxiety (DV)		.14	.36***
Flow (DV)		.08	-.17**
Awareness of internal bodily states (DV)		.08	-.18***

*Note.* SLPA = Comparison group

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 16, continued

*Tests of Mediation: Physical Activity Group (IV), Self-Objectification (Mediator), and Habitual Body Monitoring, Body Shame, Appearance Anxiety, Flow, and Awareness of Internal Bodily States (DVs)*

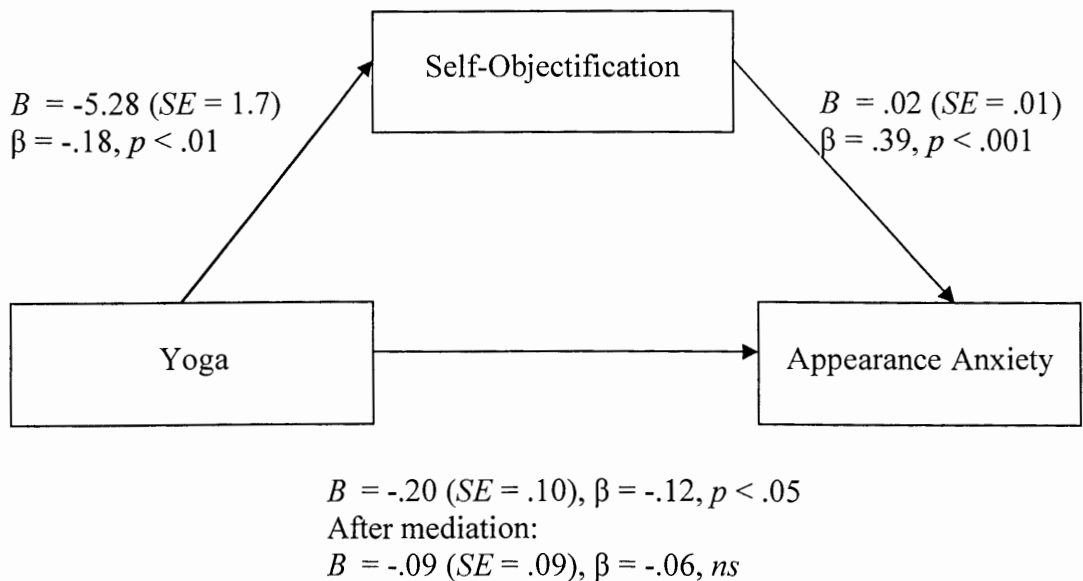
	Group	$R^2$	$\beta$
Step 4 - Physical Activity Group (IV)			
Self-objectification (mediator)	PA	.16	.08
Habitual body monitoring (DV)	Yoga	-.00	-.00
Self-objectification (mediator)	PA	.05	.03
Body shame (DV)	Yoga	.05	.06
Self-objectification (mediator), Appearance anxiety (DV)	PA	.14	-.02
	Yoga	.14	-.06
Self-objectification (mediator), Flow (DV)	PA	.08	.11
	Yoga	.08	.24***
Self-objectification (mediator), Awareness of internal bodily states (DV)	PA	.08	.14
	Yoga	.08	.21

Note. SLPA = Comparison group

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

However, the MANCOVA analysis utilized in Hypothesis One revealed group differences on flow, awareness of internal bodily states, and depressive symptoms. Therefore, the investigator divided the mediation regressions by group (See Table 17). Tests of mediation using the SLPA and PA groups as IVs were not significant. A test of mediation using yoga as the IV, self-objectification as the mediator, and appearance

anxiety as the DV revealed a significant finding. In the first regression equation, yoga practice significantly predicted appearance anxiety ( $\beta = -.12, t = -2.1, p < .05$ ). In the second regression equation yoga practice significantly predicted self-objectification ( $\beta = -.18, t = -3.18, p < .01$ ). In the last regression equation self-objectification significantly predicted appearance anxiety ( $\beta = .39, t = 3.52, p < .001$ ). When yoga practice and self-objectification were entered simultaneously, the relationship between yoga and appearance anxiety was reduced (from  $\beta = -.12$  to  $\beta = -.06$ ) and no longer remained significant (see Figure 5). This finding indicated that the relationship between yoga practice and appearance anxiety was mediated by self-objectification.



*Figure 5.* Mediation of the relationship between yoga practice and appearance anxiety by self-objectification.

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Table 17

*Tests of Mediation: Step 3 Divided by Physical Activity Group*

Step 3 - Self-objectification to DV	SLPA		PA		YOGA	
	$R^2$	$\beta$	$R^2$	$\beta$	$R^2$	$\beta$
Habitual body monitoring (DV)	.14	.38***	0.15	0.4***	0.14	0.37**
Body shame (DV)	.01	.08	0.08	0.29***	0.13	0.36**
Appearance anxiety (DV)	.09	.30*	0.15	.39***	0.15	.39**
Flow (DV)	.10	-.31**	0.00	-.06	0.09	-.29*
Awareness of internal bodily states (DV)	.04	-.21*	0.02	-.15*	0.05	-.21



## CHAPTER V

### DISCUSSION

#### Summary of Significant Findings

This investigator studied the relationships between yoga, non-yoga physical activity, self-objectification, and its proposed consequences among college-aged women. These consequences included habitual body monitoring, body shame, appearance anxiety, decreased peak motivational states, decreased awareness of internal bodily states, disordered eating, and depressed mood. This investigator compared college-aged yoginis (those who practiced yoga two or more hours per week), physically active (PA) women (who engaged in non-yoga physical activity three or more hours per week), and sedentary/low physically active (SLPA) women (who engaged in non-yoga physical activity zero to two hours per week).

This investigator hypothesized:

1. Yoginis would exhibit lower levels of self-objectification and its proposed correlates compared to PA and SLPA women.
2. Habitual body monitoring, body shame, appearance anxiety, flow, awareness of internal bodily states would mediate the relationship between self-objectification and disordered eating.

3. Habitual body monitoring, body shame, appearance anxiety, flow, awareness of internal bodily states would mediate the relationship between self-objectification and depressed mood.
4. Self-objectification would mediate the relationship between physical activity group (yoga, PA, SLPA) and habitual body monitoring, body shame, appearance anxiety, flow, and awareness of internal bodily states.

### *Hypothesis One*

Yoginis exhibited lower levels of self-objectification compared to SLPA women. Hence, yoginis tended to focus on what their bodies could do while SLPA women tended to focus on how their bodies looked. However, this finding was marginally significant. This investigator found no differences in the levels of self-objectification among yoginis and PA women and PA and SLPA women.

Yoginis exhibited higher levels of flow compared to the PA and SLPA women. This finding suggested that college-aged yoginis are better able to fully absorb themselves in tasks they find enjoyable and relatively challenging compared to the PA and SLPA women. PA women had significantly higher levels of flow compared to SLPA women. Yoginis exhibited higher levels of internal bodily awareness compared to PA and SLPA women. This outcome indicated that compared to PA and SLPA women, yoginis are more sensitive to bodily processes (e.g., recognizing satiation), prediction of bodily reactions (e.g., expecting muscle soreness after rigorous exercise), awareness of sleep-wake cycle, and detecting the onset of illness.

This investigator expected that yoginis would exhibit lower levels of depressive symptoms compared to PA and SLPA women. This prediction was partially supported. Yoginis and PA women exhibited significantly lower levels of depressive symptoms compared to SLPA women. However, the yoginis and PA women did not evidence any significant differences in levels of depressive symptoms. The investigator found no significant differences in levels of habitual body monitoring, body shame, appearance anxiety, and disordered eating compared among the three physical activity groups.

#### *Hypotheses Two and Three*

Appearance anxiety fully mediated the relationship between self-objectification and disordered eating and self-objectification and depressive symptoms. Habitual body monitoring, body shame, flow, and awareness of internal bodily states did not mediate the relationships between self-objectification and disordered eating and self-objectification and depressive symptoms.

#### *Hypothesis Four*

Self-objectification did not mediate the relationship between physical activity group and habitual body monitoring, body shame, appearance anxiety, flow, and awareness of internal bodily states. When this investigator examined the physical activity groups individually, she observed that the relationship between yoga practice and appearance anxiety was mediated by self-objectification.

#### Integration with Past Literature

Daubenmier (2005) found that yoginis who practiced yoga regularly exhibited lower levels of self-objectification compared to physically active non-yoga practitioners.

This investigator found that yoginis exhibited lower levels of self-objectification compared to SLPA women but there were no differences in self-objectification between PA women and yoginis. The differences between Daubenmier's study and the current study suggest that length of yoga practice and age may play a role in the effectiveness of yoga as a buffer to self-objectification.

The yoginis in Daubenmier's (2005) study practiced yoga on average for 6 years and 2 months while the yoginis in the current study practiced on average for 3 years and 4 months. The mean age in Daubenmier's sample was 37.16 years old while the mean age of the yoginis in this sample was 21.8 years old. College-aged women are at greatest risk for engaging in self-objectification (Tiggemann & Lynch, 2001), and self-objectification decreases with age (McKinley, 2006a; Szymanski & Henning, 2007). The average self-objectification levels of the yoginis in Daubenmier's study were significantly lower than those of the yoginis in the current study. Consequently, the aforementioned findings suggest the effectiveness of yoga for buffering women from self-objectification may be dependent on age and length of practice for women who are physically active.

Greenleaf and McGreer (2006) showed that self-objectification levels did not differ between physically active college-aged women who engaged in aerobic classes and sedentary college-aged women. Similarly, in the current study self-objectification levels did not differ between the PA and SLPA women. These findings suggest that, contrary to Fredrickson and Robert's (1997) hypothesis, physical activity may not buffer girls and women from self-objectification.

When examined together, the findings of Daubenmier's (2005) and Greenleaf and McGreer's (2006) studies and the current study indicate that the physical activity component of Objectification Theory is more complex than originally proposed by Fredrickson and Roberts (1997). They proposed physical activity can buffer girls and women from engaging in self-objectification. The results of the current study indicate that the effectiveness of physical activity in reducing self-objectification may depend on the relationship between frequency and duration of physical activity, and the age of the participant.

Results of the current study further suggest a relationship between type and frequency of physical activity in the reduction of self-objectification. Specifically, college-aged women who practiced yoga (compared to non-yoga physical activity) two or more hours per week exhibited lower levels of self-objectification compared to college-aged women who engaged in non-yoga physical activity two hours or fewer per week. However, no differences in self-objectification were found between college-aged women who practiced yoga two or more hours per week and college-aged women who engaged in non-yoga physical activity three or more hours per week.

To this investigator's knowledge, no researchers have previously studied the relationship between yoga and Csikszentmihalyi's (1990) concept of flow. Csikszentmihalyi suggested that flow and yoga share similar characteristics, "Both try to achieve a joyous, self-forgetful involvement through concentration, which in turn is made possible by a discipline of the body" (p. 105). In the current study, yoginis exhibited greater levels of flow compared to PA and SLPA women. Physical activities popular

among college-aged women can increase their propensity to self-objectify (Parsons & Betz, 2001). For example, girls and women who participate in gymnastics wear form-fitting leotards and typically perform in front of an audience. Wearing form-fitting attire can induce self-objectification (Fredrickson et al., 1998; Hebl et al., 2004). When exercising in a fitness club or outdoors, women are often subjected to the stares and scrutiny of others. For many women, merely anticipating a male gaze will induce self-objectification (Calogero, 2004). These disruptions could deprive women of the mental resources needed to achieve a state of flow. Unlike many physical activities popular among college-aged women, yoga is typically not practiced in front of an audience or in a public arena. Consequently, yoginis are less likely to use their mental energy to examine how their bodies look to others and themselves. Hence, they have more cognitive resources available to achieve a state of flow.

Daubenmier (2005) found that yoginis exhibited more internal bodily awareness compared to PA women who engaged in non-yoga activities. Similarly, in the current study yoginis exhibited greater internal bodily awareness compared to PA and SLPA women. Impett et al. (2006) found that women exhibited more internal bodily awareness after completing a two-month yoga immersion program. Yoga focuses on shifting the practitioner's awareness from external awareness to internal awareness. Many yoga rooms do not have mirrors, because yoga instructors want yoginis to focus on how their body feels rather than how it looks. Moreover, yoginis are often encouraged to observe sensations in their bodies without judgment throughout the class.

Impett et al. (2006) found that yoga practice contributed to decreased habitual body monitoring in women. However, the investigator of the current study found no differences in habitual body monitoring levels among college-aged yoginis, and PA and SLPA women. Again, these differences might be related to length and frequency of yoga practice and age of the participants. The participants in Impett et al.'s study practiced yoga an average of 5 years and 6 months. Moreover, they attended yoga classes approximately 7.5 hours per week during the 2-month yoga immersion program in which data were collected. The yoginis in the current study had practiced yoga for a substantially shorter period of time (3 years and 4 months) and the majority (60.3 %) practiced less than 7 hours per week. Women may need to practice yoga for a sustained frequency and duration in order to reap the full benefits of practice. The mean age of participants in Impett et al.'s study was 34.4 years old while the mean age of yoginis in the current study was approximately 12 years younger. As women age, their propensity to engage in habitual body monitoring decreases (Tiggemann & Lynch, 2001).

Another possible explanation exists for the lack significant differences in levels of habitual body monitoring, body shame, appearance anxiety, and disordered eating compared among the three physical activity groups. The sexual objectification of college-aged women is so pervasive that physical activity cannot buffer them from the aforementioned correlates of self-objectification. During this developmental period women commonly seek romantic partners and begin their careers. Women are more likely to be rewarded in these domains when they meet the thin societal ideal of beauty (Bartky, 1990; Cawley, 2004; Fredrickson & Roberts, 1997; Karshak, 1992; Roehling, &

Pilcher, 2007). Hence, physical activity cannot override the societal pull for these women to ensure their bodies meet cultural standards of feminine beauty.

Slater and Tiggemann (2002) and Greenleaf and McGreer (2006) found that appearance anxiety mediated the relationship between self-objectification and disordered eating. Similarly, this investigator found that appearance anxiety mediated the relationship between self-objectification and disordered eating.

Previous researchers demonstrated that body shame mediated the relationship between self-objectification and disordered eating in women (see Calogero et al., 2005; Greenleaf & McGreer, 2006; Noll & Fredrickson, 1998; Slater & Tiggemann, 2002). In the current study, body shame did not mediate the relationship between self-objectification and disordered eating. There are several possible explanations for this finding. First, Calogero et al. (2005) and Noll and Fredrickson (1998) measured body shame with the Body Shame Questionnaire (Fredrickson et al., 1998) while this investigator utilized the Body Shame subscale of the OBCS. The Body Shame Questionnaire is an 18-item instrument while the Body Shame subscale of the OBCS is an 8-item instrument. Consequently, the Body Shame Questionnaire might have more fully captured this construct compared to the measure utilized by this investigator. Second, Greenleaf and McGreer utilized the same instruments as the current investigator to examine the relationship between self-objectification, body shame, and disordered eating. However, they utilized step-wise hierarchical regressions to examine this relationship while this investigator utilized Barron and Kenny's (1986) steps and Sobel's (1982) test of significance to test for mediation. Greenleaf and McGreer did not test for



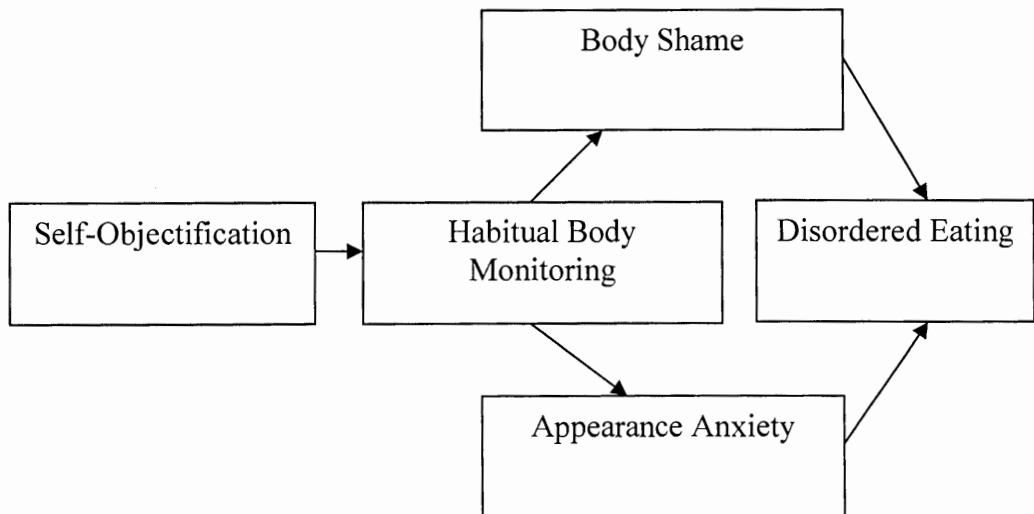
the significance of the mediation (e.g., Sobel test of significance). Moradi and Huang (2008) reported that lack of significance testing for mediation is a common problem in self-objectification research. Finally, Slater and Tiggemann (2002) utilized the OBCS Body Shame subscale with a sample of adolescent girls. The norming sample for this instrument did not include adolescent girls. Since the publication of Slater and Tiggemann's study, an adolescent version of this instrument was developed (see Grabe et al., 2007). Consequently, age differences between the sample in the current study and Slater and Tiggemann's study, along with potential methodological problems that could have occurred with using the OBCS Body Shame subscale with an adolescent population, may account for the discrepant findings.

Research addressing the role of awareness of internal bodily states in mediating the relationship between self-objectification and disordered eating is inconsistent and less prevalent than studies addressing the mediating effects of body surveillance and body shame (Moradi & Huang, 2008). Several investigators found that awareness of internal bodily states did not mediate this relationship (Muehlenkamp & Saris-Baglama, 2002; Tiggemann & Kuring, 2004; Tiggemann & Slater, 2001). Likewise, this investigator did not observe this mediating effect. Myers and Crowther (2008) observed that awareness of internal bodily states did mediate the relationship between self-objectification and disordered eating. However, unlike previous researchers investigating this relationship, Myers and Crowther's measure of internal bodily states included both physical and emotional awareness, whereas previous researchers only included measures of physical awareness. Hence, had this investigator chosen a measure of internal bodily awareness

which also included measures of emotional states, she may have observed significant mediation.

To the investigator's knowledge, previous researchers have not studied the mediating effects of habitual body monitoring and flow on the relationship between self-objectification and disordered eating in a three-variable path analysis (i.e. path analyses containing only one mediator). Rather, the mediating effects of these variables have been included in path analyses of the relationship between self-objectification and disordered eating containing multiple mediators (see Haines et al., 2008; Kozee & Tylka, 2006; Muehlenkamp & Saris-Baglama, 2002; Tiggemann & Kuring, 2004; Tiggemann & Lynch, 2001; Tiggemann & Slater, 2001). Within the context of multiple mediator path analyses, habitual body monitoring (Haines et al., Kozee & Tylka; Tiggemann & Kuring; Tiggemann & Lynch; Tiggemann & Slater; ), body shame (Haines et al., Kozee & Tylka; Tiggemann & Kuring; Tiggemann & Lynch; Tiggemann & Slater), and appearance anxiety (Tiggemann & Kuring; Tiggemann & Lynch) mediated the relationship between self-objectification and disordered eating. Flow was not a mediator in these paths (Tiggemann & Kuring; Tiggemann & Slater). Similarly, this investigator found that flow did not mediate the relationship between self-objectification and disordered eating.

The results of the current study in conjunction with the aforementioned research suggest habitual body monitoring does not directly mediate the relationship between self-objectification and disordered eating. Habitual body monitoring appears to mediate the relationship between self-objectification and body shame and appearance anxiety (see Figure 6).



*Figure 6.* Path diagram of the mediating role of habitual body monitoring in the relationship between self-objectification and disordered eating.

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Given the process of self-objectification involves viewing one's body, future researchers should investigate whether self-objectification and habitual body monitoring are truly separate constructs. If there is significant overlap between the two constructs, researchers should consider developing a measure of self-objectification that better captures the process of habitual body monitoring.

Previous researchers demonstrated that habitual body monitoring (Haines et al., 2008; Szymanski & Henning, 2007; Tiggemann & Kuring, 2004), body shame (Grabe et al., 2007; Haines et al.; Szymanski & Henning; Tiggemann & Kuring), appearance anxiety (Szymanski & Hennig; Tiggemann & Kuring) and flow (Syzmanski & Henning)

mediated the relationship between self-objectification and depression. In the current study only appearance anxiety mediated the relationship between self-objectification and depression. Discrepancies between this investigator's findings and those of previous researchers could partly be accounted for by measurement differences. The aforementioned previous researchers, with the exception of Haines et al., utilized measures of depression different from the one utilized by this investigator, the CES-D. Haines et al. utilized the CES-D; however, unlike this investigator, they did not utilize the SOQ as their measure of self-objectification.

The results of the current study suggest finer distinctions need to be made between the relationship between self-objectification and depressed mood. Research shows that the relationship between these two variables is not direct. However, the results of the current study and previous research indicates that the indirect paths between these constructs is not clear. For example, Tiggemann and Kuring (2004) found that self-objectification led to habitual body monitoring, which in turn led to appearance anxiety, which in turn led to depressed mood. This investigator found self-objectification led to appearance anxiety which in turn led to depressed mood. Hence, the roles habitual body monitoring and appearance anxiety play in the link between self-objectification and depressed mood are ambiguous. Further research is needed to increase our understanding of the mediating variables in the relationship between self-objectification and depressed mood.

Support for a postulate of Objectification Theory (Fredrickson & Roberts, 1997) was found among yoginis. Specifically, for yoginis, self-objectification predicted

appearance anxiety. Racial and ethnic differences among the physical activity groups may have contributed to this investigator not observing a relationship between self-objectification and appearance anxiety in the SLPA and PA women. The PA ( $n = 50$ ) and SLPA ( $n = 62$ ) groups included significantly more women of color compared to yoga group ( $n = 12$ ). Given that the instruments commonly used in self-objectification research, including the ones used in this study, were developed with samples of White college-aged women, they may not have fully captured self-objectification and its proposed correlates for the women of color in this study.

#### Implications for Theory

Fredrickson and Roberts (1997) posited that physical activity could help girls and women experience their body in a positive way and hence, reduce self-objectification. The results of the current study suggest that the aforementioned postulate of Objectification Theory does not capture the complexity between physical activity and the reduction of self-objectification in girls and women. The type and amount of physical activity play a role in the reduction of self-objectification and several of its correlates. Engaging in physical activity that focuses on body awareness, such as yoga, appears helpful in reducing self-objectification, increasing flow and internal bodily awareness in college-aged women. Additionally, participating in physical activity three or more hours per week appears more effective in increasing awareness of internal bodily states and decreasing depressive symptoms compared to exercising two or fewer hours per week. Finally, age appears to play a role in the effectiveness of physical activity in reducing self-objectification. Specifically, the results of the current study and previous research

studies suggest that yoga is more effective in reducing self-objectification among women in their 30s compared to college-aged women. Further research is needed to better understand the relationship between age and the effectiveness of physical activity in the reduction of self-objectification.

### Implications for Research

Future research investigating the relationships between yoga, self-objectification and its correlates is needed. The current study illuminated differences between college-aged yoginis, PA, and SLPA women on self-objectification and two of its correlates, flow and awareness of internal bodily states. However, the difference in self-objectification levels between the yoginis and SLPA women was only marginally significant. Seventy-three yoginis participated in the current study compared to 211 PA and 111 SLPA women. A larger sample of yoginis may be needed to detect the effect of yoga in buffering college-aged women from self-objectification and its proposed outcomes.

Additionally, researchers should consider developing more robust measures of self-objectification, body shame, and body surveillance. Although self-objectification researchers have widely used the SOQ (Fredrickson & Noll, 1998) and the OBCS body surveillance and body shame subscales, these measures are quite brief. The SOQ contains 10 items while both of the OBCS subscales each contain 8 items. Given the complexity of these constructs, one should question the validity of such brief measures and strive to develop measures which better capture the nuances these constructs, particularly for women of color. Finally, self-objectification researchers should consider using a measure of internal bodily states that includes items that assess emotional awareness in addition to

physical awareness (please see discussion of Myers and Crowther's [2008] measure of internal bodily states under Integration with Previous Literature section).

Researchers are encouraged to investigate whether other physical activities performed with an internal focus, such as Tai Chi, Pilates, and Nia, reduce self-objectification. Like yoga, these physical activities focus on intentional movement, breathing, and bodily awareness. Moreover, some women might find the slow and intentional movement used in Tai Chi less intimidating than the movement involved in other mind-body physical activities.

Future researchers investigating the relationship between self-objectification and yoga in college-aged women should consider including a measure of sexual dysfunction in their study. This tenant of Objectification Theory has rarely been studied, and sexual dysfunction is more commonly reported among younger women compared to older women (Lewis et al., 2004). Given college-aged yoginis in the current study experienced higher levels of flow and awareness of internal bodily states compared to PA and SLPA women, they might exhibit greater sexual self-efficacy during sexual activity, although this variable was not included in the current investigation.

### Implications for Practice

University wellness staff members (e.g., college center counselors, health center staff) can utilize yoga as part of an initiative to reduce self-objectification and its proposed correlates in college-aged women. The results of the current study suggest yoga could be useful in decreasing self-objectification, increasing flow, and internal bodily awareness in college-aged women. Therefore, university wellness staff are encouraged to

develop outreach programming focusing on well-being, body image, and eating disorders that incorporates yoga and to provide regular on-campus yoga classes to students.

Campus outreach initiatives involving introductory yoga classes and psychoeducation about the benefits of yoga could encourage reluctant women to practice. University wellness representatives could promote yoga classes at health/student organization fairs, in class presentations, at university health clinics, and counseling centers. College-aged women could also benefit from women-only yoga classes conducted in spaces where they are not subjected to the stares and scrutiny of others, such as a classroom rather than the fitness center.

The small number of women of color in the current study who practiced yoga suggests that yoga might not be as widely available or appealing to them. The yoginis in the current study were predominantly white and had the lowest average BMI of the three physical activity groups. Hence, many women of color may believe that yoga is only suited for thin, white women. University wellness representatives are encouraged to develop outreach programming that brings the benefits of yoga to women of color. Santosha Yoga with Myra Breuer (Breuer, n.d.) and the Kripalu Teaching for Diversity Program (Kripalu, 2009) are two examples of programs designed to introduce yoga to women of color.

The popularity of yoga classes on university campuses is growing. However, many universities charge students an additional fee to attend these classes. Regular memberships to yoga studios can also prove cost prohibitive to students. Consequently, low-cost or free, on-campus yoga classes are needed.



Although there was not a significant difference in eating disorder symptoms among college-aged yoga practitioners, physically active women, and sedentary/low physically active women, there was a difference among these groups in traits commonly associated with disordered eating. Women with eating disorders often lack awareness of internal bodily sensations, such as hunger and satiation (Myers & Crowther, 2008). Consequently, yoga classes designed specifically for college-aged women with eating disorders might prove beneficial increasing their awareness of internal bodily states.

### Strengths of the Study

Moradi and Huang (2008) recently conducted a review of the self-objectification literature and recommended that future researchers focus on testing Objectification Theory with diverse groups of women. The majority of Objectification Theory researchers have conducted their research with White, college-aged women and frequently do not ask about the sexual orientation of their participants (Moradi & Huang). Nearly half of the participants in the current study were women of color and approximately ten percent identified as non-heterosexual, contributing a more diverse perspective to the literature.

Most self-objectification research has focused on the following three domains: (a) self-objectification and its proposed consequences, (b) self-objectification and disconnection from one's body, and (c) sexual objectification as a proposed precursor to self-objectification (see Moradi & Huang, 2008). This investigator not only added to the current literature addressing the first two aforementioned domains, but also investigated a

way to prevent self-objectification. Specifically, yoga as an intervention for prevention of self-objectification in college-aged women was examined.

To this investigator's knowledge, no researchers have empirically studied the relationship between yoga and Csikszentmihalyi's (1990) concept of flow. This investigator observed that college-aged yoginis exhibited greater levels of flow compared to their PA and SLPA peers who did not practice yoga. This finding is particularly exciting given the psychological benefits of flow. In his discussion of flow Csikszentmihalyi posited:

When the information that keeps coming into awareness is congruent with goals, psychic energy flows effortlessly. There is no need to worry, no reason to question one's adequacy. But whenever one does stop to think about oneself, the evidence is encouraging: "You are doing all right." (p. 39)

Given college-aged women are constantly bombarded with unrealistic, societal messages about feminine beauty, it is encouraging to identify an activity that helps them develop a sense of agency and self-confidence — the belief they are "doing all right."

#### Limitations of the Study

This study had several limitations. First, using an internet survey limited the investigator's control over data collection. It prevented the investigator from knowing the number of participants who withdrew from the survey and if these participants differed significantly from the participants who did complete the survey. Internet surveys tend to have lower response rates compared to telephone and traditional paper and pencil surveys (Couper, Traugott, & Lamias, 2001; Fricker & Schonlau, 2002). In order to protect the

anonymity of participants, the investigator did not collect Internet Protocol (IP) addresses. Consequently, she could not determine which, if any, participants submitted multiple surveys. The investigator also could not confirm the accuracy of the demographic variables (e.g., gender, age) submitted by participants.

Second, participants self-selected themselves for this study. Participants who chose to submit surveys might have differed in significant ways from women who chose not to participate in this study. For example, women who find yoga helpful in improving their attitude towards their body and well-being might have been more willing to participate compared to women who did not derive these benefits from yoga. Moreover, the majority of the non-yoga participants received course credit for their participation. Consequently, their motivation for completing the survey may have differed from the women who practiced yoga. For example, the investigator discarded several non-yoga surveys. It appeared several of these participants skipped through the majority of the items in an effort to receive the respondent ID number they needed to provide in order to receive course credit.

Third, this research design did not control for yoga instructor, type, or place of practice. Even yoga instructors who teach the same type of yoga possess different teaching styles, mannerisms, experience levels, and beliefs about yoga. For example yoginis practicing Iyengar yoga with one instructor may have a very different experience than yoginis practicing Iyengar yoga with another instructor. Moreover, some yoginis may be more responsive to some types of yoga instructors (e.g., female versus male) versus others. Significant differences also exist among types of yoga practice. For

example, Bikram yoga is practiced in a heated room and involves a physically intensive series of 26 postures (Choudhury, 2007) while Viniyoga focuses on gentle-flowing, therapeutic movement (Kraftsow, 1999). Yoginis' practice can also vary according to the type of setting in which they practice. For example, practicing in a yoga studio with low lighting and no mirrors can feel qualitatively different than practicing in a fitness club with mirrors, fluorescent lighting, and little privacy.

Fourth, the majority of participants in the PA and SLPA groups were enrolled at Texas Woman's University (TWU). TWU is a unique college campus given that the majority of students are women, the average student age is 26 years old, and 42% of undergraduates are students of color (COLLEGEdata, 2009; TWU, 2008). Rich and Thomas (2008) studied the relationship between ethnicity and weight issues among 209 TWU undergraduate women under the age of 26. They found that the mean BMIs for African American, European American, and Latina American participants were higher than those typically found in the female college population (Rich & Thomas). One should consider that female undergraduates at TWU may be less likely to engage in self-objectification compared to undergraduates at more traditional college campuses, because there is less exposure to ultra thin peers and the male gaze.

Finally, this investigator utilized a cross-sectional design; hence, participants' levels of self-objectification and its correlates were only captured at one point in time. Given previous researchers have found an inverse relationship between self-objectification and length and frequency of yoga practice (see Impett et al., 2006), a longitudinal study addressing the relationship between yoga, self-objectification and its

correlates is needed in order to understand the temporal changes associated with these relationships.

### Conclusions

This investigator examined whether yoga practice was associated with lower levels of self-objectification and its related consequences in college-aged women. She also examined the roles of habitual body monitoring, body shame, appearance anxiety, flow, and awareness of internal bodily states in the link between self-objectification and disordered eating and self-objectification and depressed mood. Yoginis exhibited lower levels of self-objectification compared to SLPA women. They exhibited higher levels of flow and internal bodily awareness compared to PA and SLPA women. The yoginis and PA women exhibited lower levels of depressive symptoms compared to the SLPA women. This investigator observed no significant difference in levels of habitual body monitoring, body shame, appearance anxiety, and disordered eating among yoginis, PA and SLPA women.

For the entire sample, appearance anxiety fully mediated the relationship between self-objectification and disordered eating and self-objectification and depressive symptoms. Contrary to prediction, habitual body monitoring, body shame, flow, and awareness of internal bodily states did not mediate the relationships between self-objectification and disordered eating and self-objectification and depressive symptoms. While self-objectification did not mediate the relationship between physical activity groups (i.e., yoga, LPA, PA) and habitual body monitoring, body shame, appearance

anxiety, flow, and awareness of internal bodily states, it did mediate the relationship between yoga practice and appearance anxiety.

Findings of this study provide support for the use of yoga as an intervention for the reduction of self-objectification and the increase of flow and awareness of internal bodily states in college-aged women. University wellness staff are encouraged to incorporate the use of yoga into an overall strategy designed to improve the well being and physical health of college-aged women. Future research provides the opportunity to better understand the relationships between yoga, self-objectification and its proposed correlates, particularly among college-aged women of color. Given the proliferation of the sexualization of girls and women in our culture and the rise of eating and mood disorders among college-aged women, mental health professionals are encouraged to continue investigating ways to buffer girls and women from the harmful effects of engaging in self-objectification.

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## APPENDIX A

### Demographics Questionnaire

**Please place a check beside the item that describes you the most or write your answer in the space provided.**

**1. Age:**

- ☐ 18
- ☐ 19
- ☐ 20
- ☐ 21
- ☐ 22
- ☐ 23
- ☐ 24
- ☐ 25

**2. Gender:**

- ☐ Female
- ☐ Male
- ☐ Intersexed
- ☐ Transgendered
- ☐ Male to Female
- ☐ Female to Male

**3. Sexual Orientation:**

- ☐ Heterosexual
- ☐ Gay
- ☐ Lesbian
- ☐ Bisexual
- ☐ Other (Specify: \_\_\_\_\_)

**4. Race/Ethnicity:**

- ☐ African / African American / Black, non-Hispanic
- ☐ Asian / Asian American
- ☐ Biracial (describe) \_\_\_\_\_
- ☐ Caucasian / European / White, non-Hispanic
- ☐ Hispanic/Latino
- ☐ Native American / Pacific Islander / Eskimo / Aleutian
- ☐ Other (describe) \_\_\_\_\_

**5. Height: \_\_\_\_\_**

**6. Weight: \_\_\_\_\_**



**7. Highest Level of Completed Education:**

- ☐ Less than High School
- ☐ High School Diploma
- ☐ Some College
- ☐ College Graduate
- ☐ Post-Baccalaureate Class

**8. Within the past two months, approximately how many hours per week have you exercised?**

- ☐ 0 hours (Demographics survey will skip to question 15 if the participant chooses this response)
- ☐ 1-2 hours
- ☐ 3-4 hours
- ☐ 5-6 hours
- ☐ 7-8 hours
- ☐ 9+ hours

**9. What is your current primary form of exercise?** (The survey will skip to question 13 unless the participant chooses yoga).

- ☐ Aerobics
- ☐ Basketball
- ☐ Biking
- ☐ Cardio machines (e.g. elliptical trainer, treadmill)
- ☐ Dancing (Specify: \_\_\_\_\_)
- ☐ Diving
- ☐ Figure skating
- ☐ Gymnastics
- ☐ Nia
- ☐ Pilates
- ☐ Running
- ☐ Soccer
- ☐ Softball
- ☐ Swimming
- ☐ Tennis
- ☐ Volleyball
- ☐ Walking
- ☐ Weight training
- ☐ Yoga
- ☐ Other (Specify: \_\_\_\_\_)

**10. What type of yoga do you practice?**

- ☐ Anusara
- ☐ Ashtanga
- ☐ Bikram
- ☐ Iyengar
- ☐ Kundalini
- ☐ Power
- ☐ Viniyoga
- ☐ Vinyasa
- ☐ Other (Specify: \_\_\_\_\_)
- ☐ Don't know

**11. How often do you practice yoga?**

- ☐ 0-1 times per week
- ☐ 2-3 times per week
- ☐ 4-5 times per week
- ☐ 6-7 times per week

**12. Where do you practice yoga?**

- ☐ Yoga studio
- ☐ Gym
- ☐ Home

**13. How long have you participated in this form of exercise?**

years  months

**14. In the past, have you regularly participated in a different kind of physical activity?**

- ☐ Yes
- ☐ No (If the participant answers no, the survey will end.)

**15. In the past have you regularly participated in a physical activity?**

- ☐ Yes
- ☐ No (If the participant answers no, the survey will end.)

**16. In the past, what was the primary form of physical activity in which you participated?**

- ☐ Aerobics
- ☐ Basketball
- ☐ Biking
- ☐ Cardio machines (e.g. elliptical trainer, treadmill)
- ☐ Dancing (Specify type: \_\_\_\_\_)
- ☐ Diving
- ☐ Figure skating
- ☐ Gymnastics
- ☐ Nia
- ☐ Pilates
- ☐ Running
- ☐ Soccer
- ☐ Softball
- ☐ Swimming
- ☐ Tennis
- ☐ Volleyball
- ☐ Walking
- ☐ Weight training
- ☐ Yoga
- ☐ Other (Specify type: \_\_\_\_\_)

**17. How long did you participate in this physical activity?**

\_\_\_\_\_ years    \_\_\_\_\_ months

## APPENDIX B

### Request for Assistance Letter

Dear \_\_\_\_\_,

My name is Lauren Woolley, and I am a doctoral student in the Counseling Psychology program at Texas Woman's University. I am currently conducting my dissertation research and would appreciate your assistance.

I am investigating the relationship between physical activity, women's attitudes towards their bodies, and well-being. I am hoping the results of this study will provide valuable information to mental health professionals, medical professionals, and young women. I would appreciate your assistance in recruiting participants for my study.

Participants must be women between the ages of 18-25. Interested participants should log onto the website designated below. Participation in this study will take approximately 25 minutes and is completely voluntary. Participants will have the opportunity to enter a **drawing for a \$100 gift certificate to Amazon.com**. I will also make the results of this study available to you and participants via email if desired.

I would greatly appreciate you distributing (e.g., email, listserves, announcements prior to class, and bulletin board postings) the attached "Request for Participation Letter" to potential participants meeting the aforementioned participant criteria. Also, please feel free to distribute this email to others who might be interested in assisting me with my research. If you would like a copy of the study results or have any questions, please do not hesitate to contact me or my dissertation advisor, Debra Mollen, Ph.D., using the contact information listed below.

Sincerely,

Lauren M. Woolley, M.A.  
Doctoral Student and Principal Investigator  
Texas Woman's University  
Counseling Psychology  
Phone: [REDACTED]  
Email: [REDACTED]

Debra Mollen, Ph.D.  
Assistant Professor/Licensed Psychologist  
Counseling Psychology  
Department of Psychology and Philosophy  
Texas Woman's University  
Phone: [REDACTED]  
Email: [REDACTED]

## APPENDIX C

### Request for Participation Letter

Dear Potential Participant,

My name is Lauren Woolley, and I am a doctoral student in the Counseling Psychology program at Texas Woman's University. I am currently conducting my dissertation research and would appreciate your assistance.

I am investigating the relationship between physical activity, women's attitudes towards their bodies, and well-being. I am hoping the results of this study will provide valuable information to mental health professionals, medical professionals, and young women. I would appreciate your help with completing my study.

Participants must be women between the ages of 18-25. Participation in this study will take approximately 25 minutes and is completely voluntary. No identifying information will be linked with the research data collected from this study. Interested participants should log onto the website designated below. Participants who complete the survey will have the opportunity to enter a **drawing for a \$100 gift certificate to Amazon.com**. I will also make the results of this study available to participants if desired.

Please feel free to distribute this email to others who might be interested in assisting me with my research. If you would like a copy of the study results or have any questions, please do not hesitate to contact me or my dissertation advisor, Debra Mollen, Ph.D., using the contact information listed below. Thank you in advance for your time and consideration.

The research study website address is: <https://psychdata.com/s.asp?SID=124202>.

Sincerely,

Lauren M. Woolley, M.A.  
Doctoral Student and Principal Investigator  
Texas Woman's University  
Counseling Psychology  
Phone: [REDACTED]  
Email: [REDACTED]

Debra Mollen, Ph.D.  
Assistant Professor/Licensed Psychologist  
Counseling Psychology  
Department of Psychology and Philosophy  
Texas Woman's University  
Phone: [REDACTED]  
Email: [REDACTED]

## APPENDIX D

### Information/Informed Consent Screen



TEXAS WOMAN'S UNIVERSITY  
INDIVIDUAL CONSENT TO PARTICIPATE IN RESEARCH

Title: Self-Objectification and Well-Being Among Physically Active and Non-Physically Active College-Aged Women

Investigator: Lauren Woolley, M.A. ....

Advisor: Debra Mollen, Ph.D. ....



*Explanation and Purpose of the Research*

You are being asked to participate in a research study for Ms. Woolley's dissertation at Texas Woman's University. The purpose of this research project is to gain a better understanding of how participation in physical activity impacts women's attitudes towards their bodies and well-being.

*Research Procedures*

For this study, you will be asked to complete self-report rating scales measuring attitudes about one's body, mental and physical well-being and a demographics questionnaire. Your maximum total time commitment in this study is estimated to be 25 minutes.

*Potential Risks*

The potential risks or ill effects from participating in this study include loss of confidentiality, loss of time, fatigue while completing the survey, and some psychological discomfort and/or irritation at questions being asked. Confidentiality will be protected to the extent that is allowed by law. There is a potential risk of loss of confidentiality in all email, downloading, and internet transactions. However, the information that you provide on the internet survey cannot be used to identify you, and the internet survey does not require you to report any identifying information. In addition, the nature of the information you are providing is such that you cannot be identified by your responses. The researchers will not trace your IP address (internet provider address). Although the survey's database does collect IP addresses, it will not disclose your IP address for any reason. The information that you give on the questionnaires will be recorded in anonymous form. This research might be published, but the researcher will not release information that could identify you. Your information will not be available to anyone not directly involved in this study. The survey is administered in a Secure Survey Environment (SSE) and responses are encrypted using Secure Socket Layer (SSL) technology to minimize the risk of data interception by third parties. Once research data is stored on the server, it is held in an isolated database that can only be accessed by a researcher with the correct username and password. All data collected will be stored using procedures for increased database security. All data will be deleted from the database two to three months following the completion of the study. Hard copies of data (e.g., printouts of participants' contact information to be placed in the drawing for the Amazon.com gift certificate) will be stored in a locked file cabinet and destroyed within five years of the completion of the study by shredding

paper copies and erasing the USB drive. If you do not have time to complete the questionnaire, you may refuse to participate without penalty.

To avoid fatigue, you may take as many breaks as necessary during the questionnaire. However, your internet survey session automatically expires after 20 minutes of inactivity in order to protect the survey's database from security breaches. If your internet survey session expires, you will be unable to return to the survey to complete it. If you want to complete the survey after your internet survey session has expired, you must start the survey from the beginning. However, if you do not complete the survey after your session has expired, or if you do not want to complete the survey at all, there is no penalty. Your internet provider address (IP address) will not be traced by the researchers. The database on which the survey is located does collect IP addresses, as all commercial databases do; however, the database will not sell, disclose, or share this information.

If you experience psychological or emotional discomfort, you may stop answering any of the questions at any time. If you feel you need to discuss this emotional or psychological discomfort with a professional, you may obtain a referral to a psychologist in your area by calling the American Psychological Association's referral service at 1-800-964-2000. You can also access mental health resources via the following hyperlinks: the American Psychological Association <http://locator.apa.org/>, National Eating Disorders Association [www.nationaleatingdisorders.org](http://www.nationaleatingdisorders.org), National Institute of Mental Health <http://www.nimh.nih.gov/health/topics/getting-help-locate-services/index.shtml>, and the National Mental Health Information Center <http://mentalhealth.samhsa.gov/databases/>. The researchers will try to prevent any problem that could happen because of this research. You should let the researchers know at once if there is a problem and they will help you. However, TWU does not provide medical services or financial assistance for injuries that might happen because you are taking part in this research.

### *Benefits*

The direct benefit of this study to you is that at the completion of the study you have the opportunity to enter a drawing for a \$100 gift certificate to Amazon.com. You also have the opportunity to have a summary of the results e-mailed to you. At the conclusion of the survey you will be given a unique automatically generated respondent ID number. If you would like to enter the drawing for the Amazon.com gift certificate and/or receive a summary of the results, please email the investigator, [REDACTED], with your contact information. I will not be able to match your respondent ID number with your questionnaires.

If you are an undergraduate student at Texas Woman's University enrolled in Introduction to Psychology and/or Developmental Psychology, another potential benefit to you is the opportunity to earn course credit. Please refer to the recruitment announcement for this study on your TWU Blackboard account regarding procedures for receiving course credit.

### Questions Regarding the Study

If you have any questions about the research study you should ask the researchers; their phone numbers are at the top of this form. If you have any questions about your rights as a participant in this research or the way this study has been conducted, you may contact the Texas Woman's

University Office of Research and Sponsored Programs at (940) 898-3378 or e-mail [IRB@TWU.EDU](mailto:IRB@TWU.EDU). You are welcome to print a copy of this consent form for your records.

If you have read and understand the above statements, please click on the “Continue” button below to indicate your consent to participate in this study. Thank you for your time.

APPENDIX E  
Debriefing Screen

That concludes your participation in the study. Thanks so much for your help. Now that you have finished providing your impressions, I can explain more to you about the whole purpose of the study. I could not do so before now without biasing your responses. While the study is concerned with self-objectification (the process of viewing one's body from the perspective of an outside observer), physical activity, and well-being among college-aged women, we were specifically interested in learning whether compared to physically-active college-aged women who do not practice yoga and non-physically active college-aged women, if college-aged women who practice yoga experience lower levels of self-objectification and its negative psychological outcomes (e.g., body shame, disordered eating, and depression). We regret that we could not more fully inform you before you participated. We strongly hope you will respect our need to withhold this information and will not discuss this experiment with fellow classmates or friends who may potentially participate in this study. If people who participate later in the study are aware of its purpose or procedures, their answers may be biased, which would cause us to report misleading results. Please give others the chance to fairly contribute as you have today.

If you have experienced psychological or emotional discomfort as a result of your participation, and feel you need to discuss it with a professional, you may obtain a referral to a psychologist in your area by calling the American Psychological Association's referral service at 1-800-964-2000. You can also access mental health resources via the following hyperlinks: the American Psychological Association <http://locator.apa.org/>, National Eating Disorders Association [www.nationaleatingdisorders.org](http://www.nationaleatingdisorders.org), National Institute of Mental Health <http://www.nimh.nih.gov/health/topics/getting-help-locate-services/index.shtml>, and the National Mental Health Information Center <http://mentalhealth.samhsa.gov/databases/>. If you have any questions, feel free to contact me, Lauren Woolley, M.A., (Phone: [REDACTED] or Email: [REDACTED]) or my advisor, Debra Mollen, Ph.D. (Phone: [REDACTED] or Email: [REDACTED]).