CLOTHING SIZE DISSATISFACTION: A STRONGER PREDICTOR OF WEIGHT-RELATED AVOIDANCE THAN BODY MASS INDEX

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LAURA ELIZABETH MAPHIS

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LAURA E. MAPHIS
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APPROVED BY:

Denise M. Martz
Chairperson, Thesis Committee

Lisa A. Curtin
Member, Thesis Committee

Rose Mary Webb
Member, Thesis Committee

James C. Denniston
Chair, Department of Psychology

Edelma D. Huntley
Dean, Research and Graduate Studies

FOREWORD

This thesis is written in accordance with the style of the *Publication Manual of the American Psychological Association (6th Edition)* as required by the Department of Psychology at Appalachian State University

I would like to *sincerely* thank my thesis chair, Denise Martz, who has shown me the patience of a Saint. I am in awe of her enthusiasm for body image research, and I am deeply grateful for this zeal, as it kept me interested and perseverant throughout the course of this research endeavor. Additional thanks are warranted to my committee, Lisa Curtin and Rose Mary Webb, for their collaboration, feedback, guidance, and demonstration of great patience. I also wish to thank my parents for their support, especially those inspiring pep-talks from my mother, and for making graduate school possible; Evan, who stood by me during it all; and Lucy, my sweet dog and stress-reliever, who joined us along the way. This thesis is dedicated to the best-ever graduate cohort: Jessica Kinsaul, Greg Higgins, Ina Hansson, Michael Murphy, Jared Cook, Martha Combs, and Chelsea Price. I could not have imagined graduate school without these people.

Clothing Size Dissatisfaction: A Stronger Predictor of Size-related Avoidance than Body Mass Index

Laura E. Maphis

Appalachian State University

Abstract

Body image issues are salient in the United States (U.S.) and are particularly marked in women. Participants in the current study (N = 2,997) were age and race-representative U.S. adults perceiving themselves to be larger in body size than their ideal. Participants completed an internet survey inquiring about height, weight, clothing size, and size-related avoidance behavior. Body mass index (BMI) was calculated as an anthropometric measure, and the difference between current and ideal clothing size, a novel construct called relative size (RS), was calculated as a measure of body size satisfaction to predict a variety of avoidance behaviors using a 10-item scale. A principal components analysis was performed on the 10-item avoidance scale and components entitled general avoidance and body display avoidance emerged. Multiple regression analyses were utilized and allowed for examination of gender differences as well as the posited predictive utility of RS above and beyond BMI for the two components of avoidance. Regression analyses were performed on both components in a hierarchical series with the predictor variables in the following step function order: BMI, RS, gender, gender/BMI interaction, and gender/RS interaction. RS was found to offer more predictive utility for general avoidance than BMI, suggesting that one's perception of size does deter involvement in varied life events, though higher BMI and female gender were also significant predictors of general avoidance. Results suggested that gender was the sole significant predictor with women endorsing more body display avoidance than men. Thus, we believe findings from our study reinforce previous literature stating that poor body image has more of an adverse impact on the lives of women compared to men.

Clothing Size Dissatisfaction: A Stronger Predictor of Size-related Avoidance than Body Mass Index

The prevalence of overweight and obesity has increased largely over the past twenty years (Center for Disease Control [CDC], 2008), a trend that is consistent across men and women over 20 years of age, for all races, and regardless of smoking status (Mokdad et al., 2003). Since 1980, body mass index (BMI) for both men and women has increased by 1.1 kg/m^2 and 1.2 kg/m^2, respectively, per decade (Finucane et al., 2011). Aside from the high monetary costs of managing overweight and obesity, a myriad of physical health conditions caused and exacerbated by excess weight make it the second leading cause of premature mortality (National Institute of Health [NIH], 2007; Stein & Colditz, 2004). Heavy individuals are at risk for many serious health problems such as coronary heart disease, type II diabetes, and stroke (CDC), as well as disability (Ferraro, Su, Gretebeck, Black, & Badylak, 2002).

Additionally, heavier individuals have worse health-related quality of life (Ford, Moriarty, Zack, Mokdad, & Chapman, 2001), poorer mental health statuses than their normal weight counterparts (Hassan, Joshi, Madhavan, & Amonkar, 2003), and experience size-related stigma (Puhl & Brownell, 2006). Those who suffer from obesity are judged by some as having a defect in character (Cohen, Perales, & Steadman, 2005), are often blamed for being heavy, and their weight is attributed to a lack of control. This type of stigmatization can also lead to avoiding or leaving situations such as a prejudicial work environment (Myers & Rosen, 1999). The focus of this research will center on how body size, including BMI, the novel construct of relative clothing size, and gender, relate to avoidance behaviors.

Avoidance of certain situations may have a more direct negative impact on the individual than other avoided situations, and some types of avoidance appear to be a function of body size. Drury and Louis (2002) studied 216 women ranging from normal weight to overweight and found a positive association between BMI and past year and lifetime healthcare avoidance. Among morbidly obese individuals, not wanting to be undressed in front of the physician was frequently cited as a reason to evade healthcare. Moreover, 60% of the morbidly obese avoided healthcare for fear of being told to lose weight. Along a similar vein, Ostbye, Taylor, Yancy, and Krause (2005) examined longitudinal evidence that showed that women with a BMI of 40 or above are the least likely to receive preventative care such as pap smears, mammograms, and flu vaccinations.

Additionally, exercise has been examined as an area of avoidance for overweight and obese individuals. Packer (1989) cites a number of social factors precluding physical activity for the overweight and obese. Specifically, cultural emphasis on dieting rather than exercise for optimal health, the importance of appearance over health, fear of ridicule, fear of appearing awkward while working-out, environmental or attitudinal inaccessibility of exercise facilities, fear of injury or harm as a result of exercise, difficulty finding correctly fitting work-out clothing, and lack of financial resources were implicated as reasons to evade exercise.

Most avoidance research has employed clinical samples (e.g., individuals with binge eating disorder or individuals who are morbidly obese). Additionally, study participants have been infrequently compared to normal weight individuals when assessing size-related avoidance behaviors, limiting our understanding of the relationship between size and avoidance. The aforementioned studies aside, most avoidance literature also places an

emphasis on body avoidance (e.g., not wearing tight clothing or looking in the mirror), and precludes examination of other types of avoidance behavior like healthcare and social avoidance. For example, Reas, Grilo, Masheb, and Wilson (2005) examined body avoidance in 377 overweight and obese individuals with binge eating disorder. Body avoidance was represented by a single item on the Body Shape Questionnaire that asked, "Have you avoided wearing clothes which make you particularly aware of the shape of your body?" One hundred seventy-eight out of 297 women (59.9%) and 25 out of 80 men (31.1%) comprised the 53.8% of the total sample that endorsed always avoiding wearing shapely clothing.

Latner (2008) also assessed body avoidance, using the same Body Shape Questionnaire item as Reas et al. (2005), in a sample of 155 women and 30 men undergoing a behavioral weight loss treatment program. Of the entire sample, 41.2% reported avoiding certain clothing "often, very often, or always." Again, women indicated avoidance more frequently than did men, and there was a link between avoidance and diminished weight loss. Similarly, Grilo et al. (2005) used a sample of 216 women and 44 men presenting for bariatric surgery to examine the relationship among avoidance, gender, BMI, salient eating disorder behaviors, and over-evaluation of shape and weight. Consistent with the two previous studies, women reported more avoidance of shapely clothing (50% of women compared to 36.4% of men), while 47.7% of the entire sample endorsed always avoiding shapely clothing. The authors found that avoidance was not correlated with BMI, but noted the restricted range of BMIs in bariatric surgery candidates.

A more comprehensive avoidance scale was developed by Rosen, Srebnik, Saltzberg, and Wendt (1991) that strongly correlated with the Body Shape Questionnaire item used by Latner (2008) and Reas et al. (2005). The scale was developed on 40 undergraduate women

ages 18-20 who were randomly selected to participate in a short body image interview. Weight and height were not self-reported or measured, and only one participant "appeared" obese. Specifically, participants were asked if they had experiences with body image dissatisfaction and how they compensated for this negative feeling. A total of 19 answers cited by three or more participants were included in the scale. A six-point Likert scale was used for each of the 19 items. Cross validation of factors revealed clothing, social activities, eating restraint, and grooming and weighing factors as areas of avoidance. Limitations of this scale include use of a small number of women ($N = 40$) for scale development, use of only women to describe normative responses ($N = 400$), and lack of generalizabilty to males, the non-university population, or to individuals who are overweight or obese. Women tend to report more body image dissatisfaction and avoidance, but an examination in men across these constructs is also warranted.

Overall, the avoidance literature is sparse, is executed in limited samples, and tends to focus on one type of avoidance (i.e., body avoidance) to the exclusion of others. The present study examined avoidance behavior using archival survey data of women and men that was representative of the body sizes of the United States (U.S.) population. Only participants who were larger than their ideal clothing sizes were included in analyses for this study. Knowing *what* is avoided is also important, especially if avoidance behaviors contribute to negative physical or mental health. Thus, the avoidance scale used for this current study provided an array of potential areas for avoidance and used factor analysis of these items to examine themes in the avoidance.

Since overweight and obese individuals endorse avoidance behavior, one might expect to find varying degrees of endorsed avoidance by weight. BMI is a frequently used

measure of body adiposity (CDC, 2008). However, Lean, Han, and Deurenberg (1996) assert that, compared to BMI, waist circumference is a better indicator of total body fat. Hence, a male's pants size is the equivalent of his waist circumference, which could yield a more practical, inexpensive, and perhaps more accurate way to measure body fat. However, waist circumference is not necessarily reflected in women's dress sizes.

Clothing size as an anthropometric measure of body size is a relatively novel concept. Han, Gates, Truscott, and Lean (2005) examined the relationship between waist circumference in men and dress size in women, BMI, and risks for ischemic heart disease, high blood pressure, and diabetes mellitus. Clothing sizes were reported by 161 women and 201 men, and clothing labels were also examined for size by researchers. Waist and hip circumferences were also reported in addition to weight and height used to calculate BMI. Linear regression equations for clothing size were constructed to yield a corresponding BMI value to indicate overweight and obesity cut-off points for both women and men. For example, a dress size of 16 corresponded with overweight (BMI = 25), and a dress size of 18 (BMI = 30) indicated obesity. Waist circumference cut-offs for men that corresponded with BMI overweight and obesity cut-offs were 36 and 38, respectively. Those who were overweight/obese had an increased risk for heart disease and related problems based on odds ratios. Specifically, women with a dress size at or greater than 18 had a seven-fold chance of acquiring one or more of the size-related health conditions, and men with a waist circumference at or greater than 38 had a 3.9-fold chance of developing the aforementioned health conditions.

Additionally, Morris, Heady, and Raffle (1956) examined the uniforms of 1,276 men employed as bus drivers and 944 men employed as train conductors to asses if uniform size,

as a reflection of body size, constituted a risk-factor for coronary heart disease. Waist circumference was measured from uniform pant size, and chest measurements were taken from uniform jackets. The authors found an association between increased risk for heart disease and larger uniform sizes.

The previous studies that examined clothing size postulated that larger clothing sizes relate to risk for major health problems. Neither study examined participants' level of satisfaction with clothing size. The present study used clothing size as an indicator of body satisfaction via a discrepancy score deemed relative size (RS; current clothing size minus ideal size). Because BMI is a well-established anthropometric measure and was used in previous clothing size comparison studies and in avoidance literature, it was used in the current study in conjunction with relative size. BMI tells us where an individual currently falls on a body size continuum, but does not inform us as to how an individual *feels* about where he/she falls on that continuum. Relative size offers a perceptual component that BMI cannot, by which we can infer feelings about size and body image satisfaction as a body image-like construct.

Body image dissatisfaction may be linked with avoidance. For example, Latner (2008) found that a poor body image predicted avoidance behavior. The current study operationalized avoidance as refraining from situations that may elicit feelings of body image dissatisfaction, like being undressed in front of a physician. For both genders, we expected that there would be variance in avoidance behavior that is unaccounted for by BMI alone. It was hypothesized that relative size would contribute additional predictive utility above and beyond BMI, due to the presumed link between RS and body image satisfaction.

Additionally, we expected greater avoidance endorsement among women compared to men, as seen in previous studies (e.g., Grilo et al., 2005; Latner, 2008; Reas et al., 2005).

Method

Design and Procedure

This study was part of the "Psychology of Size" large-scale cross-sectional descriptive survey sponsored by Slim-Fast™ and conducted on the MyView Research site of the Internet by a polling company named The Segmentation Company, a division of Yankelovich. Participants, who were all legal U.S. citizens and 18+ years of age, were previously enrolled in an online research panel to serve as participants in a variety of polling activities. Sequential email blasts between May 11 and May 18, 2007, titled "Health and Wellness Survey," were sent to this group inviting them to participate according to certain demographic quotas (e.g., age stratification; equal number of men and women). Participants were not told that this survey was sponsored by Slim-Fast™ or that it was called the Psychology of Size. Consent to participate was inherent in the voluntary completion of the online survey, and all participants received a $1 Pay-Pal™ reward for their time. Institutional Review Board approval for use of this archival data was received on January 23, 2009 (Appendix A).

Participants

A total of 4,014 participants completed the survey, but 102 were removed for failure to report or unreasonable reporting of height, weight, or clothing size (e.g., a man with a BMI of 12 and pant size of 40; anatomically impossible size combinations). An additional 915 participants reporting wearing clothing of an ideal or smaller than ideal size were removed from subsequent analyses. Of the 2,997 participants, 85.3% reported race/ethnicity as

Caucasian, 5.7% as African American, 3.6% as Asian/Pacific Islander, 3.4% as Hispanic/Chicano/Latino, 1.2% as biracial, and 0.8% as Native American/Indian. Gross annual income showed 29.2% of participants at less than $34,999, 21.7% between $35,000 - $49,999, 22.6% between $50,000-$74,999, 11.7% between $75,000-$99,999, 7.7% between $100,000-$150,000, 3.6% at or above $150,000, and 3.4% did not report this information. Regarding employment status, 45.7% of participants reported full-time employment, 11.1% reported part-time employment, 11.6% reported being full-time homemakers, 20.7% reported being retired, 3.9% reported student status, and 7.0% reported current unemployment. In addition, 0.3% endorsed completing 8th grade or less, 1.9% had some high school, 21.4% graduated from high school, 37.3% had some college, 26.5% graduated from college, and 12.5% engaged in graduate studies. The average age of participants was 46 years (*SD* =15; range 18 - 86). Participants were 54.6% female and 45.4% male.

Materials

Data for the current study was extracted from the Psychology of Size, a large scale, archival cross-sectional survey. The entire survey consisted of 130 items aimed to elicit demographic information, body image satisfaction, weight management behavior, avoidance behavior, clothing size, height, and weight. The current study used a portion of the available survey data.

Body mass index. Height and weight were self-reported by participants then converted to BMI via [kg / (m^2)]. Subsequently, participant BMIs were categorized according to World Health Organization (WHO) standards on a continuum from underweight to class III obese (WHO, 2009). According to the WHO, underweight BMIs fall below 18.50, normal weight BMIs range from 18.50 - 24.99, and overweight BMIs begin at 25.00. At or

above a BMI of 30, BMIs are classified as class I obese (30.00 - 34.99), class II obese (35.00 - 39.99), and class III obese (≥ 40.00; WHO, 2009).

Relative size. The difference between current clothing size and ideal clothing size constitutes the simple discrepancy score of RS (current-ideal). Questions aimed at eliciting relative size were asked differently across gender. Women were asked, "What size of clothing do you usually wear?" and "And what size would you ideally like to be?" and data reflected the even-numbered sizing scheme typical of women's wear. Conversely, men were asked about their current pants size and ideal pants size, and data reflected the sequential inch increments typical of menswear. RS data was classified into five different categories representing those one to plus five sizes larger than ideal.

Measurement differences in women and men's clothing might produce concern about the equivalence of RS increments between women and men, thus a 2 (gender) by 5 (RS) ANOVA with BMI as the dependent variable was conducted. A slight gender difference in mean BMI was noted; women reported a mean BMI of 32.86 while men reported a mean BMI of 33.55, $F(1, 2{,}997) = 9.768$, $p = .002$, $\eta_P^2 = .003$. Further, each incremental increase of RS demonstrated a significant increase in BMI, $F(4, 2997) = 741.292$, $p < .001$, $\eta_P^2 = .498$ (all p's for posthoc tests between each RS category < .001) for men and women combined. Mean BMIs for each RS category across genders were similar; what women classified as +1 above their ideal was slightly lower than the average BMI for men at the same category (24.99 versus 26.94, respectively) as well as with +2 (28.71 versus 30.25, respectively). For individuals classifying as 3 through +5 sizes above ideal, BMIs were closer in value. Average BMIs for women at +3, +4, and +5 above ideal were found to be 32.66, 35.24, and 42.70,

respectively. Average BMIs for men at the same size increments included 32.90, 35.59, and 42.09, respectively.

The results of these descriptive analyses demonstrated the equivalence of RS increments for women and men, thus decreasing the concern about gender differences in clothing size. Moreover, this same relationship lends construct validity support to RS, as significant increases in BMI were noted for increases in RS.

Avoidance. Avoidance was assessed using a 12-item scale created for the Psychology of Size survey (see Appendix B). Participants were asked, "Which of these things are you likely to avoid when or if you feel that you are larger than your ideal?" The wording of these instructions might preclude individuals who rated themselves as smaller or ideal-equivalent from accurately responding to the avoidance items. Thus, the decision was made to drop the 915 participants who fell into the smaller and ideal-equivalent RS groupings from our analyses. Remaining participants then endorsed which avoidance behaviors applied to them. Though this option was not included in subsequent analyses, participants had the option to indicate "None of these," when responding to avoidance items. Two additional items involving avoidance of dating and nudity in front of a partner were also dropped from subsequent analyses as these items were only asked to a subgroup of participants based on their responses to relationship demographics. Hence, our final avoidance scale consisted of 10 items. Because the avoidance scale included in the current study was designed for the Psychology of Size survey, an internal consistency analysis was performed in order to ascertain item proficiency for measuring avoidance. The 10-item avoidance scale alpha was found to be .79.

Results

Factor Analysis

An exploratory factor analysis was performed on the 10-item avoidance scale to examine whether specific avoidance behaviors tended to cluster together (e.g., avoiding spending time with others and avoiding attending social events), ultimately operationalizing avoidance for subsequent analyses. Due to the exploratory nature of this analysis, the principal component analysis extraction method was utilized. The first component to emerge accounted for 35.75% of the variance in avoidance behavior (eigenvalue = 3.58). The second component accounted for 12.66% of the variance in avoidance behavior (eigenvalue = 1.23). A scree plot revealed a notable decline following the second component, so the remaining eight components, which had eigenvalues of less than one, were dropped from further analyses. Taken together, the two retained components accounted for 48.41% of the total variance in avoidance behavior.

Examination of the item loadings on each component allowed us to label each conceptually. Because every item was at least moderately correlated with the first component (loadings ranged from .489 to .718), it was conceptualized as a “general avoidance” component. Loadings for the second component were highest for avoiding the “pool or the beach” and “wearing revealing clothing” items (.569 and .631, respectively). Items that loaded to a lesser degree on the second component included “clothes shopping” (.257) and “sexual intimacy” (.216). Hence, the second component was deemed “body display avoidance.” Table 1 specifies loadings for each component.

Hierarchical Multiple Regression

Rather than relying upon each dichotomous avoidance item separately or using simple additive composite avoidance scores in our regression analyses, we created two avoidance composites using items weighted by their loadings on the two components that emerged from the previously described factor analysis. Two hierarchical multiple regression analyses were performed using each component as the dependent variable, in turn, with the predictor variables in the following steps: 1) BMI, 2) RS, 3) gender, 4) gender by BMI interaction, and 5) gender by RS interaction. This hierarchical sequence was utilized to gauge the predictive utility of each step above and beyond the previous step. In particular, we hypothesized that RS would account for variance in avoidance behavior above and beyond BMI, indicating that a body image-like construct has utility above and beyond body size in determining some reported avoidance behaviors. Gender, which has also been linked to avoidance in previous literature, was entered third. Our last two steps, both interactions, were more exploratory in nature and were included to more fully understand the nature of any unique combinations among the predictors in addition to our hypothesized main effects.

To determine which model exhibited the best fit, we first examined the statistical significance of each additional step. However, because of our large sample size, even nominal increases in explanatory power would result in statistically significant additions to the model. Therefore, we opted to require a meaningful substantive increase in the adjusted R^2, which we defined as a 1% increment of the total variance explained, before accepting each additional step as an improvement to the model.

General avoidance. BMI predicted general avoidance behaviors, $\Delta R^2 = .024$, $F(1, 2995) = 74.78$, $p < .001$. RS then added to this prediction, $\Delta R^2 = .053$, $F(2, 2994) = 124.997$,

$p < .001$. The addition of gender also explained unique variance in general avoidance behavior, $\Delta R^2 = .029$, $F(3, 2293) = 118.908$, $p < .001$. Variance accounted for was not as pronounced with the addition of gender by BMI, $\Delta R^2 = .000$, $F(4, 2992) = 89.195$, $p < .001$, or gender by RS, $\Delta R^2 = .004$, $F(5, 2991) = 66.262$, $p < .004$. While the addition of each of the interaction terms resulted in statistically significant improvements to the model, both failed to reach our substantive criterion (a 1% increment in explained variance). Moreover, the addition of the latter resulted in changing the status of RS to a nonsignificant main effect. For these reasons, we present model 3 as the model of best fit for general avoidance (see Table 2).

Body display avoidance. BMI predicted body display avoidance behaviors, $\Delta R^2 = .005$, $F(1, 2995) = 15.636$, $p < .001$. RS then added to this prediction, $\Delta R^2 = .006$, $F(2, 2994) = 17.151$, $p < .001$. The addition of gender accounted for an increase in unique variance explained in body display avoidance behavior, $\Delta R^2 = .050$, $F(3, 2293) = 118.908$, $p < .001$. Variance accounted for was not as pronounced with the addition of gender by BMI, $\Delta R^2 = .006$, $F(4, 2992) = 50.724$, $p < .001$, or gender by RS, $\Delta R^2 = .000$, $F(5, 2991) = 40.690$, $p < .001$.

Based on our results, the only predictor variable that met our substantive criterion was gender, despite each predictor variable achieving significance until Gender by RS was added. Thus, we present step 3 as our model of best fit for body display avoidance (see Table 2).

Discussion

Data for the current study was extracted from the Psychology of Size survey, which was a large-scale, nationally-representative attempt to gather information on size and body image. Unlike most research in the realm of body image, our sample included men. The

current study also offered a novel and unique construct involving clothing size known as RS. Based on results from our analyses, RS is believed to be related to body image. For general avoidance, the additional variance contributed by RS as well as the loss of statistical significance for BMI once RS was added suggests that *perceived* body size is more predictive of general avoidance than *actual* body size and is aligned with our first hypothesis. However, for body display avoidance, whether one is female or male offers more predictive utility in lieu of actual or perceived size. For both general avoidance and body display avoidance, women evidenced more avoidance endorsement. Hence, it seems that our second hypothesis involving gender differences in avoidance was supported. Moreover, findings from our study suggest that individuals may be avoiding a broad variety of activities due to negative perceptions about size.

The importance of perceptions about size, as encompassed by RS, should not be underestimated. Evidence has shown a link between perceived body size and degree of body image satisfaction (e.g., Cash & Hicks, 1990; Schwartz & Brownell, 2004; Seal, Bradford, & Meston, 2009; Wardle & Johnson, 2002). For instance, Cash and Hicks found that normal weight individuals of both genders who classified themselves as overweight evaluated their bodies more harshly and felt more dissatisfied with their appearance than did normal weight individuals who correctly classified themselves as normal weight. In this same study, normal weight men self-categorized as overweight perceived themselves as less masculine as their correctly categorized normal weight counterparts. A wealth of research has shown that women are encouraged to achieve thinness (e.g., Cafri, Yamamiya, Brannick, & Thompson, 2005) while men are more influenced by ideas of muscularity (e.g., Algars et al., 2009).

Perhaps these body norms cause women to be more aware of their overweight status than men (Wardle & Johnson).

The general avoidance component of our study was comprised of all 10 avoidance items. Because size-related general avoidance seems to deter individuals from involvement in a variety of life events as surveyed by our avoidance scale, we can only speculate that quality of life would decrease as a result. There seems to be a lack of consensus about the definition or domains that comprise quality of life in the literature, but common underlying domains include physical health, psychological health, social relationships, and the environment, the latter referring to access to resources, safety and security, and finances (e.g., Skevington, Lofty, & O'Connell, 2004).

Literature has shown that anxiety-related avoidance behavior decreases quality of life (e.g., Mendlowicz & Stein, 2000), as does the use of body image avoidant coping (e.g., avoiding the mirror or socializing with others; Cash, Santos, & Williams, 2005). Moreover, Cash et al. (2005) found that higher BMI was only slightly linked with use of body image avoidance coping for women, which reiterates the importance of perceptions of size for predicting avoidance behavior.

Health related quality of life could be at risk for those who avoid the physician due to size. For instance, obese women are less likely to receive preventative care in the form of pap smears, mammograms, and flu vaccinations than lower-weight counterparts across the lifespan (Ostbye et al, 2005), and both obese men and women have a 25% decreased chance for obtaining a colorectal screening than non-obese individuals (Ferrante et al., 2006). Moreover, avoidance of the doctor could be, in part, influenced by patients' perceptions of an anti-fat bias of health care providers (Puhl & Heuer, 2009). It is also possible that overweight

and obese individuals avoid the physician because of expense. Body size is negatively related to socioeconomic status, and this finding is especially marked for women (Ogden, Yanovski, Carroll, & Flegal, 2007).

Size related avoidance may also negatively impact psychosocial functioning and thus decrease quality of life. Research suggests that women possess significantly more social physique anxiety (fear that others may negatively evaluate one's body) compared to men and that women are significantly more likely to compare their appearance to others (Davison & McCabe, 2005). Similarly, men and women high on social-evaluative anxiety (fear of being negatively evaluated by others) have significantly higher body dissatisfaction, body image dysphoria, and dysfunctional investment (one's sense of self and social acceptability associated with one's appearance) than do those without high social-evaluative anxiety (Cash, Theriault, & Annis, 2004). Additionally, a review by Puhl and Heuer (2009) concluded that overweight women are less likely to be dating and to have close friendships than their normal weight counterparts.

Items from the avoidance scale that correlated most closely with body display avoidance included wearing revealing clothing, visiting the pool or beach, clothes shopping, and sexual intimacy. Tiggemann and Lacey (2009) demonstrated that enjoyment of clothes shopping for women is negatively related to BMI. That is, as BMI increases in women, shopping enjoyment declines. Similarly, women who are satisfied with their bodies tend to wear more accentuating, flattering attire, and women who feel less satisfied with their bodies tend to wear more concealing clothing (Harden, Butler, & Scheetz, 1998).

Reas et al. (2005) found that twice as many overweight and obese women endorsed avoiding clothing that would make them aware of their body shape compared to men, and

Latner (2008) found that in a behavioral weight loss sample of men and women, 41% endorsed avoiding such clothing "often, very often, or always" with women endorsing avoidance more frequently. Use of concealing clothing in women has been found to be negatively related to body satisfaction, clothing satisfaction, and self-esteem and positively related to self-evaluative salience, referring to individuals whose appearance and self-worth are tightly bound (Tiggemann & Lacey, 2009). The bathing suit is an item of clothing that may emphasize areas of the body women perceive to be most dissatisfying (Haimovitz, Lansky, & O'Reilly, 1993). The larger one is in size, the more these areas become noticeable, and we suspect that endorsement of avoiding the pool or beach is related to the fear of having to wear a bathing suit.

Additionally, how a woman *perceives* her body size affects her sexual experience differently than her actual body size (Seal et al., 2009). Regardless of actual body size, how a woman perceives her sexual performance is related to how self-conscious she is about her body during sex (Wiederman, 2000), and awareness of one's body size and shape is particularly acute during sexual intimacy. In turn, body self-consciousness during sex is related to less initiation of sex and more sexual avoidance (Wiederman). Hence, body image quality of life and relationships may suffer as a result of size related avoidance.

Limitations

The archival data used in this study was entirely self-reported. This included height and weight, which could be less accurate than if measured professionally. Problematic data was removed for reasons such as providing an impossibly low weight for a given height, weight not correlating with clothing size, or if current and ideal sizes were contradictory. A number of factors could have affected accurate reporting including typing errors and social

desirability in reporting weight. Because judgment had to be exercised during data removal, there is a possibility that misrepresented data remain.

The assessment of clothing size, like BMI, has limitations. For instance, differences in clothing sizes exist between countries (Kinley, 2003). Therefore, a size four in the U.S. could be labeled a size two in the United Kingdom. In addition, sizing practices may differ across the varying levels of the clothing industry (i.e., designers, manufacturers, and retailers; Kinley, 2010). Sizes may also decrease over time in order to make consumers feel good about themselves in the retailer's clothing (Han et al., 2005). Moreover, sizing practices for men and women differ. Sizing for males involves waist circumference, but this is not a frequently used sizing technique for women. Rather, a common sizing measure for women is dress size. Thus, it is difficult to say whether *one* size (but numerical increases by *twos* in women's dress sizes; e.g., a two, a four, and so on) are comparable to men's waist sizes that increase in increments of one inch. In addition, the use of clothing size as an anthropometric measure is relatively new in the literature. However, descriptive analyses in the current study demonstrated the equivalence of RS increments for both men and women thereby decreasing concern about clothing size differences.

Clinical Implications

The success of RS as a predictor lends some credibility toward the use of clothing size as an anthropometric measure. Past research has utilized one-dimensional silhouette drawings of both men and women ranging in appearance from emaciation to overweight in order to gauge participants' perceptions of what silhouette one currently identifies with and which silhouette would one ideally like to look like (e.g., Stunkard, Sorenson, & Schulsinger, 1983; Thompson & Gray, 1995). Using clothing size to demonstrate the discrepancy between

one's current and ideal size is a much more realistic and personalized way to examine body image dissatisfaction. In addition, a man's pants size, measured by waist circumference, is particularly informative. Sizeable waist circumferences are associated with a greater risk for type 2 diabetes, dyslipidemia, hypertension, cardiovascular disease, and certain types of cancer (Hughes, Schouten, Goldbohm, van den Brandt, & Weijenberg, 2009; NIH, 1998).

Because of its ease to obtain, clothing size, and thus RS, has potential clinical utility. Greater clothing sizes have been associated with cardiovascular disease, diabetes, and cancer risk independent of BMI (Han et al., 2005; Hughes et al., 2009; Morris et al., 1956). In addition, for a medical professional, assessing how patients feel about their weight could be a key piece of information for obtaining weight loss goals. For instance, if a morbidly obese male only wants to be one size smaller (a RS score of 1), major weight loss would be unlikely. However, utilizing RS within the context of motivational interviewing could potentially enhance weight loss.

Meta-analytic data suggest that motivational interviewing is an efficacious, client-centered style of counseling useful for decreasing a number of problematic health behaviors, and can be effectively delivered by a range of practitioners such as psychologists, psychiatrists, physicians, or general practitioners (Rubak, Sandbæk, Lauritzen, & Christensen, 2005). Moreover, research suggests that motivational interviewing can produce significant weight loss via increases in healthy food consumption and exercise (Van Dorsten, 2007) and decreases in size-related physiological symptoms such as high blood pressure in a limited number of sessions (Rubak et al.). Because identifying discrepancies in current behavior and desired weight or health goals is at the heart of size-related motivational

interviewing (DiLillo, Siegfried, & West, 2003), RS could provide core information for the delivery of this intervention.

Excess weight affects an individual both physically and mentally. Thus, in addition to BMI, clinicians may want to take RS and gender differences in body image into account to target weight loss and to decrease avoidance.

Conclusion

We believe that our results demonstrate that individuals who *perceive* themselves as larger and those individuals who are *actually* larger (i.e., overweight or obese) may experience a decreased quality of life compared to normal weight and size-content counterparts due to avoidance in varied life events. Moreover, our results are commensurate with previous body image literature in that women in our sample experienced more body image dissatisfaction via avoidance endorsement and were especially avoidant towards activities that would place an emphasis on the body. The current study suggests that RS is a simple and practical way to assess for body size dissatisfaction and desire for weight loss, and to obtain a degree of health risk, though more research regarding RS and avoidance is warranted.

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Table 1

Loadings for Exploratory Factor Analysis by Way of Principal Component Analysis Extraction Method

Avoidance Item	General Avoidance	Body Display Avoidance
Doctor	.489	-.262
Vacation	.654	-.218
Pool or beach	.569	.569
Eating in public	.589	-.297
Clothes shopping	.625	.257
Social events	.718	-.191
Sexual Intimacy	.608	.216
Challenges	.544	-.197
Spending time with others	.636	-.389
Wearing revealing clothing	.510	.631

Note. $N = 2{,}997$.

Table 2

Hierarchical Regression Analyses for General Avoidance and Body Display Avoidance

	General Avoidance					Body Display Avoidance				
	β	CI β	F	Adj R^2	Status of Sig.[a]	β	CI β	F	Adj R^2	Status of Sig.
Step 1			74.456	.024				15.636	.005	
BMI[b]	.022	.017 - .027			*	-.010	-.015 - -.005			*
Step 2			124.997	.076				17.338	.011	
BMI	-.010	-.017 - -.003			*	-.021	-.028 - -.014			*
RS[c]	.246	.209 - .283			*	.085	.046 - .123			*
Step 3			118.908	.106				65.647	.061	
BMI	-.006	-.012 - .001			*/-	-.016	-.022- -.009			*
RS	.213	.176 - .250			*	.042	.004 - .079			*
Gender	.350	.281 - .419			*	.458	.387 - .528			*
Step 4			89.195	.105				54.337	.066	
BMI	-.003	-.020 - .015			*/-	.020	.003 - .038			*
RS	.213	.176 - .250			*	.042	.004 - .079			*
Gender	.410	.104 - .716			*	1.137	.825 - 1.450			*
Gender*BMI	-.002	-.012 - .008			-	-.022	-.032 - -.012			*
Step 5			74.376	.109	*			43.581	.066	
BMI	.025	.002 - .047			*/-	.014	-.008 - .037			*/-
RS	.002	-.116 - .120			*	.086	-.034 - .207			*/-
Gender	.369	.063 - .675			*	1.146	.833 - 1.459			*
Gender*BMI	-.020	-.033 - -.006			*	-.018	-.032 - -.005			*
Gender*RS	.138	.065 - .212			*	-.029	-.105 - .046			-

Note. $N = 2{,}997$.

[a]For the status of significance column, the symbol */- indicates that the predictor variable was once significant at $p < .05$ until another variable usurped its significance. A dash indicates initial non-significance. A stand-alone asterisk indicates the variable retained its significance. [b] Body mass index. [c] Relative size.

Appendix A

To: Denise Martz-Ludwig
Psychology
CAMPUS MAIL

From: _____
Jay Cranston, M.D., Chair, Institutional Revew Board

Date: 1/23/2009

RE: Determination that Research or Research-Like Activity does not require IRB Approval

Study #: 09-0138
Study Title: The Relationship between Relative Size, Body Mass Index, and Avoidance Behavior

This submission was reviewed by the IRB. It was determined that this submission does not constitute human subjects research as defined under federal regulations [45 CFR 46.102 (d or f)] and does not require IRB approval. If your study protocol changes, this determination may no longer apply, and you should contact the IRB before making the changes.

Study Specific Details:

This project deals with archival material with no identifying information, and consequently, does not meet the federal definition of human subjects research. No further IRB action is required for your study.

CC:
Laura Maphis, Psychology

Appendix B

Which of these things are you likely to avoid when or if you feel that you are larger than you want to be? *(Choose all that apply.)*

Going to the doctor 1
Going on vacation 2
Going to the pool or the beach 3
Eating in public 4
Going clothes shopping 5
Attending social events 6
Sexual intimacy 7
Taking on challenges 8
Spending time with others 9
Wearing revealing clothing 10

VITA

Laura Elizabeth Maphis was born in Salisbury, NC on December 25 to Scott and Mary Jo Maphis. She attended grades K-12 in the Rowan Salisbury public school district and graduated high school in 2004. In spring 2008, she graduated from Appalachian State University with a Bachelor of Science degree in Psychology, with a concentration in Social Sciences and a minor in Women's Studies. She will be awarded a Master of Arts degree in Clinical Health Psychology from Appalachian State University in May 2011. In the fall of 2011, Ms. Maphis will begin her Ph.D. studies in Clinical Psychology at East Tennessee State University.