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The Relationship of Physical Activity and Sport Participation to Body Image in Older Adults

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THE RELATIONSHIP OF PHYSICAL ACTIVITY AND SPORT PARTICIPATION TO
BODY IMAGE IN OLDER ADULTS

A Thesis

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Master of Arts
in
The Department of Human Performance and Health Promotion

by

Marigny Johnston Bostock

B.S. Guilford College, 2001

May, 2006

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ABSTRACT

Body image (BI) reflects how a person views his or her own body, and how one thinks, feels and acts toward it. This study examined the relationship of activity (sport vs. leisure) and gender to body image among adults aged 50 years and older. The sample included 182 Senior Olympians (79 men; 103 women) with a mean age of 65.5 years. Three scales measured the components of BI: the Social Physique Anxiety Scale (SPAS) measured affective BI, the Contour Rating Drawing Scale (CRDS) measured cognitive BI, and the Body Image Avoidance Questionnaire (BIAQ) measured behavioral BI. The Body Satisfaction Scale (BSS) measured satisfaction with appearance and functionality, and grip strength was used as a measure of body function. Women scored higher than men on the SPAS and the CRDS, indicating greater dissatisfaction with their affective and cognitive BI. Women also scored higher than men on the clothing and grooming behaviors of the BIAQ, while men scored higher on social avoidance. Sport participants scored higher than leisure participants on the grip strength test. Results suggest that gender differences in BI appear to persist into older adulthood. The results also suggest that the effects of sport on BI among older adults may depend in part on gender.

CHAPTER I

INTRODUCTION

Statement of the Problem

The media portray unrealistic body types that many individuals aspire towards, making body dissatisfaction prevalent in Western society. In affluent Western cultures, slenderness is associated with happiness, success, youthfulness and social acceptability (Grogan, 1999). It has been argued that the thin ideal is the product of successful marketing of the fashion industry, making it the standard of cultural beauty in the industrialized societies of the 20th century. Media imagery may play an important role in shaping how one's body is perceived and evaluated; depending upon the viewer's awareness of the media's cues (Grogan, 1999). The portrayal of a thinner physique began in the 1920s with new fashion trends encouraging women to adopt a more youthful, boyish, and sleek physique, which was achieved by use of slimming undergarments and/or dieting (O'Dea, 1995). The trend of promoting a thinner physique (i.e. the thin ideal) continued throughout the 20th century. From the 1960s to the 1990s, models and movie stars became progressively thinner (O'Dea, 1995; Grogan 1999), and that trend continues today.

At any given time, 50% of American women are dieting ("Eating Disorders", 2000), indicating they perceive themselves as overweight or are unhappy with their bodies and want to change them. Body dissatisfaction, which is a person's negative thoughts and feelings about his or her body, can persuade many women and girls to strive for the thin ideal. The average person sees between 400 and 600 advertisements per day, including television and print. This equates to 40 million to 50 million by the time s/he is 60 years old, and one of every 11 commercials has a direct message about beauty (Dittrich, n.d.). Moreover, 69% of female television characters are thin and only 5% are overweight. The ideal that is advertised is unattainable for many and

unhealthy for most, and repeated exposure to these images of a thin ideal can lead to the internalization of this ideal (“Eating Disorders,”2000). In other words, observing thinner individuals on television promotes the desire to be thin.

In American culture in particular, the body has come to represent a reflection of the self, resulting in a great emphasis on body appearance (Hayslip, Cooper, Dougherty, & Cook, 1997). The media reflect images of thinness and link these images to symbols of prestige, happiness, love and success. This desire for women in particular to be “fashionably slim” like the supermodels and actors/actresses of today drives many individuals to take part in unhealthy and unrealistic eating and exercising behaviors, or avoid displaying their bodies (O’Dea, 1995). Moreover, magazines foster these unhealthy behaviors through advertisements of diet products, books, weight loss supplements, athletic centers, and anti-aging products, which often contain nutrition misinformation. Many studies are in agreement about media and advertisements portraying unrealistic body ideals (O’Dea, 1995; Ferron, 1997; Gabel & Kearney, 1998; Littleton, & Ollendick, 2003; Bissell, 2004). Further, fad diets continue to increase in popularity, which in many cases lead to temporary weight loss only. This cycle can result in constant body dissatisfaction and a longing to change what may be perfectly healthy. Since much of the previously mentioned research (e.g. Gabel & Kearney; Ferron) has focused on younger populations, the question of whether levels of dissatisfaction exist across the lifespan is worth asking. Additionally, do similar patterns of BI dissatisfaction (i.e. gender differences) experienced by younger persons exist among older adults?

Tiggemann & Lynch (2001) have examined whether the same levels of body dissatisfaction exist across the lifespan, but there is a noticeable lack of information concerning older adults’ body image (BI). Traditionally, BI research has focused on younger populations,

but many of the changes that coincide with an aging physique, such as skin changes (e.g. wrinkles and age spots), decreased energy, changing body shape, and weight fluctuation, are influential on one's BI (Hayslip, et al., 1997; Lox, Martin & Petruzello, 2003). Although signs of aging in men are often thought of as distinguishing, these same signs (gray hair, wrinkles, and weathered skin) are interpreted as negative characteristics for women (Saucier, 2004). This notion is referred to the "double standard of aging" (Tiggemann, 2004), whereby older women are judged more harshly than older men in terms of appearance.

Nature of the Problem

Body image (BI) is a multifaceted concept that reflects how one views his or her own body, and how one thinks, feels and acts toward it. Moreover, BI can be defined in terms of four components: perceptual, cognitive, affective and behavioral (Lox et al, 2003). BI is an internal representation of one's outer appearance, and one's own unique perception of one's body. This internal view can provoke thoughts and feelings that may even modify a person's behavior (Thompson et al, 1992).

This study examined the cognitive, affective and behavioral dimensions of BI. These constructs reflect the evaluation of one's body in terms of both its appearance and function (cognitive), how certain actions reflect the positive and negative perceptions about one's body (behavioral), and whether one has feelings of worry, shame, anxiety, comfort, embarrassment, or pride in relation to one's body (affective) (Lox et al, 2003). Body image has been extensively studied in younger adults, particularly young women (e.g. Kennedy & Reis, 1995; Lox, et al., 2003; Dittrich, n.d.). However, researchers have largely ignored body image among older adults.

A body ideal represents how we believe our body should look and function. Thin ideals are portrayed as the norm in the media, which is said to be one of the factors to blame for

promoting distorted body image perceptions in young girls and young women (Bissell, 2004; Dittrich, 2005). Most research on BI has focused on body composition; BI has been shown to correlate negatively with percent body fat and BMI in younger and older women (Lox et al, 2003; Strauman, & Glenberg, 1994; Striegel-Moore, Franko, Thompson, Barton, Schreiber, & Daniels, 2004). Few studies (e.g. Reboussin, Rejeski, Martin, Callahan, Dunn, King & Sallis, 2000; Tiggemann & Lynch, 2001) have examined body image and body satisfaction in middle-aged and older adults. However, the little research that has examined BI in older adults has shown similar results regarding BI and percent body fat. However, this research has also found that older adults may value body function over body appearance (Reboussin, et al., 2000).

By the year 2030, the number of people 65 years and older will reach 70 million in the U.S. alone, and individuals over the age of 85 will be the fastest growing segment of the population (Kramarow, Lentzner, Rooks, Weeks, & Saydah, 1999). The importance of conducting research on the health and well-being of older adults continues to increase, particularly in the areas of body image and exercise because research has alluded to the positive effects of exercise on BI (Stoll & Alfermann, 2002; McAuley et al., 2002).

Changes associated with BI in later stages of life have not been extensively studied, but Cash and Pruzinsky (1990) discuss that during the course of midlife, there is a normative or common inconsistency between the desire to deny the aging process and acceptance of the loss of a youthful body. This inconsistency may lead to a reappraisal and an eventual acceptance of a more realistic BI in midlife and old age (Cash & Pruzinsky, 1990).

Other important factors, which have shown to be related to BI in prior research, include exercise and other physical and social activities. Research regarding the effects of exercise on mental health is well documented, and many studies (e.g. Wilcox, & Storandt, 1996; Stoll, &

Alfermann, 2002; McCauley, Marquez, Jerome, Blissmer, & Katula, 2002; Lee, 1993; Clarkson-Smith, & Hartley, 1989) show that aerobic exercise produces benefits that can ameliorate some of the illnesses and discomforts often associated with old age. Being active may be even more important for older adults because of these benefits and the direct impact on body function.

Physical activity (PA) and exercise programs offer enhancement of physical and motor abilities, a social and supportive environment, and increase the potential to improve self confidence (Stoll & Alfermann, 2002). McAuley et al (2002) attest to improvements in beliefs about strength, coordination and fitness when engaging in PA programs, and state that this may lead to decreases in anxiety associated with social evaluation. In contrast to younger populations, where exercise participation is often considered an effective means for weight control and improvements in body tone and overall physical attractiveness, becoming regularly active as an older adult may be a useful strategy for reducing or changing negative stereotypes of the elderly (McAuley, et al., 2002). Further, according to O'Brien Cousins (2003), active lifestyles may hold the key to healthy aging because physical activity has been shown to reduce the damage and decline that occurs with age. Research examining the effects of PA on mental health focuses on many psychological variables; few studies focus solely on the effects of PA on BI. Even fewer (e.g. McAuley et al., 2002) have examined the effects of PA on older adults' BI. One study has examined the leisure and non-leisure (i.e. sport) activity patterns and the effect on physical functioning of populations of non-institutionalized older adults (Riebe, Garber, Rossi, Greaney, Nigg, Lees, Burbank, & Clark, 2005); therefore, examining whether physical activity (PA) status affects body image in older adults is warranted.

Purpose of the Study

The purpose of the study was to increase the current empirical knowledge about BI in relation to PA among older adults. Specifically, this study examined the relationship of PA with BI among older adults. This study also explored gender and level of PA differences in BI in this population.

Hypotheses and Exploratory Questions

The following hypotheses were proposed for this study:

1. Older adults who currently participate in sport and PA would report higher levels of body satisfaction, in terms of cognitive, affective and behavioral BI, than those who do not currently participate in sport as measured by the Contour Rating Drawing Scale, the Social Physique Anxiety Scale, and the BI Avoidance Questionnaire.
2. Men would have a more positive body image than women in terms of cognitive, affective and behavioral BI as measured by the Contour Drawing Rating Scale (CDRS), the Social Physique Anxiety Scale (SPAS), and the BI Avoidance Questionnaire (BIAQ).
3. Older adults who participate in sport and PA would also report higher levels of body satisfaction as measured by two subscales of body function and body appearance from the body satisfaction scale (BSS).
4. Older adults who participate in sport and PA would perform better on grip strength than those who do not.

The following exploratory questions were examined in this study:

1. What are the effects of physical activity and gender on BMI?
2. What are the interrelationships among the cognitive, affective and behavioral constructs of BI, age, physical activity, BMI, and grip strength?

Operational Definitions

The following terms were used in this study:

Body image – a multifaceted concept that reflects how we view our own body, and how we think, feel and act toward it. BI encompasses three dimensions: cognitive (i.e. perceptual), affective, and behavioral (Lox, et al., 2003).

Cognitive BI – the degree of satisfaction with one's body shape, size, and function, and attitudes, beliefs, and thoughts about one's body shape, size, and function (Lox, et al., 2003). This was measured using the Contour Rating Drawing Scale (Thompson & Gray, 1995).

Affective BI – a reflection of the feelings experienced (positive or negative) in relation to the body's appearance and function (Lox, et al., 2003). This construct was measured by the Social Physique Anxiety Scale (Hart, et al., 1989).

Behavioral BI – the positive or negative perceptions, thoughts, and feelings about the activities one chooses to engage in, or the clothes one chooses to wear (Lox, et al., 2003). This construct was measured by the Body Image Avoidance Questionnaire (Rosen, et al., 1991).

Body function – the way individuals operate within the constraints of their objective health (Spirduso, Francis, & McRae, 2005). One way to measure body function is by conducting a grip strength test. Body satisfaction was also measured with body function as a sub-factor in the BSS.

Body Mass Index – This measure of body composition is obtained by dividing weight/height² (kg/m²).

Physical Activity – Any bodily movement produced by the muscles, which results in energy expenditure (Spirduso et al., 2005).

Limitations

The scope of this study was limited by the following factors:

1. The majority of the sample was Caucasian.
2. Convenience sampling was used, potentially causing selection bias. Therefore, the results may not be generalizable to a larger population.
3. Body mass index offers only an approximation of body composition, thus limiting its validity.
4. Participants might be more active than the general population of older adults, which again may limit the generalizability of the data.

Assumptions

The following assumptions were made for this study:

1. Participants would answer all of the questions honestly and accurately, and would understand the content of the questionnaire.
2. Self-reports of participants' physical activity status would be valid and reliable.

Delimitations

The scope of this study was delimited by the following factors:

1. Data were collected only from men and women over the age of 50 years.
2. The study included participants from the Greater New Orleans Senior Olympics (GNOSO).

CHAPTER II

REVIEW OF LITERATURE

Introduction

This chapter examines literature relevant to body image, body function and physical activity. Additionally, studies are presented pertaining to younger populations, since much of the previous research on body image has focused on adolescents and young adults. Finally, research concerning BI and exercise in older adults follows.

Theoretical Frameworks and Explanations of Body Image

Body image (BI) refers to the mental picture that all people have of their bodies, and how a person responds to this image emotionally and behaviorally (O'Dea, 1995). It is an individual's perception of his or her own body, whether positive or negative. Moreover, BI is a dimension of the self-concept, specifically the physical self. Physical self-concept can be categorized in terms of physical ability and physical appearance, and is comparative in nature. In other words, one tends to evaluate oneself in relation to others (Berger, Pargman, & Weinberg, 2002).

Because of the broad and complex nature of BI, inherent problems in defining, measuring and creating theoretical models have emerged. Several hypotheses and explanations for BI disturbance have been suggested as well as a few theories. Few well-developed and empirically tested theories have been evaluated; however, Thompson (1992) argues that well constructed theories are crucial to the development of the field. Biological, social, and interpersonal factors have an immense effect on one's BI, and can serve as explanations or factors, which delve into the causes of BI disturbance.

The sociocultural factor is the dominant influence on BI in Western cultures. It consists of the pressures associated with striving to fit societal ideals, and the negative impact of making social comparisons with “attractive” reference groups, either with proximal (i.e. friends) or distal (i.e. celebrities) others. Societal and social approaches also include models and messages from the media (television and print). Advertisements emphasize thinness as a standard for female beauty, and the bodies idealized in the media are frequently atypical of normal, healthy women. The endorsement of this unrealistic body type creates an unrealistic standard for the majority of women. Constant exposure to the thin ideal in advertisements may influence women in particular to become self-conscious about their bodies and to obsess over their physical appearance (“Eating Disorders,” 2000). In non-Western societies, where thinness is not excessively valued, there is a lower prevalence of eating disorders (Thompson, 1992). Fallon (1990) reviewed historical and cross-sectional data to reveal a history of women modifying their bodies to increase societal acceptability. With all of these sociocultural factors, it is not a surprise that our “culture is in conflict with physiology” (Thompson, 1992).

Thompson (1992) also proposed a self-ideal discrepancy theory, which has similar connotations to the sociocultural factors of BI in that individuals have a tendency to compare their own appearance with an ideal. The result of this comparison may be a discrepancy (i.e. *real* self rating minus the *ideal*), thus leading to dissatisfaction. Thompson (1992) mentioned that the theory should be renamed the self/social comparison theory because of the tendency to engage in the self-appraisal process.

Body image disturbance (BID) is a term used to describe symptoms of body dissatisfaction and low self-esteem (Gabel, & Kearney, 1998). More specifically, BID is a condition of perceptual, cognitive, motivational and emotional phenomena surrounding two

distinct aspects: BI dissatisfaction and body size overestimation (Strauman & Glenberg, 1994). BID occurs along a continuum ranging from none to extreme. An extreme case would be one whose distress has led to eating disturbances, an extreme case of social physique anxiety or severe depression. Most people fall toward the middle, experiencing mild to moderate dissatisfaction (Thompson, 1992).

Three developing theories deal specifically with an explanation for the size-overestimation aspect of BID. One theory suggests that cortical deficits might explain a subject's inability to accurately estimate body size. Thompson (1992) cites one of his own studies that partially supported this model, finding that size over-estimation was correlated with visual-spatial deficits obtained from neuropsychological tests. The adaptive failure theory proposes that weight loss or reduction in body size is not paralleled by a change in self-perception of actual body size. This theory also states that a person's self-perception is that of their maximum size, but this hypothesis has not been extensively tested. Finally, the perceptual artifact theory states that the tendency to overestimate body size is related to one's actual size, but little evidence is available detailing the specific perceptual process involved in size-overestimation (Thompson, 1992).

Interpersonal factors such as teasing comments can have devastating effects on BI, and the role of close relationships with family, peers, and partners is also important to note. This hypothesis is referred to as negative verbal commentary, and can have a profound effect on one's BI. In adult samples, the level of perceived teasing about appearance during adolescence has been shown to be connected to adult levels of BID, eating disturbance, and overall psychological functioning (Thompson, 1992).

Behavioral and cognitive conceptual models also offer excellent frameworks for understanding the onset of BID. These models focus on concepts such as critical conditioning experiences, behavioral avoidance, cognitive biases, and cognitive schemata to attempt to grasp the onset and continuance of BI problems (Thompson, 1992). Many models and hypotheses that have been presented to attempt to explain the development of the multiple facets of BI, and more research is needed to elaborate further on the different methodologies. This study used the self concept framework (i.e. physical self concept) and a proposed definition of the BI components by Lox et al. (2003) as a basic methodology for measuring BI.

Body Image in Younger Populations

O'Dea (1995) published a review of literature discussing BI and nutritional status of adolescents and adults. The article explores some of the psychological and social correlates of BI among adolescents and adults. Historically, developing countries have valued fatness, where the plump and curvaceous woman was admired because heavier women reflected wealth and success. The body ideal has become progressively slimmer since the 1950's for men and women. Both ideals have become slimmer and more muscular. The undesirability of being overweight is learned in childhood and carries on through adolescence and into adulthood (O'Dea, 1995). The incidence of body weight dissatisfaction and dieting in young people is particularly high, especially among young women. Children begin to acquire the cultural criteria used by adults for judging physical attractiveness at age six (Gabel & Kearney, 1998).

BI discrepancies are prevalent during adolescence because matching ideals is particularly important during this developmental stage, and many stereotypes are learned during youth. From early childhood, boys express a preference for the mesomorph, or muscular type of male and aspire towards it. Boys evaluate themselves on factors such as body efficiency and physical

ability. Girls, on the other hand, are exposed to thin ideals in the media and often react negatively to the natural modifications of their figures due to puberty. They judge whether the changes in their bodies affect their physical attractiveness. Girls are also faced with differing models of social acceptability: the athletic woman with firm muscles, the seductive woman with a slender figure, or the motherly woman with soft curves. These conflicting ideals can lead to mental and emotional troubles, such as the desire to change one's appearance, a decreased self-esteem, or even the onset of eating disorders (Ferron, 1997).

Research has indicated an increasing distortion in BI over time, despite study participants being of normal or below normal weights (O'Dea, 1995). Girls are more likely to have inaccurate and negative BI perceptions, and many desire ideal weights well below recommended values. The perception of being overweight also correlates positively with anxiety and depression. However, overweight girls are not necessarily less happy than their slender counterparts, but those with a distorted BI might be (O'Dea, 1995). As an adolescent girl's age and measurements increase, so does BI disturbance (Gabel & Kearney, 1998).

In a study by Strauman and Glenberg (1994), the relationship between self-concept and BI disturbance in female undergraduates was explored. It was established that beliefs about one's body and appearance were related to an individual's overall sense of self-worth. The purpose of this study was to evaluate two prior studies that used the self-discrepancy theory and a scale with figure drawings that measure the discrepancy between a person's actual and ideal body size. Discrepancies between the actual and ideal body types are hypothesized to provoke negative conditions. The authors suggest that social cognitive approaches to self-concept have been useful in speculating the link between the self and BI concerns. Other types of BI measurements were administered to compare all of the methods, and the major finding was that

body size overestimation was best predicted by the actual: ideal self-discrepancy model (Strauman & Glenberg, 1994). Research on adult women indicates similar BI dissatisfaction, and discontent with one's body has become a common part of a woman's life experience (Gabel & Kearney, 1998). This phenomenon will be further explored in a subsequent section.

Cultural and Ethnic Differences

Cultural and ethnic differences have been found among adolescents' BI. African American girls and boys are less likely to perceive themselves as overweight and are generally more satisfied with their bodies (O'Dea, 1995). Other cross-cultural studies have shown that BI depends more on gender differences among adolescents that live in the same country, but who are of different ethnic backgrounds (Ferron, 1997). Among adults, people of all ethnic backgrounds believe that females should be slimmer, and males should be bigger (O'Dea, 1995).

In a qualitative study by Ferron (1997), 80 French and 60 American adolescents were interviewed about their BI. Seventy six percent of the Americans refused to acknowledge any predisposition to a disturbed BI. They were convinced that personal characteristics empower them to obtain a body that represents an image of perfection. These characteristics included will power, courage, self confidence, and adherence to specific rules they set forth in terms of dieting or rigorous athletic training. Dissatisfaction with appearance was sometimes associated with feelings of guilt and self-criticism. The US adolescents were also tempted to adopt behaviors which may be harmful to their health such as unbalanced diets or unreachable athletic training goals.

The French had an apparent and similar perception of the ideal body, but it was seen by the adolescents as impossible to achieve. Seventy five percent of the French participants thought that their bodily limitations and appearance were predetermined and thus could not be modified

through will power or behavior change. The French had a sense of acceptance of their appearances, as well as that of others, as opposed to the Americans (Ferron, 1997).

To date, research is scarce in terms of examining racial differences in BI among men and women who are middle-aged and older, but Reboussin, et al. (2000) looked at these differences. As predicted, African Americans and other non-Caucasians were significantly more satisfied with their bodies than Caucasians (Reboussin, et al., 2000).

Gender Differences

Body attitude and self-concept was explored in two comparable samples of college men and women in a study over a 30-year period (Sondhaus, Kurtz, & Strube, 2001). As the researchers predicted, the women from 1996 reported a significantly more negative body attitude than women from the 1966 study. There were no differences found among the samples of men. Women in the 1966 cohort were more positive in body attitude than the combined male group, and women in the 1996 cohort were more negative in body attitude than the combined male groups. Therefore, what Sondhaus et al (2001) hypothesized was supported regarding changes in American society from the 1960s to the 1990s. Over a thirty-year period, women's attitudes towards their body changed significantly for the worst. Although samples were matched by gender, age and race, there were clearly some cohort effects for the women.

In a study by Stevens & Tiggemann (1998), body figure preferences of 180 women aged 18-59 were examined. Participants were presented with silhouette drawings ranging from very thin to very heavy, and women of all ages rated their current figure as significantly larger than their ideal figure, indicating the presence of BID across the lifespan. Cohort effects may also be present in this study since different age groups may have different attitudes and perceptions towards BI due to societal differences. For example, in contrast to the younger women in this

study, the women over 30 rated their ideal figure as significantly larger than the one perceived as most attractive to men. Images of the ideal shape presented by the media have become progressively thinner over the past three decades (Stevens & Tiggeman, 1998).

Sondhaus et al (2001) explain reasons for men's stability in body attitudes over time. Although there is a growing emphasis in American popular culture on the importance of appearance for men, there is still greater latitude in the standards of attractiveness. Therefore it is easier for men from a wide spectrum of body types to maintain positive BI. Moreover, unlike women, for whom physical attractiveness is considered the key to personal and interpersonal acceptance, men have a variety of other avenues (e.g. intelligence, job competence, athleticism, wealth, and power) through which they can achieve self-esteem, and a positive BI.

Halliwell and Dittmar (2003) conducted in-depth interviews with 42 men and women ranging in age from 22-62 year to explore their concerns and attitudes towards BI and aging. Their analysis revealed distinct gender differences. Men commonly conceptualized their bodies as a whole entity, whereas women commonly had compartmentalized conceptions. Women spoke about specific body parts that disturbed them, while men referred to their bodies as a unit. Men also tended to focus on functionality, and women tended to focus on display or appearance. These qualitative findings may help to explain the different consequences of BID between genders. Accounts from some of the older interviewees about the aging process support the notion that there is a "double standard of aging." Women in this study viewed aging most negatively in terms of its impact on appearance, whereas men reported a more neutral to positive impact of aging on appearance. Men were more likely to see age-related changes as manageable and deemed appearance changes less important than the loss of physical abilities. This study supported that there is somewhat of a double standard for women because aging is considered

negative in terms of both appearance and function. The interviews with men in this study reveal that they are less troubled by changes in their appearance as they age.

Body Image in Adulthood

BI research among adults has focused on gender difference and the relationship of BI to eating disturbances. Gender differences have been observed in nearly all studies of young adults, again where women tend to perceive themselves as overweight, and men perceive themselves as underweight, and want a taller and more muscular physique. This pattern leads adolescents and adults, who may experience body dissatisfaction and poor BI, to pursue the stereotypical body ideal by means of fad diets, excessive exercise, and other more dangerous methods of weight control (O'Dea, 1995).

Tiggemann and Lynch (2001) investigated women's body image across the entire lifespan to clarify changes in body image that occur with age. In this cross-sectional study, the researchers measured body dissatisfaction as well as self-objectification and its consequences. Body dissatisfaction remained stable across the 20-84 year age range. Self objectification, habitual body monitoring, appearance anxiety and symptoms of disordered eating all decreased with age.

In contrast, Reboussin et al (2000) state that the relationship between age and body image is unclear because studies of older women's body image have found positive, negative and no association with age. However, as part of the aging process, men and women are less likely to maintain the "ideal physique," and may become increasingly dissatisfied with their bodies. The notion that women are more dissatisfied with their bodies than men holds true for older adults as well as younger age groups. Less is known about BI in older men, which is surprising since

one's level of physical functioning and appearance are associated with many health behaviors of older adults. One such behavior is regular exercise (Reboussin, et al., 2000).

In a study by Tunaley et al (1999), women between the ages of 63 and 75 years revealed complexities in their perceptions of their bodies. All of the women in the study wanted to be slimmer, but they reduced their responsibility and guilt by attributing changes in their appearance to the unavoidable biological consequences of aging. These women also felt resistant to sociocultural ideals of beauty because they believed that women their age should be allowed to stop caring about their appearance.

Tiggemann (2004) wrote a review article about the empirical research on BI of adults older than the typical college student because to date the majority of studies investigating adult's BI have drawn sample from college populations. Her review found that body dissatisfaction remains stable across the adult lifespan for women, at least until they are quite elderly. The importance of body shape, weight and appearance decreased as women aged, underscoring an important distinction between evaluation and importance of body function. This differs from the qualitative accounts in Halliwell and Dittmar's (2003) study.

Tiggemann (2004) discusses that there is good reason to expect BI to become poorer as one ages, since every year is likely to take people further from the thin (or muscular) ideal and youthful body ideal. People typically gain weight (about ten pounds per decade) until their 50's, which is associated with lower mortality rates as long as the weight gain is not too substantial. Other common effects of the aging process are changes in body shape, loss of skin elasticity, wrinkles, and graying or thinning of hair. These normal age-related changes are more likely to be problematic for women, since there is greater emphasis on beauty. This social context often renders women more concerned than men about the effects of aging on appearance and

contributes to the “double standard of aging” whereby older women are judged more harshly in terms of appearance than are older men (Tiggemann, 2004).

Exercise and Physical Activity in the Later Years

Physical activity is any bodily movement that results in energy expenditure, and is measured in kilocalories. Exercise, which is a subset of physical activity, is activity that is planned, structured, repetitive, and purposeful in the sense that improvements in physical fitness are an objective (Spirduso et al., 2005). Research has shown a progressive reduction in habitual physical activity with age because of the typical deterioration of health in the later years. This is unfortunate because there is growing evidence that regular exercise can delay the functional losses that lead to dependency and institutionalization (Shephard, 1994), and it also offers a number of physiological and psychological benefits such as reduced risk of cardiovascular disease, osteoporosis, and hypertension (Davis, 1997; Mazzeo et al., 1998; Rhodes Martin, Taunton, Rhodes, Donnelly, & Elliot, 1999). No age limits on these benefits have been observed, making successful aging, which is characterized as minimal functional decline, an achievable goal for many adults. Engaging in physical activities and forming these habits at a young age are important determinants of future behaviors (Shephard, 1994; Smith & Storandt, 1997).

Although the benefits of physical activity are well documented, the majority of adults in developed countries do not exercise regularly. Surveys conducted in the US and Canada have shown that 40% of the adult population is sedentary, and another 40% exercise at a frequency and intensity too low to derive any substantial health benefits (Rhodes, et al., 1999). Not all older adults are sedentary, however; some maintain moderate levels of routine exercise (e.g.,

“mall walkers”), and some are master athletes or Senior Olympians who exercise regularly and also compete in sporting events.

This continuum of physical activity among older adults fosters the idea of comparing individuals who are at various stages or points in their activity levels (Smith & Storandt, 1997). Rhodes et al. (1999) conducted a review of literature on exercise adherence among older adults. They examined 27 cross-sectional studies, and 14 longitudinal studies to determine common factors associated with regular exercise. The mean participating sample age was 65 years or older and regular exercise was defined as moderate intensity activities performed at least twice a week for at least 20 minutes in duration. Demographics, experience, knowledge, physiological factors, psychological factors, perceived social influences and activity preferences emerged as variables for the study.

The primary benefit of PA for older adults is almost always reported as health and fitness. (Rhodes et al., 1999). Exercise enhances the mortality and well-being of the elderly in many ways. It improves quality of life by preventing avoidable decline in functional capacity, and fosters functional independence. Other physiological improvements include enhanced cardiovascular function, maximum consumption of oxygen, increased stroke volume, decreased blood pressure, lower resting and submaximal heart rates, decreased body weight, desirable shifts in lean body mass (musculature), and increased bone density. Older adults may benefit from regular PA more than other age groups because of their low functional status and high incidence of chronic disease.

Perceived physical limitations, such as frailty or fear of injury, may hinder some elderly individuals from exercising. Women tend to report more of these barriers than men, and many are perceived rather than actual barriers. Although health and physical activity are reported as

priorities for all ages, older women tend to place greater importance on the social aspects of exercise, while young women tend to value exercise as a means of weight control. Significant barriers to exercise reported by older African American women include availability of exercise equipment, exertion, embarrassment and safety (Rhodes et al., 1999).

Rhodes et al (1999) concluded that most research on exercise and the elderly consists of correlational, retrospective, self-report surveys among the general population or motivated volunteers, and may lack external validity. They also considered the studies to show perseverance and adherence rates higher than the 50% attrition rate for exercise that is speculated for the general population.

In an article by Smith and Storandt (1997), histories of competitive sports involvement, health beliefs, reasons for exercising and personality were compared across three groups of older adults who varied in physical activity status. The researchers recruited adults aged 55 and older from the Senior Olympics national competition. There were 246 participants (156 women and 90 men) who were classified as competitors, non-competitors or non-exercisers according to their answers on questionnaires. Competitors exhibited a lifelong history of sports participation, and the other two groups may have participated in competitive sports or physical activity during childhood, but their involvement decreased noticeably in their twenties, and remained low throughout adulthood. Approximately half of the competitors were men (57%), compared with 24% of the non-competitors and 21% of the non-exercisers. The competitors were also younger than the non-competitors and non-exercisers. As the authors predicted, non-exercisers were less likely to believe that regular physical activity was important than were exercising older adults.

Gender Differences in Body Image and Physical Activity

Women tend to have lower BI satisfaction than men, and women are often more invested in improving their image for establishing or boosting self-esteem. Women who exercise regularly have been shown to view their bodies positively, and despite culturally inspired images in the media, they tend to accept a more muscular body shape. Women increasingly desire not only thinness, but also an athletic, muscular physique (Berger et al., 2002).

Age and gender differences were important demographic factors that were consistent in some of the studies Rhodes et al. (1999) examined. Physical activity has been shown to increase after retirement, but slopes back downward shortly afterwards. The majority of research has failed to find significant gender differences in psychological variables in relation to exercise, even though exercise rates have been shown to differ among genders. It has been speculated that the discrepancy between genders may be due to measuring difficulties, poor sample generalizability, or a greater importance of examining females' exercise history and/or social-environmental barriers (Rhodes et al., 1999).

Exercise history was reported as a noteworthy factor for exercise experiences. In agreement with Shephard (1994), Rhodes et al. (1999) state that the most important factor associated with future behavior is past behavior. Early exercise experience and recent involvement in physical activities have been shown to predict adherence to current exercise programs. Elderly women may have formed poorer exercise habits than men because of fewer experiences in structured physical activity and sports during childhood.

Furnham and Greaves (1994) conducted a study on gender and locus of control correlates of BI dissatisfaction. Their study included adults aged 70-98 years, and revealed that participants who exercise have more positive views of their bodies and increased acceptance of

muscular body shapes, even though this muscularity diverges from older adults' cultural ideals. The findings in this study also revealed significant gender differences in the degree and the direction of body dissatisfaction. This was consistent with culturally defined ideals for men and women (i.e. women tend to want to be thinner, and men want to be more muscular). This was not in agreement, however, with the findings of Rhodes et al. (1999). The purpose of Furnham and Greaves' (1994) study was to compare the sex differences in the degree, direction, attitudes, self-perception, and behaviors which relate to BI dissatisfaction. Although these relationships have been studied extensively in women, very little research has included a comparison with men.

Participants were asked to rate how satisfied they felt with each of the body parts listed. Overall, women scored lower on satisfaction than men, and specifically in the thigh, buttocks, and hip regions of the body. In regards to attempting to change certain attributes of one's body, men answered that they wanted to change biceps, shoulder width, and chest measurement (all having to do with upper body strength), while women wanted to change thighs, chin, buttocks, hips, legs, stomach, body hair, and weight. Women were dissatisfied with many more attributes of their bodies than men. Overall, there was also a significant difference in the direction of weight dissatisfaction. Men scored at the lower end of the scale, indicating that they perceived themselves as underweight, and women thought the opposite (Furnham & Greaves, 1994).

Body Image, Body Function, and Physical Activity

Participation in on-going physical activity is associated with enhancement of one's physical self-concept. Moreover, percent of stored body fat, frequency and type of exercise, and muscular strength are three variables that may be related to one's BI. Body shape and function are fundamental elements of the physical self, and are affected by regular participation in

vigorous physical activity. Hence, self-perceptions and exercise are essentially related. When positive changes in fitness occur, there is a similar change in BI or self-perceptions (Berger et al., 2002).

Physical factors such as one's physical condition have been associated with a decrease in physical activity in older adults. Functional mobility was found to be a significant factor which could possibly hinder an older person from participating in an exercise program (Rhodes et al., 1999). Decreases in various capacities, especially those dependent upon muscular strength are predictable outcomes of aging, but decrements in functioning are highly variable among elderly persons. Another inhibiting factor for both men and women is social physique anxiety (SPA). Men and women who score highly on measures of SPA tend to be apprehensive about evaluation of their bodies, and prefer to exercise in private locations. Women's scores have been shown to decrease with age, suggesting that they expect to become heavier and are more accepting of their physiques as they grow older (Berger et al., 2002).

Active people have been shown to rate their bodies more positively than inactive ones, and those who care about health and fitness tend to have more positive feelings about their bodies than those who are more interested simply in their appearance (Cash & Pruzinsky, 1990). In addition to participation in physical activities, having positive social relationships and engaging in social activities regularly could help foster the development of a more positive body image (Littleton & Ollendick, 2003).

As women age, they have been shown to value exercise for its mental health benefits (i.e. stress management) and affiliation or desire to be with others (Berger et al., 2002). According to Shephard (1994), however, men have tended to claim physical activity as a means to health, whereas women have reported valuing exercise more as a means of social interaction or

improving their appearance. The difference for women may be due to an overemphasis on the benefits of exercise in terms of physical perfection and attractiveness (Davis, 1997). Other studies noted relatively small differences in motives for exercising between men and women over the age of 65. Feeling better physically and improving fitness (i.e. body function) were equally important for both men and women (Shephard, 1994).

A study by Kennedy and Reis (1995) examines the differences in perceptions of body image between exercising and non-exercising college students. In addition, the researchers compare the ratings of importance of fitness, health and appearance and how male and female exercisers and non-exercisers evaluate these variables. The findings reveal that exercising for weight loss, toning and physical attractiveness are associated with a more negative body image in both sexes, whereas exercising for health, enjoyment, and fitness demonstrate a more positive body image. The prevalence of dissatisfaction with physical appearance is not surprising, and was cited to be consistent with earlier research with samples of older, more vigorously exercising women (Kennedy & Reis, 1995).

Stoll and Alfermann (2002) conducted a study on the effects of physical exercise on body self-concept and well-being of older adults. They divided participants into three groups; the experimental group who participated in a 14 week exercise program, a placebo control group who participated in an English class, and a control group who had no intervention at all. Questionnaires were administered before and after the intervention. The section on body self-concept assessed positive and negative physical self-worth, perceived physical fitness, and concerns about physical attractiveness. This subscale was piloted with older adults prior to the study.

The results showed no gender differences, although the groups differed greatly in size. There were significant pre-test differences between groups on some dependent variables, so a MANCOVA with the pretest results as the covariate was used. Each of the conditions had a different impact on body-self concept, which was reported as a significant main effect. Exercise was found to impact perceived physical fitness, which may in turn improve one's overall body image (Stoll & Alfermann, 2002).

McAuley et al. (2002) conducted a randomized-control trial of a six-month physical activity program's effect on the social physique anxiety of older adults. The authors suggest that engaging in physical activity may lead to improvements in beliefs about strength, coordination, and fitness, which are all precursors to healthy functioning. Further, an improvement in body function may lead to decreased social physique anxiety, and a more positive body image (McAuley, Marquez, Blissmer, & Katula, 2002).

Summary

Many studies on BI have assessed adolescents and young adults, and have rarely explored BI of older adults. The few studies focusing on older adults (e.g., Tiggeman & Lynch, 2001; Reboussin et al., 2000; McCauley et al., 2002) have found that body dissatisfaction tends to remain stable across the lifespan, but older adults may value body function over body appearance. Building on the importance of body function, Stoll and Alfermann (2002) found that exercise greatly impacts one's perception of physical fitness, which may lead to improvements in BI.

Vigorous or more active senior citizens can potentially serve as role-models. They can encourage an active lifestyle among their peers, as well as younger individuals, for whom the direct economic gains from increasing physical activity may be much greater (Shephard, 1997).

Further research is needed in exploring the link between BI and exercise in older populations. Research on athletic, active older adults, as compared to their inactive counterparts, may lead to a greater understanding of the BI perceptions of older adults, and whether BI is a relevant problem to address in this age-group.

CHAPTER III

METHOD

Design

This study was approved by the Institutional Review Board of the University of New Orleans, New Orleans, LA. The design of this study was a cross-sectional, survey design. Questionnaires were administered only once to participants, and they were asked to fill them out and return them to the researcher at the events where they were recruited.

Participants

A total of 182 participants were involved in this study, and were all members of the Greater New Orleans Senior Olympics (GNOSO). Details about demographics are reported in Chapter Four. After completion of the questionnaires, the participants were classified into one of two groups depending upon their participation in either leisure activities or sporting events. Convenience sampling was conducted by recruiting participants at events held at the University of New Orleans, and other venues where Senior Olympic events took place.

Procedures

The participants consisted of volunteers who completed the questionnaires after the purpose of the study and potential risks were explained. Verbal consent was obtained from all participants who agreed to participate in the study. The researcher attended 22 events to recruit participants. At the events, individuals were approached and asked to participate in the study. Once they agreed, the researcher measured their height, weight, and grip strength away from other individuals before the questionnaire was filled out. The participants filled out the questionnaire alone, but the researcher was available for any questions for confusion regarding the survey. The measures in the questionnaire are more thoroughly explained below.

Additionally, the measures explain how the exploratory questions and hypotheses will be answered.

Measures

Demographics. Participants filled out a demographic questionnaire asking their age, gender, ethnicity, and marital status. They were also asked to list all of the activities in which they participated in the senior games, which is how they were classified as a sport or leisure participant (See Appendix A). A complete list of sport and leisure events by category can be found in Table 1 on the following page. After a review process, study participants were classified into either the sport or leisure categories. If participants competed in sport(s) and leisure activities, they were classified as sport participants.

Table 1

Event Classification

Sport	Leisure
Basketball	Badminton
Cycling	Billiards
5K Race	Bridge
Physical Fitness Challenge*	Bocce
Pickle Ball**	Bowling
Racquetball	Golf
Swimming	Shuffleboard
Tennis	Table Tennis
Track & Field	Throws
Volleyball	Washer Pitch***
Weightlifting	Dance

Note: *Included standing arm curl, bench press, leg press, push-ups, sit-ups, and a one-mile walk on a treadmill.

**Type of indoor tennis played on a smaller court with wooden paddles and a plastic ball.

***A game which can be played standing up, or from a sitting position, where participants toss a metal washer towards a wooden board with a hole in the center.

Body Mass Index and Grip Strength. Participants were weighed on a digital scale, away from other participants. Height was measured using a portable stadiometer, and BMI was computed as a measurement of body composition. Grip strength was measured using an isometric/hand dynamometer. There is evidence that grip strength is positively correlated with BMI. It is also an ideal measurement for upper body strength and function because it is inexpensive, easy to perform, and has shown to be reliable in former studies (Miller, Giles,

Crotty, Harrison, & Andrews, 2003; Thomas & Hageman, 2002). Grip strength is a general measure of upper body strength, which is important for all functional activities involving the lifting of objects, utilization of tools, eating, dressing, and is one of the core muscle groups that have been shown as vital for performing daily activities. Thomas & Hageman (2002) found the reliability of the grip strength measure to have an intraclass correlation of 0.70. Participants were asked if they are right-handed, or left-handed, and they completed three measurements using their dominant hand. The averages of the three scores were considered the grip strength scores. This measure was used to examine the exploratory question relating to grip strength and body function of more active individuals.

Body Image. The Social Physique Anxiety Scale (SPAS) (adapted from Hart, Leary, & Rejeski, 1989) measures affective body image (see Appendix B). The SPAS contains nine items, which can be rated from one, “not at all characteristic of me,” to five, “extremely characteristic of me.” Scoring consists of reversing items five and eight, and summing the scores. A higher score indicates greater social physique anxiety. The SPAS has been used extensively in exercise psychology research to assess the level of anxiety that one experiences when others evaluate their body (Lox, et al., 2003).

The Contour Drawing Rating scale measures cognitive BI using line drawings that measure current and ideal body types (Thompson & Gray, 1995). The male and female figures are ordered from one to nine, and are scored by obtaining the discrepancy between current and ideal body types (see Appendix C). A positive score indicates the degree of one’s body dissatisfaction. Reliability has been tested in prior research (Thompson & Gray, 1995) and revealed a coefficient within an acceptable range ($r = .78$). Concurrent validity was assessed by

examining the degree of correspondence between reported weight and current self-ratings, and revealed a value of $r = .71$ (Thompson & Gray, 1995).

The Body Image Avoidance Questionnaire (BIAQ) measures behavioral BI (see Appendix D). This scale has nineteen items, which can be scored on a 5-item Likert type scale ranging from Always (5) to Never (1). The questions are based on four factors: Clothing, Social Activities, Eating Restraint, and Grooming and Weighing. Participants were asked to circle the number which best describes how often they engage in the listed behaviors at the present time. Internal consistency was obtained, and the Cronbach's alpha was .89. The test-retest reliability coefficient, $r = .87$, indicated stable responses over time. Concurrent validity between the BIAQ and another BI scale revealed $r = .78$ (Rosen, Srebnik, Saltzberg, & Wendt, 1991). The SPAS, the Contour Rating Drawing Scale, and the BIAQ were used to examine the first two hypotheses regarding cognitive, affective, and behavioral dimensions of BI.

Body Function and Body Appearance. A body satisfaction scale (modified by Reboussin et al., 2000) was used to measure satisfaction with body function and body appearance (See Appendix E). It is a nine-item measure based on preliminary work by Ray, Hector, Lynes, Stewart, Painter, & Dibble (1996). Participants were asked "in the past four weeks, how satisfied have you been with..." Each item is rated on a seven point scale scored from -3 to +3, which are anchored by phrases ranging from very dissatisfied (-3) to very satisfied (+3). Reboussin's et al (2000) results provided strong evidence that the scale has two factors of body satisfaction (appearance and function). Strong internal consistency was obtained for each factor of this scale (Cronbach's alpha coefficients of 0.94 for body function and 0.92 for body appearance). This scale has been used in prior studies with older adults (e.g. Reboussin), and was administered to examine the third hypothesis, which states that older adults who are more

physically active will report higher levels of body satisfaction. Table 2 lists all of the measures used in this study.

Table 2

Scales, Instruments, and Measures

Scale/Instrument	Measurement
Social Physique Anxiety Scale (SPAS)	Affective body image (BI)
Contour Drawing Rating Scale (CDRS)	Cognitive BI
Body Image Avoidance Questionnaire (BIAQ)	Behavioral BI
Body Satisfaction Scale (modified)	Satisfaction with appearance and function
Isometric/hand dynamometer	Grip Strength (a proxy for functionality)
Digital scale	Weight (converted to kg)
Stadiometer	Height in cm

Data Analysis

Descriptive statistics were used to describe the sample. Hypotheses 1 and 2 were examined using a series of 2 (activity) x 2 (gender) factorial ANOVAs for each BI measure. Hypothesis 3 was examined using a 2 (activity) x 2 (gender) MANOVA for the BSS factors. Hypothesis 4 was examined using a 2 (activity) x 2 (gender) factorial ANOVA to assess differences in grip strength. Exploratory Question 1 was examined using a 2 (activity) x 2 (gender) factorial ANOVA to assess differences in BMI. Exploratory Question 2 was examined using a series of Pearson product-moment correlations to determine the interrelationships among the continuous variables in this study. Significance for all statistical tests in this study was set at $p < .05$.

CHAPTER IV

RESULTS

Introduction

This chapter begins with a description of demographic data from this study followed by evaluation of the hypotheses and exploratory questions.

Demographics

Demographic information is reported in Table 3. A total of 182 participants completed the surveys. The sample consisted of 43.2% males ($n = 79$) and 56.8% females ($n = 103$). The mean age was 65.5 with a standard deviation of 10.07. The participants were members of the GNOSO.

Some examples of sporting events in which the GNOSO members participated were volleyball, basketball, tennis, cycling, racquetball, weightlifting, and track & field. Examples of leisure events in which they participated were shuffleboard, bridge, bocce, bowling, golf, and table tennis. In this study, 112 (61.5%) participated in sport, and 70 (38.5%) participated in leisure activities. Each participant took part in an average of 1.83 events ($SD = 1.58$).

Table 3

Demographics

Variable	Category	%
Age	50-59	34.5
	60-69	28.1
	70-79	26.2
	80-89	10.2
Gender	Male	43.2
	Female	56.8
Race/Ethnicity	Caucasian	88.8
	African American	5.8
	Other	5.4
Marital Status	Married	66.5
	Widowed	16.0
	Divorced	13.1
	Never Married	3.9
Event Type	Sport	61.5
	Leisure	38.5

Evaluation of Hypotheses

The first hypothesis stated that older adults who currently participate in sport and PA would report higher levels of body satisfaction, in terms of cognitive, affective and behavioral BI, than those who do not currently participate in sport as measured by the Contour Rating Drawing Scale, the Social Physique Anxiety Scale, and the BI Avoidance Questionnaire.

To assess this hypothesis, a series of 2 (activity) x 2 (gender) factorial ANOVAs for each BI measure were conducted. The results for this analysis were not significant, indicating that sport versus leisure activity participation did not make a significant difference in one's BI. The results of this analysis are presented in Tables 4-12.

The second hypothesis stated that men would have a more positive body image than women in terms of cognitive, affective and behavioral BI as measured by the Contour Drawing Rating Scale (CDRS), the Social Physique Anxiety Scale (SPAS), and the BI Avoidance Questionnaire (BIAQ).

The series of 2 (activity) x 2 (gender) factorial ANOVAs for each BI measure were also used to assess this hypothesis. Gender differences were found in the Contour Rating Drawing scores ($F = 14.545, p < .0001$). These results are reported in Table 4. Women scored higher ($M = 1.74, SD = 1.47$) than men ($M = 0.94, SD = 0.99$), indicating greater dissatisfaction with cognitive body image. These mean comparisons are reported in Table 5. As expected, a significant main effect for gender was found for the SPAS ($F = 16.796, p < .0001$), with women scoring higher than men ($M = 2.55, SD = 0.87$, and $M = 1.98, SD = 0.65$, respectively), indicating that women had higher levels of SPA. A gender by event type interaction was also found for the SPAS ($F = 4.22, p < .042$), indicating that women who participated in sport were

more anxious about their bodies ($M = 2.68$, $SD = 0.89$), whereas, men who participated in sport were less anxious ($M = 1.91$, $SD = 0.59$). These results are reported in Tables 6 and 7. Results from the ANOVA revealed significant gender differences for three of the four factors in the BIAQ ($F = 5.559$, $p < .0001$), but no significant effects or interactions were found for event type. The factors that were found significant for gender were Clothing ($F = 10.539$, $p < .001$), Social ($F = 6.2$, $p < .014$), and Grooming ($F = 9.792$, $p < .002$). These results are reported in Tables 8-12.

Table 4

Results of a 2 (Activity) x 2 (Gender) Analysis of Variance for Cognitive Body Image

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Gender	23.28	1	14.55*	.0001
Event Type	0.01	1	0.007	.93
Gender x Event Type	0.59	1	0.37	.55
Error	275.30	172	(1.60)	

Note. Values enclosed in parentheses represent mean square errors.

* $p \leq .05$.

Table 5

A Comparison of the Means for the Contour Rating Drawing Scale (CRDS)

Gender	Event Type	Mean	SD	N
Male	Sport	0.90	0.94	61
	Leisure	1.04	1.12	24
	Total	0.94*	0.99	85
Female	Sport	1.79	1.31	49
	Leisure	1.69	1.66	42
	Total	1.74*	1.47	91
Total	Sport	1.30	1.20	110
	Leisure	1.45	1.50	66
	Total	1.35	1.31	176

* $p \leq .05$.

Table 6

Results from a 2 (Activity) x 2 (Gender) Analysis of Variance for Social Physique Anxiety (Affective Body Image)

Source	SS	df	F	p
Gender	798.70	1	16.80*	.0001
Event Type	0.12	1	0.003	.96
Gender x Event Type	200.70	1	4.22*	.04
Error	7798.85	164	(47.6)	

Note. Values enclosed in parentheses represent mean square errors.

* $p \leq .05$.

Table 7

A Comparison of the Means for the Social Physique Anxiety Scale (SPAS)

Gender	Event Type	Mean	<i>SD</i>	<i>N</i>
Male	Sport	1.91	0.59	60
	Leisure	2.16	0.77	23
	Total	1.98*	0.65	83
Female	Sport	2.68	0.89	43
	Leisure	2.42	0.84	42
	Total	2.55*	0.87	85
Total	Sport	2.23	0.82	103
	Leisure	2.32	0.82	65
	Total	2.27	0.82	168

* $p \leq .05$.

Table 8

Results from a 2 (Activity) x 2(Gender) Analysis of Variance for Four Behavioral Body Image Avoidance Factors

Source	SS	df	F	p
Clothing				
Gender	4.23	1	10.54*	.001
Event Type	0.08	1	0.21	.65
Gender x Event Type	0.43	1	1.06	.31
Error	67.05	167	(0.40)	
Social				
Gender	5.02	1	6.20*	.01
Event Type	0.002	1	0.003	.96
Gender x Event Type	0.007	1	0.009	.93
Error	135.25	167	(0.81)	
Grooming				
Gender	8.76	1	9.79*	.002
Event Type	1.62	1	1.81	.18
Gender x Event Type	0.42	1	0.46	.50
Error	149.37	167	(0.89)	
Eating				
Gender	0.33	1	0.48	.49
Event Type	0.78	1	1.13	.29
Gender x Event Type	1.15	1	1.66	.20
Error	115.12	167	(0.70)	

Note. Values enclosed in parentheses represent mean square errors. SS = Sum of Squares. * $p \leq .05$.

Table 9

A Comparison of the Means for the Body Image Avoidance Questionnaire (Clothing Factor)

Factor	Gender	Event Type	Mean	SD	N
Clothing	Male	Sport	1.28	0.52	62
		Leisure	1.33	0.52	24
		Total	1.29*	0.52	86
	Female	Sport	1.71	0.72	45
		Leisure	1.57	0.73	42
		Total	1.64*	0.72	87

* $p < .05$

Table 10

A Comparison of the Means for the Body Image Avoidance Questionnaire (Social Factor)

Factor	Gender	Event Type	Mean	SD	N
Social	Male	Sport	3.16	0.87	62
		Leisure	3.15	0.80	24
		Total	3.16*	0.85	86
	Female	Sport	2.76	1.01	48
		Leisure	2.78	0.88	44
		Total	2.77*	0.95	92

* $p < .05$

Table 11

A Comparison of the Means for the Body Image Avoidance Questionnaire (Grooming Factor)

Factor	Gender	Event Type	Mean	SD	N
Grooming	Male	Sport	2.40	0.81	62
		Leisure	2.67	1.16	25
		Total	2.47*	0.93	87
	Female	Sport	2.93	1.06	48
		Leisure	3.05	0.90	44
		Total	2.99*	0.99	92

Note: * $p < .05$

Table 12

A Comparison of the Means for the Body Image Avoidance Questionnaire (Eating Factor)

Factor	Gender	Event Type	Mean	SD	N
Eating	Male	Sport	1.24	0.84	62
		Leisure	1.54	0.78	25
		Total	1.33	0.83	87
	Female	Sport	1.53	0.73	49
		Leisure	1.48	0.87	43
		Total	1.51	0.80	92

The third hypothesis stated that older adults who participate in sport and PA would also report higher levels of body satisfaction as measured by two subscales of body function and body appearance from the BSS.

To assess this hypothesis, a 2 (activity) x 2 (gender) MANOVA for the BSS factors was conducted to further examine the effects of sport vs. leisure activity on one's BI. This analysis did not reveal significant results, however, gender differences were found for the Body Appearance factor of the BSS ($F = 4.814, p < .03$). Men were more satisfied with their appearance ($M = 0.54, SD = 1.89$) than women ($M = -0.20, SD = 1.94$). These results can be found in Table 13.

Table 13

Results from a 2 (Activity) x 2 (Gender) Multiple Analysis of Variance for Two Factors of the Body Satisfaction Scale (BSS)

Source	SS	df	F	p
Appearance				
Gender	17.87	1	4.81*	.03
Event Type	2.52	1	0.68	.41
Gender x Event Type	0.59	1	0.16	.69
Error	653.25	176	(3.71)	
Function				
Gender	4.90	1	1.73	.19
Event Type	1.16	1	0.41	.52
Gender x Event Type	0.87	1	0.31	.58
Error	476.36	169	(2.82)	

Note. Values enclosed in parentheses represent mean square errors. * $p \leq .05$.

Table 14

A Comparison of the Means for the Body Satisfaction Scale

Factor	Gender	Event Type	Mean	SD	N
Appearance	Male	Sport	0.65	1.85	62
		Leisure	0.28	2.02	25
		Total	0.54*	1.89	87
	Female	Sport	- 0.14	1.81	49
		Leisure	- 0.26	2.12	44
		Total	- 0.20*	1.94	93
Function	Male	Sport	1.20	1.67	61
		Leisure	1.17	1.43	25
		Total	1.19	1.59	86
	Female	Sport	0.99	1.71	46
		Leisure	0.67	1.79	41
		Total	0.84	1.75	87

* $p \leq .05$.

The fourth hypothesis stated that older adults who participate in sport and PA would perform better on grip strength than those who do not.

A 2 (activity) x 2 (gender) factorial ANOVA was conducted to assess differences in grip strength. The results from the analysis revealed the only significant difference between sport and leisure participants ($F = 4.99, p < .008$). These results are reported in Table 15. There were also gender differences in grip strength, with men ($M = 45.79, SD = 11.21$) scoring higher than women ($M = 25.39, SD = 6.67$). Mean comparisons are reported in Table 16.

Table 15

Results from a 2(activity) x 2(gender) Analysis of Variance for Grip Strength

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Gender	1888.69	1	24.39*	.0001
Event Type	772.45	2	4.99*	.008
Gender x Event Type	315.05	2	2.03	.13
Error	15025.743	194	(77.45)	

Note. Values enclosed in parentheses represent mean square errors.

* $p \leq .05$.

Table 16

A Gender Comparison of Means for Grip Strength Scores

Gender	Event Type	Mean	<i>SD</i>	<i>N</i>
Male	Sport	47.39*	11.57	61
	Leisure	41.89*	9.37	25
	Total	45.79*	11.21	86
Female	Sport	25.96*	4.76	49
	Leisure	24.74*	8.35	43
	Total	25.39*	6.67	92
Total	Sport	37.85*	14.07	110
	Leisure	31.05*	12.02	68
	Total	35.25	13.70	178

* $p \leq .05$

The first exploratory question examined the effects of activity type and gender on BMI.

To assess this exploratory question, a 2 (activity) x 2 (gender) factorial ANOVA was conducted to examine the differences in BMI between men and women, as well as sport and leisure participants. No significant differences in BMI were found for gender or between sport and leisure participants. These results are reported in Tables 17 and 18.

Table 17

Results from a 2 (Activity) x 2 (Gender) Analysis of Variance for Body Mass Index (BMI)

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Gender	11.69	1	0.45	.50
Event Type	94.51	2	1.82	.17
Gender x Event Type	35.88	2	0.69	.50
Error	5127.67	197	(26.03)	

Note. Values enclosed in parentheses represent mean square errors.

Table 18

A Gender Comparison of Means for BMI

Gender	Event Type	Mean	<i>SD</i>	<i>N</i>
Male	Sport	27.30	3.97	61
	Leisure	29.70	3.83	25
	Total	28.00	4.06	86
Female	Sport	26.77	6.12	50
	Leisure	27.36	5.34	44
	Total	27.04	5.74	94
Total	Sport	27.06	5.03	111
	Leisure	28.21	4.95	69
	Total	27.50	5.02	180

The second exploratory question examined the interrelationships among the cognitive, affective and behavioral constructs of BI, age, physical activity, BMI, and grip strength.

A correlation matrix depicting the interrelationships among the factors in this study can be found in Appendix F. The SPAS scores correlated highly with the Clothing factor of the BIAQ ($r = .608, p < .05$). The scores from the CRDS were also correlated with all four factors of the BIAQ: Social, Clothing, Grooming, and Eating ($r = -0.24, 0.45, 0.16$, and 0.19 , respectively, $p < .05$). The Body Appearance factor of the BSS showed a negative relationship with the Clothing factor of the BIAQ ($r = -.42, p < .01$). The Body Function factor of the BSS was somewhat negatively correlated with the Clothing factor of the BIAQ as well ($r = -.26, p < .01$).

The scores from the SPAS were also correlated with the scores from the CRDS ($r = .36$, $p < .05$), and both factors of the BSS (Body Appearance and Body Function) ($r = -.42$, and $-.28$ respectively, $p < .01$). The scores from the CRDS were negatively correlated with the factors from the BSS ($r = -.52$, and $-.24$ respectively, $p < .01$). Finally, a positive correlation was found between the factors of the BSS ($r = .67$, $p < .01$).

Age was negatively correlated with grip strength ($r = -0.39$, $p < .01$), and was slightly negatively correlated with the CRDS ($r = -0.17$, $p < .05$). Age was also positively correlated with the social factor of the BIAQ ($r = 0.22$, $p < .01$). BMI correlated negatively with the appearance factor of the BSS ($r = -0.31$, $p < .01$), and positively with the CRDS ($r = 0.32$, $p < .01$).

A series of partial correlations were run post-hoc to examine the interrelationships among the variables in the current study while controlling for age (see Appendix G). Age did not affect the relationship between BMI and the BI variables, nor did it affect the SPAS, Satisfaction with Body Appearance, and Satisfaction with Body Function. The relationship between grip strength and BI variables, with the exception of Satisfaction with Body Function, were found to be more robust when controlling for the effect of age. A significant correlation between the CRDS and Eating Avoidance was to the result of the effect of age, but age did not affect the relationships among the other BI variables and the CRDS. The relationship between Eating, Grooming, and Social Avoidance was also more robust when controlling for the effect of age.

CHAPTER V

DISCUSSION

Introduction

Prior studies with younger and older adults (Stoll & Alfermann, 2002; McAuley et al., 2002) have shown that physical activity status may have an effect on one's BI. However, the current study's findings did not support this notion; instead this study illustrated that BI was constant across activity levels. A general discussion of the findings from this study is presented below, as well as implications, limitations, and recommendations for future research.

General Discussion of Main Findings

The current study revealed gender differences for nearly all of the dependent variables, supporting the second hypothesis. The results showed that men were more satisfied with their BI than women. This finding was in agreement with previous findings with younger (e.g. Kennedy & Reis, 1995) and older (e.g. McAuley et al., 2002; Reboussin et al., 2000) samples. Eating avoidance was the only non-significant BIAQ factor between men and women in the current study. One potential reason for there being no difference among men and women for this variable may have something to do with the wording of the questions on the BIAQ. The way in which many questions were worded did not necessarily seem appropriate for older adults. As an alternative explanation, eating disorders are generally more prevalent in younger women, which also may be a reason for the lack of gender differences in eating patterns of the current sample.

Furnham and Greaves' (1994) findings revealed significant gender differences in the magnitude and the direction of body dissatisfaction. They found that although men were somewhat satisfied with their BI, women were largely dissatisfied. In the current study, both men and women were dissatisfied to an extent, with women showing greater dissatisfaction.

The current study's results somewhat disagree with the findings of Rhodes et al. (1999), who in a review of literature stated that the majority of research has failed to find significant gender differences in psychological variables with regard to exercise. The current study did not find significant differences in BI variables with regard to PA status, which partially agrees with Rhodes et al., but significant gender differences in BI variables did result. Further discussion on gender differences will follow in a subsequent section.

In contrast to what was expected, older adults with differing activity levels did not differ significantly on cognitive, affective, and behavioral BI. Previous research looked at the effects of physical exercise on body self-concept and well-being of older adults, and found exercise to impact perceived physical fitness (Stoll and Alfermann, 2002). They suggest that their results may be associated with an improvement in one's overall body image with age, but did not assess this directly. In a study of adults aged 70-98 years, Furnham and Greaves (1994) found that participants who exercised had more positive views of their bodies and increased acceptance of their physiques. It is important to note that the current study included a younger sample than these studies, which may account for the differences.

Results showing differences in BI across activity levels were also found in a study by McAuley et al. (2002), which involved a randomized-control trial of a six-month physical activity program's effect on the social physique anxiety of older adults. The authors suggested that engaging in physical activity may lead to improvements in beliefs about strength, coordination, and fitness, which are all precursors to healthy functioning. Further, an improvement in body function may lead to decreased social physique anxiety, and a more positive body image. McAuley et al. (2002) found changes in social physique anxiety (affective BI) over time after participating in a PA program. The current study was cross-sectional, so

different results may be found if a random sample of active versus inactive older adults is assessed over time for changes in BI. McAuley et al. (2002) obtained a proper control group that did not participate in the PA program; therefore activity status could accurately be compared. This is a potential weakness of the current study, as it classified participants by type of activity.

The third hypothesis assessing differences in satisfaction of body appearance and function by type of activity did not yield significant results. However, another significant main effect for gender was found for the body appearance factor, suggesting that women were less satisfied with their appearance than men. This finding has been suggested in prior research (e.g. Reboussin et al., 2000), where men reported significantly greater body satisfaction than women.

The body function factor of the BSS asked questions regarding satisfaction with physical fitness, muscle tone and strength. This subscale did not reveal significant differences between sport and leisure participants, which was somewhat surprising because it is logical to suppose that sport participants would be in better physical shape than their leisure counterparts. Hence, sport participants would be more satisfied with their body function than leisure participants because of their supposed higher activity level. However, that was not the case in the current study. All of the individuals in the current study were community dwelling older adults, but may only participate in their activities once a year when the GNOSO is held. PA status was not accurately measured in the current study, which was a limitation. A majority of the participants (76%) self-reported that they were physically active, which may have been due to the design of the scale that was used.

Reboussin et al. (2000) found contrasting results to the current study. In their study, the participants from the Activity Counseling Trial (ACT) differed significantly in their satisfaction with body function. Their study was a randomized-control trial; therefore the classification into

different PA groups was likely superior to the current study. Perhaps if there had been a proper control group of inactive individuals in the current study, more of a difference would have appeared. Reboussin et al. also found gender differences in body satisfaction. A comparison of the means from the current study with those reported by Reboussin et al is reported in Table 19. The current study had a smaller sample size than Reboussin et al, and had higher mean scores, indicating greater body satisfaction in the current sample. One explanation for the current study's higher scores could be the age difference of the two samples. The majority of Reboussin's sample ranged from 35-54 years of age, and it has been shown that younger adults are more dissatisfied with their bodies than older adults (Reboussin et al., 2000; Tiggemann & Lynch, 2001). The older adults in the Reboussin et al. study (65+) reported higher body dissatisfaction scores than their younger counterparts, indicating they were more satisfied with their bodies at an older age.

Table 19

A Comparison of the Current Means for the Body Satisfaction Scale with the Means from a Study by Reboussin, et al. (2000)

Sample/Variable	N	Body Appearance		Body Function	
		Mean	SD	Mean	SD
GNOSO	180	0.16	1.95	1.01	1.68
Male	87	0.54*	1.89	1.19	1.59
Female	93	- 0.20*	1.94	0.84	1.75
Reboussin et al. (2000)	854	-1.02	1.67	-0.65	1.67
Male	471	-0.69	1.63	-0.45	1.54
Female	383	-1.42	1.62	-0.91	1.56

* $p < .05$

When body function was measured by grip strength, a significant main effect was found. This finding revealed the only significant difference between sport and leisure activity participants, and supported the fourth hypothesis that proposed that sport participants would perform better on the grip strength measure than leisure activity participants. This finding is not surprising, as one would expect individuals who are strong enough to compete in sporting events would have greater functionality than those who compete only in leisure activities. Body function was also shown to decrease with age in the current study, which would also be expected because as one ages one tends to get weaker (e.g. brittle bones and osteoporosis) and lose muscle mass (Spiraduso et al., 2005; Shephard, 1997). This measure can only be considered a proxy for functionality, as it only measures forearm strength. Grip strength is, however, important for all functional activities involving the lifting of objects, utilization of tools, eating, dressing, and involves one of the core muscle groups that has been shown as vital for performing daily activities (Thomas & Hageman, 2002).

The first exploratory question did not reveal significant results, which was surprising given that the more active a person is, the lower their BMI would be. However, as Spirduso et al. have suggested, BMI is also reflective of muscle mass in younger samples. The current findings could relate to differences in these factors if the same holds true for more muscular older adults. Also, a better measure of PA and a more representative sample of equal groups of active versus non-active adults may have yielded different results.

Results of the second exploratory question investigating the interrelationships of the many factors in this study revealed some significant results. The correlation matrix for these relationships can be found in Appendix F. Although many of the correlations were significant, none were of a particularly high magnitude (i.e. less than 0.80; Gravetter & Wallnau, 2004).

Therefore the results should be interpreted cautiously since the strength of association among the variables examined was moderate at best. In spite of this potential limitation, the significant correlations are discussed below.

One would expect the different BI scales/factors to correlate positively with each other, as they measure similar constructs. However, some of these variables (e.g., BSS variables with the SPAS, CRDS, and eating, grooming and clothing factors of the BIAQ) had significant negative correlations because of the way the scores were coded. A positive score on the BSS indicates greater satisfaction with body function and appearance, while a high score on the SPAS and CRDS indicate greater social physique anxiety and BI dissatisfaction, respectively. These findings demonstrate that the BSS measures BI in a positive context, while the other scales (SPAS, and CRDS) measure the negative attitudes and perceptions of one's BI.

Age was negatively correlated with grip strength. This finding suggests that body function outcomes measured by grip strength tend to decrease with age. Age was also slightly negatively correlated with the CRDS, indicating that as age increases discrepancy between actual and ideal body size decreases. This finding suggests that one's ideal body size increases with age, leading to an acceptance of a larger body type. This is in agreement with (Halliwell & Dittmar, 2003) who conducted interviews with a group of older adults. While the men tended to have a sense of acceptance, women still were dissatisfied with their BI. Similar results were found in the current study, although no significant age effects were found on older adults BI.

Age was positively correlated with the social factor of the BIAQ, indicating that as age increases, socially avoidant behaviors also slightly increase. This could be expected because as people age they begin to lose social ties, such as friends and family, with whom they spend time. Groups such as the Senior Olympics offer a social environment for people to reap the benefits of

physical activities in a competitive, but enjoyable way. The low correlation here could be due to the participants' involvement in programs like the Senior Olympics or other social community groups, such as senior centers. A higher result or association between age and SPA may have been found with a sample that was not so active in the community. To reiterate this, McAuley et al. (2002) conducted a randomized-control trial of a six-month physical activity program's effect on the SPA in older adults. Their findings suggest that engaging in physical activity may lead to improvements in beliefs about strength, coordination, and fitness, which are all precursors to healthy functioning. Further, an improvement in body function may lead to decreased social physique anxiety, and a more positive body image.

BMI correlated negatively with the appearance factor of the BSS. This was in contrast with previous research (Reboussin et al., 2000), who found BMI to be positively correlated with body satisfaction. The current findings would be expected because typically one's body satisfaction would decrease as one's BMI increases. In younger, weight trained individuals, greater muscle mass may also be associated with a higher BMI, but adults with a higher the BMI are more likely to have a high proportion of fat (Spirduso et al., 2005). It is questionable whether there may be a potential inverse relationship between age and BMI among older adults. Perhaps as age increases into the 80s and 90s, a larger BMI is more favorable to help maintain bone mass and aid in osteoporosis prevention. This warrants further investigation, as satisfaction with weight was not addressed in the current study.

In contrast, BMI correlated positively with the CRDS. This finding makes sense because a low BMI would in some cases coincide with a low self-ideal discrepancy, and vice versa. In other words, if the chosen ideal body silhouette closely matches the actual size chosen on the CRDS on the lower end of the spectrum, one would expect a low corresponding BMI measure.

On the other hand, choosing a smaller ideal body type and a larger actual or current size would yield a larger discrepancy, and would likely correspond with a higher BMI.

The post-hoc partial correlations suggested that only a few relationships were influenced by age. For example, the relationships between grip strength and all of the BI variables (e.g. SPAS, Body Appearance factor of BSS, CRDS, and BIAQ) were more robust after controlling for age. This indicates that age was confounding the relationships between these variables. This may be due to the wide age range in the current sample. The relationship between grip strength and satisfaction with body function was no longer significant after controlling for age because age was a determinant of satisfaction with functionality. This was in partial agreement with previous research by Reboussin et al. (2000), who found a significant positive linear trend between age and both satisfaction with body function and body appearance.

Age did not affect the relationship between BMI and the BI variables, nor did it affect SPAS, Satisfaction with Body Appearance, and Satisfaction with Body Function. A significant correlation between the CRDS and Eating Avoidance was due to age, but age did not affect the relationship between the other BI variables and the CRDS. The relationships between Eating, Grooming, and Social Avoidance were also more robust when age was excluded from the analysis. The factors from the BIAQ would be expected to correlate with each other, but when age was included in the analysis, it confounded those relationships.

Gender Differences in BI across the Lifespan

Many studies, including the current study, have found that women tend to have lower BI satisfaction than men (e.g. Berger et al., 2002; Furnham et al., 2002; Halliwell & Dittmar, 2003; Feingold & Mazzella, 1998; Stevens & Tiggemann, 1998). In Stevens & Tiggemann's (1998) study, body figure preferences of 180 women aged 18-59 were examined. Women of all ages

rated their current figure as significantly larger than their ideal figure, indicating the presence of BID across the lifespan. Images of the ideal shape presented by the media have become progressively thinner over the past three decades, and even though younger women tend to strive for thinner ideals than older women, the dissatisfaction remains stable over many age groups (Stevens & Tiggeman, 1998).

The present study revealed that women over the age of 50 have dissatisfaction with their bodies on three different levels (affective, cognitive, and behavioral), extending previous research (Furnham et al., 2002; Halliwell & Dittmar, 2003; Feingold & Mazzella, 1998; Stevens & Tiggemann, 1998). The women had higher levels of SPA (affective) than men, a greater discrepancy between ideal and actual body types than men (cognitive), and women displayed more avoidant behaviors in regards to clothing and grooming than the men in this study, except for social avoidance. Also, as previously mentioned, eating behaviors did not differ across gender. It is unknown why men in the current sample may have been more socially avoidant, but perhaps the questions from the BIAQ were misunderstood.

It has been shown that women who exercise regularly view their bodies more positively than those who do not exercise, but that was not the case in the current study. Women increasingly desire not only thinness, but also an athletic, muscular physique (Berger, et al., 2002). Less is known about whether this same desire for thinness exists among older adults.

Sondhaus et al. (2001) offered some reasons for men's stability in body attitudes over time. Although there is a growing emphasis in American popular culture on the importance of appearance for men, there is still a greater range in the standards of attractiveness. In other words, BI ideals for men are more flexible than for women. Therefore, it is easier for men from a wide spectrum of body types to maintain a positive BI, regardless of body type or size.

Moreover, unlike women, for whom physical attractiveness is considered the key to personal and interpersonal acceptance, men have a variety of other avenues (e.g. intelligence, job competence, athleticism, wealth, and power) through which they can achieve self-esteem, and a positive BI. In the current study, women were consistently more dissatisfied than men with their BI on each level that was measured (cognitive, affective, behavioral, and satisfaction with appearance). Perhaps the double standard of aging is to blame for women's chronic dissatisfaction, which remains constant over an age range of 50-90 in the current study.

Physical factors such as one's physical condition have been associated with a decrease in physical activity in older adults. Functional mobility has been found to be a significant factor that could limit older adults' participation in PA or exercise (Rhodes et al., 1999). Decreases in various capacities, especially those dependent upon muscular strength (i.e. grip strength), are predictable outcomes of aging. However, such decrements in functioning are highly variable among older adults. Another inhibiting factor for PA among men and women is SPA. Men and women who score highly on measures of SPA tended to be apprehensive about evaluation of their bodies, and prefer to exercise in private locations according to Berger et al. Furthermore, women's scores have been shown to decrease with age, suggesting that they expect to become heavier and are more accepting of their physiques as they grow older (Berger et al., 2002). The current findings disagree with Berger et al.; SPA slightly increased with age in the current sample, and men in the current study scored higher on the social avoidance factor of the BIAQ than women as discussed above.

The Effects of Age on BI

Tiggemann and Lynch (2001) investigated women's body image across the entire lifespan to clarify changes in body image that occur with age. In this cross-sectional study, the

researchers measured body dissatisfaction as well as self-objectification and its consequences. Body dissatisfaction remained stable across the 20-84 year age range. Self objectification, habitual body monitoring, appearance anxiety and symptoms of disordered eating all decreased with age. The relationship between age and body image remains unclear because studies have found positive (e.g. Reboussin et al., 2000; Tiggemann & Lynch, 2001) associations with age, unlike the current study. Reboussin et al. (2000) found age and race to be associated with body satisfaction (function and appearance). Older adults, as opposed to middle aged adults, were more satisfied with body appearance and function, and African Americans were more satisfied than whites with body appearance and function as well. The current study did not explore the effects of race on BI because the majority of the sample was white, which is representative of the GNOSO population. If this study were to be replicated, it would be beneficial to explore race as a factor on older adults' BI because there is little research in that area (e.g. Reboussin et al.).

Implications of the Study

Because BI distortions persist into adulthood, enhancing awareness of treatments and other strategies for improving mental wellness are important to address. Treatment approaches with positive feedback regarding the aging process are especially important for elderly women, since body dissatisfaction is more prevalent among women than it is among men (Furnham et al., 2002). The current study supported this as well. Therapeutic procedures, such as cognitive-behavioral treatment programs, have been shown to be effective for college-aged women in reducing BID (Sondhaus et al., 2001).

Most advertisements of anti-aging products are aimed at women; therefore more positive messages about the aging process are crucial in order to change these negative perceptions and attitudes. If less emphasis is put on the importance of a youthful appearance, more women might

begin to change their perceptions of the aging process, and in turn foster a more positive overall BI.

Limitations

There were some limitations to the study. The majority of the sample was Caucasian, and convenience sampling was used, potentially causing some selection bias. In addition, participants are likely more active than the general population of older adults, all of which may limit the generalizability of the findings to a larger population. Classifications into the different groups may not have properly distinguished participants into more active versus less active categories. Therefore, this study may not have used the best predictor of activity status. A better instrument for measuring physical activity is needed; otherwise research will keep relying on self-reported data.

Rhodes et al. (1999) concluded that most research on exercise and the elderly consists of correlational, retrospective, self-report surveys among the general population or motivated volunteers, and may lack external validity. The current study relied on self-reported PA as well.

Some of the questions on the surveys were modified to try to make them more age-appropriate, but some questions still may have confused the participants, deeming the scales inappropriate for the current sample. New age-appropriate instruments are needed to measure BI in the older adult population because current research has relied upon those used in studies with younger populations (e.g. Gabel & Kearney, 1998 ; Strauman & Glenberg, 1994). The BSS has been used with samples of older adults (e.g. Reboussin et al., 2000), and did show high reliability and validity. More scales that measure the different components of BI are needed to pursue further research in samples of older adults.

Recommendations for Future Research

Halliwell and Dittmar (2003) conducted in-depth interviews with men and women across a broad age range to explore their concerns and attitudes towards BI and aging. Their analysis revealed distinct gender differences. Men commonly conceptualized their bodies as a whole entity, whereas women commonly had compartmentalized conceptions and criticized particular body parts such as their hips or stomach. Men also tended to focus on functionality, and women tended to focus on display or appearance. Narratives from some of the older interviewees about the aging process support the notion that there is a “double standard of aging.” Women who were interviewed perceived aging most negatively in terms of its impact on appearance, whereas men reported a more neutral or even positive impact of aging on appearance.

The current study did not hypothesize a relationship between age and BI, and age was not found to be a significant predictor of BI in older adults; however, it would be beneficial to the fields of gerontology and BI to conduct a similar study with older adults because there is limited research regarding the effect of aging on BI concerns. A new BI scale developed specifically for older adults is needed, and perhaps focus groups with older adults would aid in this development to find out what affects older adults’ BI (e.g. graying of hair, wrinkles, weight gain/loss).

Halliwell and Dittmar’s (2003) findings discussed above have implications for whether existing, quantitative BI measures are appropriate for older populations. While some were reliable in the current study, more age-appropriate, valid scales including aging attitudes would be beneficial for future research. A similar study with quantitative and qualitative measures might help to validate quantitative measures of BI in older samples. Age-appropriate questions need to be developed, perhaps through focus groups, to continue to understand what issues older

adults have with their BI, and further comprehend the interaction between the effects of aging and BI.

Further research is also needed in exploring the link between BI and exercise in older populations. Research on athletic, active older adults, as compared to their inactive counterparts, may lead to a greater understanding of the BI perceptions of older adults, and whether BI is a relevant problem to address in this age-group. As this study reveals, there may not be a relationship between BI and PA status in older adults. Further research with a better measure to compare active versus inactive older adults is necessary to further understand these results. Determining whether physical changes affect one's BI would also be worthy to note, which would require better measures of affective and behavioral BI designed specifically for older adults.

To date, research is limited in terms of examining racial differences in BI among men and women who are middle-aged and older. Future studies should utilize more generalizable samples in order to look at differences in BI among older adults of different racial and ethnic groups.

In future studies, it would also be advantageous to assess exercise motives in relation to BI in older adults because prior research has revealed that exercising for weight loss, toning and physical attractiveness were associated with a more negative body image in both sexes, whereas exercising for health, enjoyment, and fitness demonstrate a more positive body image (Kennedy & Reis, 1995). The prevalence of dissatisfaction with physical appearance was anticipated, and was cited to be consistent with earlier research with samples of older, more vigorously exercising women (Kennedy & Reis, 1995). If future studies were to look at exercise motives, it might also

be important to explore barriers to exercise in older populations, and whether BI is a barrier to exercise in this population.

Summary and Conclusions

The current study revealed that gender plays a major role in BI even into older adulthood, extending previous research (e.g. McAuley et al., 2002; Reboussin et al., 2000). Women had more negative BIs than men. In contrast to what was expected, older adults with differing activity levels did not differ significantly on cognitive, affective, and behavioral BI. The only significant difference between sport and leisure activity participants was in grip strength scores, with sport participants scoring higher than their leisure counterparts. Examining exercise and PA motives of older adults and using additional measures of functionality may help gain understanding of the relationship between BI and PA in this population. There is still need for future research in this area to help further understand the differences of BI across the lifespan.

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APPENDICES

APPENDIX A
Demographics

Thank you for agreeing to participate in our survey. **Please do not write your name anywhere on this or any other form.** All of the information you provide is confidential. Please answer all of the questions to the best of your ability. Thank you and have fun competing in the GNO Senior Olympics!

Gender (please circle one): **M** **F**

Current Age: years

Current Marital Status (please check only one):

Single (never married) __ **Single (widow/widower)** __

Married __ **Divorced** __

Race/Ethnicity (check all that apply):

African-American __ **American Indian** __ **Asian American** __ **Caucasian** __ **Hispanic** __
Other _____

Years of Experience in GNOSO:

Main Sport in current GNOSO:

Please circle your **highest level** of sport participation (other than the current Senior Games):

Youth **High School** **Collegiate** **Professional**

Please circle your **highest level** of competition in the Senior Games:

District **State** **National**

Please do not write below this line

.....
Height: _____ **ft** _____ **in** **Weight:** _____ **pounds**

Grip Strength:

 Trial 1 Trial 2 Trial

APPENDIX B

Social Physique Anxiety Scale (nine-item version).

Read each of the following statements carefully and indicate the degree to which the statement is characteristic of you, according to the following scale:

- 1 = Not at all characteristic of me
- 2 = Slightly characteristic of me
- 3 = Moderately characteristic of me
- 4 = Very characteristic of me
- 5 = Extremely characteristic of me

Circle the number that that is characteristic of you for the following questions:

1. I wish I wasn't so uptight about my physique/figure. **1 2 3 4 5**
2. There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively. **1 2 3 4 5**
3. Unattractive features of my physique/figure make me nervous in certain social settings. **1 2 3 4 5**
4. In the presence of others, I feel apprehensive about my physique/figure. **1 2 3 4 5**
5. I am comfortable with how my body appears to others. **1 2 3 4 5**
6. It would make me uncomfortable to know others were evaluating my physique/figure. **1 2 3 4 5**
7. When it comes to displaying my physique/figure to others, I am a shy person. **1 2 3 4 5**
8. I usually feel relaxed when it is obvious that others are looking at my physique/figure. **1 2 3 4 5**
9. When in a bathing suit, I often feel nervous about the shape of my body. **1 2 3 4 5**

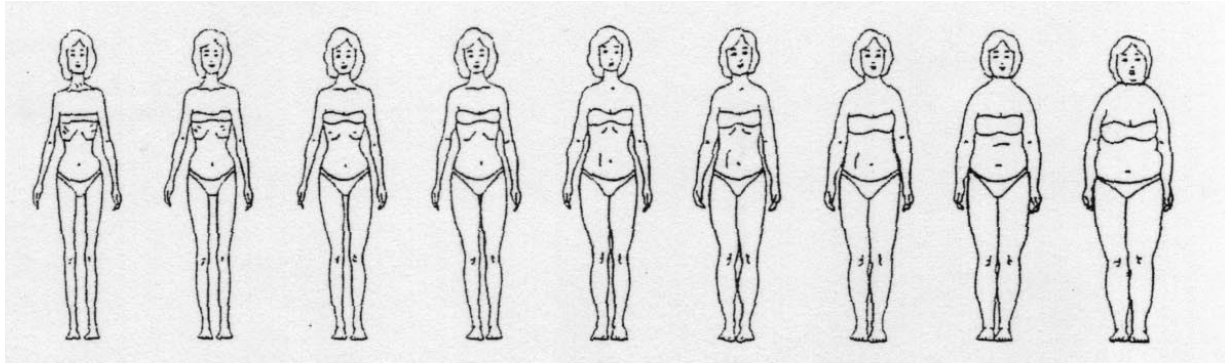
Source: Adapted from Hart, E.H., Leary, M.R., & Rejeski, W.J., 1989. The measurement of social physique anxiety. Journal of Sport & Exercise Psychology, 11(1), 98..

APPENDIX C
Contour Drawing Rating Scale

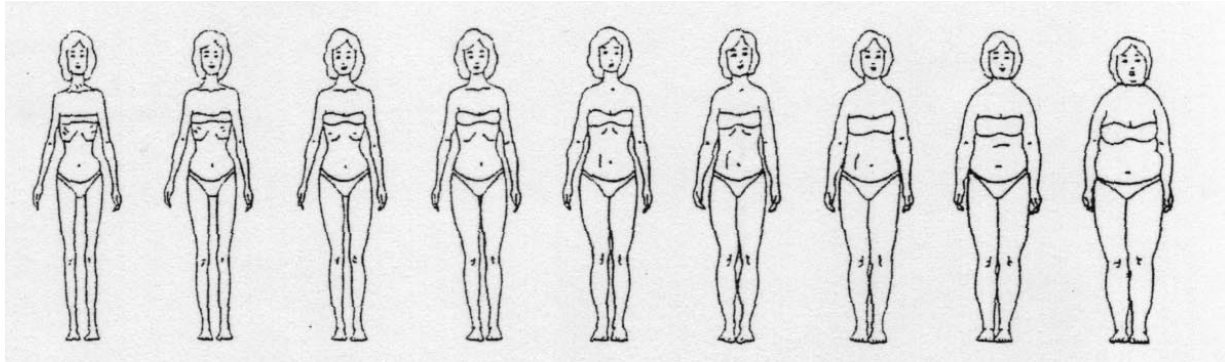
Step 1: Please circle the figure (a male figure if you are a man; a female figure if you are a woman) below that best represents your current body type.

Step 2: Place an 'X' above the figure (a male figure if you are a man; a female figure if you are a woman) that represents your ideal body type.

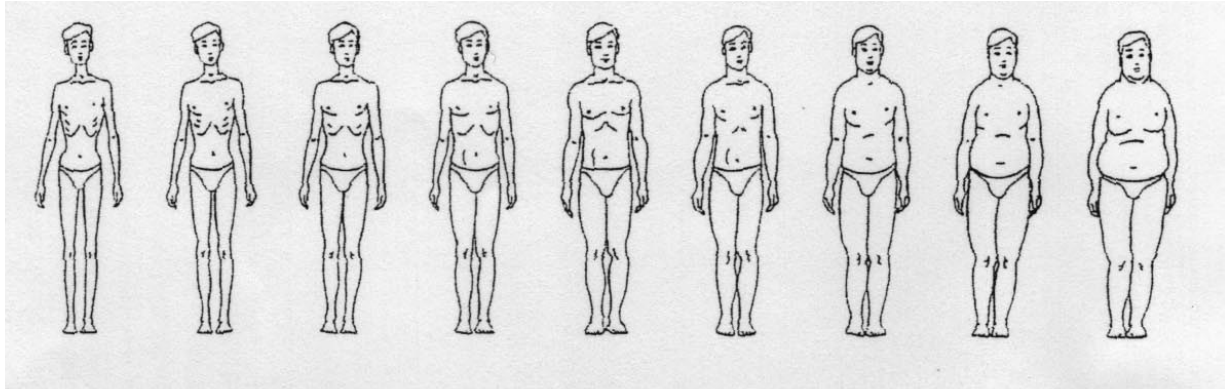
EXAMPLE:



FEMALE:



MALE:



Source: Modified from Thompson, M.A., & Gray, J.J. (1995). Development and validation of a new body assessment scale. *Journal of Body Assessment*, 64(2), 263.

APPENDIX D

Body Image Avoidance Questionnaire

Please circle the number which best describes **how often** you engage in these behaviors **at the present time.**

	Always	Usually	Often	Sometimes	Rarely	Never
1. I wear baggy clothes	5	4	3	2	1	0
2. I wear clothes I do not like	5	4	3	2	1	0
3. I wear darker color clothing	5	4	3	2	1	0
4. I wear a special set of clothing, e.g. my “fat clothes”	5	4	3	2	1	0
5. I restrict the amount of food I eat	5	4	3	2	1	0
6. I only eat fruits, vegetables and other low calorie foods	5	4	3	2	1	0
7. I fast for a day or longer	5	4	3	2	1	0
8. I talk about weight in social settings	5	4	3	2	1	0

	Always	Usually	Often	Sometimes	Rarely	Never
10. I will go out socially if it involves eating	5	4	3	2	1	0
11. I weigh myself	5	4	3	2	1	0
12. I am inactive	5	4	3	2	1	0
13. I look at myself in the mirror	5	4	3	2	1	0
14. I avoid physical intimacy	5	4	3	2	1	0
15. I wear clothes that will divert attention from my weight	5	4	3	2	1	0
16. I avoid going clothes shopping	5	4	3	2	1	0
17. I wear revealing clothes, e.g. shorts tank tops or bathing suits	5	4	3	2	1	0
18. I get dressed up or made up	5	4	3	2	1	0

Source: Modified from Rosen, J., Srebnik, D., Saltzberg, E., & Wendt, S. (1991). Development of a body image avoidance questionnaire. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, 3, 32-37.

APPENDIX E

Body Satisfaction and Physical Fitness

Read each of the following statements carefully and rate your satisfaction according to the following scale:

- 3 = very dissatisfied
- 2 = somewhat dissatisfied
- 1 = a little dissatisfied
- 0 = neither
- +1 = a little satisfied
- +2 = somewhat satisfied
- +3 = very satisfied

In the past four weeks, how satisfied have you been with...

1. your overall level of physical fitness? -3 -2 -1 0 1 2 3
2. the muscle strength in your legs? -3 -2 -1 0 1 2 3
3. your level of endurance or stamina? -3 -2 -1 0 1 2 3
4. your muscle tone? -3 -2 -1 0 1 2 3
5. your overall level of energy? -3 -2 -1 0 1 2 3
6. your physical ability to do what you
want or need to do? -3 -2 -1 0 1 2 3
7. your weight?-3 -2 -1 0 1 2 3
8. your shape?-3 -2 -1 0 1 2 3
9. your overall physical appearance?-3 -2 -1 0 1 2 3

Source: Adapted from Ray, K., Hector, L., Lynes, L., Stewart, A., Painter, P. & Diblem S. (1996). Assessment of satisfaction with physical fitness in kidney transplant recipients. *Medicine and Science in Sports and Exercise(suppliment)*, 28, S7.

APPENDIX F

Intercorrelations between Age, BMI, Grip Stength, and the Cognitive, Affective, and Behavioral Constructs of Body Image

	Age	BMI	Grip	SPAS	SBA	SBF	CRDS	BIA_E	BIA_G	BIA_C	BIA_S
Age	--										
BMI	-0.01	--									
Grip	-0.39**	0.12	--								
SPAS	-0.04	0.07	-0.30**	--							
SBA	0.12	-0.31**	0.13	-0.42**	--						
SBF	-0.04	-0.09	0.16*	-0.28**	0.67**	--					
CRDS	-0.17*	0.32**	-0.16*	0.36**	-0.52**	-0.24**	--				
BIA_E	-0.01	-0.002	-0.13	0.17*	-0.06	-0.01	0.19**	--			
BIA_G	-0.01	-0.06	-0.27**	0.14*	-0.04	0.06	0.16*	0.28**	--		
BIA_C	-0.10	0.21**	-0.19**	0.61*	-0.42**	-0.26**	0.45**	0.18*	0.07	--	
BIA_S	0.22**	-0.05	0.09	-0.18*	0.14*	-0.03	-0.24**	-0.14	-0.32**	-0.23**	--

Note. BMI = body mass index; Grip = grip strength average; SPAS = Social Physique Anxiety Scale; SBA = satisfaction with body appearance; SBF = satisfaction with body function; CRDS = Contour Rating Drawing Scale; BIA_E = Body Image Avoidance Eating factor; BIA_G = Body Image Avoidance Grooming factor; BIA_C = Body Image Avoidance Clothing factor; BIA_S = Body Image Avoidance Social factor.

* $p \leq .05$. ** $p \leq .01$.

APPENDIX G

Intercorrelations between BMI, Grip Stength, and the Cognitive, Affective, and Behavioral Constructs of Body Image

	BMI	Grip	SPAS	SBA	SBF	CRDS	BIA_E	BIA_G	BIA_C	BIA_S
BMI	--									
Grip	0.14	--								
SPAS	0.09	-0.31**	--							
SBA	-0.28**	0.17*	-0.40**	--						
SBF	-0.09	0.09	-0.24**	0.70**	--					
CRDS	0.26**	-0.31**	0.39**	-0.53**	-0.26**	--				
BIA_E	-0.07	-0.20*	0.16	-0.04	0.06	0.08	--			
BIA_G	-0.09	-0.35**	0.16*	-0.08	0.07	0.19*	0.35**	--		
BIA_C	0.19*	-0.22**	0.60**	-0.40**	-0.26**	0.44**	0.13	0.09	--	
BIA_S	-0.07	0.22**	-0.22**	0.17*	-0.01	-0.22**	-0.21*	-0.37**	-0.26**	--

Note. BMI = body mass index; Grip = grip strength average; SPAS = Social Physique Anxiety Scale; SBA = satisfaction with body appearance; SBF = satisfaction with body function; CRDS = Contour Rating Drawing Scale; BIA_E = Body Image Avoidance Eating factor; BIA_G = Body Image Avoidance Grooming factor; BIA_C = Body Image Avoidance Clothing factor; BIA_S = Body Image Avoidance Social factor.

* $p \leq .05$. ** $p \leq .01$.

VITA

Marigny Johnston Bostock was born and raised in New Orleans, LA. Marigny received her Bachelor of Science degree in Sports Medicine in 2001 from Guilford College in Greensboro, NC, where she was a member of the varsity volleyball team. In the fall of 2003, Marigny was accepted to the University of New Orleans and began the masters program in Human Performance and Health Promotion (HHP). During her graduate work, Marigny was a graduate assistant in the HHP department, and her duties were to run the Greater New Orleans Senior Olympics. Marigny is currently working as a program evaluator for the Urban Nutrition Initiative, a nutrition education program housed at the University of Pennsylvania. She plans to continue working there after graduation.