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# THE IMPACT OF EXPOSURE TO WEIGHT-BASED DEROGATORY MEDIA ON BODY IMAGE AND ANTI-FAT ATTITUDES

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THE IMPACT OF EXPOSURE TO WEIGHT-BASED DEROGATORY MEDIA  
ON BODY IMAGE AND ANTI-FAT ATTITUDES

By

Katelyn Boersma, B.Sc (Hons)

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2011

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The Impact of Exposure to Weight-Based Derogatory Media on Body Image and Anti-Fat Attitudes

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## ABSTRACT

This study examined the impact of media that ridicules women for gaining weight on body image satisfaction, appearance self-esteem, fear of negative appearance evaluation, negative affect, and anti-fat attitudes. Female undergraduates ( $N=240$ ) were randomly assigned to view tabloid-style pictures and accompanying articles about average-size female celebrities that either derogated each celebrity for gaining weight, or provided neutral information about her life. Women in the weight-based derogatory media condition reported lower appearance self-esteem and body image satisfaction, and greater fear of negative appearance evaluation than women in the neutral media condition. Experimental condition did not predict negative affect. Dietary restraint and history of weight-related teasing were tested as potential vulnerability factors, but were not significant as moderators. Additionally, participants in the experimental condition reported lower anti-fat attitudes than women in the control condition. This is the first study to find adverse effects of exposure to weight-based derogatory media.

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## INTRODUCTION

Body image, which refers to an individual's attitudes and perceptions regarding his or her physical appearance, is a multidimensional construct that increasingly has been the subject of scientific study over the past two decades (Jakatdar, Cash & Engle, 2006; Cash, 2005; Cash & Pruzinsky, 2002). Body image attitudes include both an evaluative component and an investment component (Cash, 1994, 2002a, 2002b). Investment refers to the importance that individuals place on their appearance, whereas the evaluative component refers to self-appraisals of appearance, a construct that includes body image satisfaction or dissatisfaction and self-ideal discrepancies. The prevalence of body dissatisfaction among North American girls and women has been so substantial for so long that this discontent has been considered "normative" for over 25 years (Ricciardelli & McCabe, 2004; Rodin, Silberstein, & Striegel-Moore, 1984; Bearman, Presnell, Martinez, & Stice, 2006; Monteath & McCabe, 1997). This is of particular concern given that research has shown body image dissatisfaction to be one of the most robust and consistent risk factors in the development and maintenance of eating disorders (Johnson & Wardle, 2005; Neumark-Sztainer, Paxton, Hannan, Haines & Story, 2006; Cooley & Toray, 2001; Stice, 2001; Stice & Shaw, 2002; Stice, Mazotti, Krebs & Martin, 1998), and a significant predictor of low self-esteem and depressed mood (Paxton, Neumark-Sztainer, Hannan & Eisenberg, 2006).

### *Sociocultural Theory and the Negative Impact of Thin Ideal Media*

Sociocultural theory provides the best-supported account of the development and maintenance of body image dissatisfaction (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999; Levine & Smolak, 1996). This model maintains that current societal standards of attractiveness emphasize the desirability of thinness at a level that is

unattainable for most women. This thin ideal standard of beauty is transmitted and reinforced through social sources that include family, peers, athletics, and medical professionals (Smolak & Levine, 1996; Thompson & Stice, 2001; Levine & Smolak, 1996,1998). However, the mass media, due to its pervasiveness and reach, has been proposed as the single most powerful transmitter of the thin ideal (Groesz, Levine & Murnen, 2002; Tiggemann & McGill, 2004).

An extensive body of research has begun to address the short-term impact on women of exposure to media that endorses the thin ideal. The results of a recent meta-analysis that included 25 experimental studies (Groesz et al., 2002) indicate that women experience significantly greater body dissatisfaction after exposure to thin-and-beautiful media images than after exposure to average-size, overweight, or non-body images. In a subsequent meta-analysis of 77 experimental and correlational studies, Grabe, Ward and Hyde (2008) tested the links between exposure to mass media showing thin-ideal images, and women's body dissatisfaction, internalization of the thin ideal, and eating behaviours and beliefs. The mean effect sizes were all small to moderate ( $d$ s= -.28, -.39, and -.30, respectively), and the authors concluded that exposure to thin-ideal media images is linked to increased body dissatisfaction, increased investment in appearance, and increased endorsement of disturbed eating behaviours.

#### *Weight-Based Derogatory Media and the Promotion of the Thin Ideal*

Despite the current research focus on the impact of media that transmits and reinforces the importance of the thin ideal, investigators have used, nearly exclusively, pictures or videos of ultra-thin women in their studies as examples of media that endorse the thin beauty ideal (Groesz et al., 2002; Grabe et al., 2008). Visual representations of thin-and-attractive women, however, are not the only manner in which the mass media

promotes the thin ideal. Media that expounds the perils of being overweight or gaining weight through stigmatizing or derogating individuals who have failed to achieve a thin ideal body shape also serves to reinforce the thin ideal (Vartanian, Herman, & Polivy, 2005; Himes & Thompson, 2007; Fouts & Burggraf, 1999). Furthermore, media that glorifies thinness through denigrating fat is far from uncommon and is present in a variety of forms. Content analyses of prime-time television shows and popular movies suggest that these media sources are replete with negative weight-related comments directed towards heavier characters (Himes & Thompson, 2007; Fouts & Burggraf, 2000). In addition to negative comments that are directed towards television and movie characters, in the current celebrity obsessed media environment, derogation of female celebrities for their current weight status is particularly evident (Hoffman, 2009). Media coverage of female celebrity weight gain appears in entertainment magazines such as Star, tabloid newspapers such as the New York Post, the United Kingdom's Daily Mail and Mirror, entertainment television shows such as TMZ TV or E!, more traditional news sources like Fox News, and the accompanying websites for all of these sources. This sort of thin ideal media typically involves either pictures or video of the celebrity experiencing the supposed weight problem, as well as accompanying written text or verbal commentary that mocks her current appearance and often admonishes her in some way for lacking self control (various web pages from [www.tnz.com](http://www.tnz.com); [www.dailymail.co.uk](http://www.dailymail.co.uk), [www.mirror.co.uk](http://www.mirror.co.uk), [www.starmagazine.com](http://www.starmagazine.com) [www.eonline.com](http://www.eonline.com); [www.nypost.com](http://www.nypost.com); [www.foxnews.com](http://www.foxnews.com)).

One particularly salient example of how the mass media derogates female celebrities for gaining weight is the media attention that singer Jessica Simpson received after performing at a chili cook-off in Florida on January 25<sup>th</sup>, 2009. Two days following

her performance, Fox News ran pictures of Jessica Simpson on their official website with the headline, “Jessica Simpson shocks fans with noticeably fuller figure.” The accompanying article commented on her supposed “muffin-top” and fuller thighs, and suggested that eating the same diet as her football quarterback boyfriend could be the cause of her weight gain. A similar article with pictures of Jessica appeared in the Daily Mail’s printed tabloid and on their official website. A caption below one of the pictures read, “Battle of the bulge: it seems Jessica overindulged over the festive season” (“Jessica Simpson’s a bigger star than ever”, 2009).

Similar to media that glorifies thin-and-attractive women, exposure to media featuring negative comments about the weight of a female whose body does not conform to the thin ideal has also been hypothesized to result in negative emotional responses, decreased self-esteem and increased body dissatisfaction among female viewers who, like the derogated media target, have bodies that they perceive to fall short of the near unattainable thin ideal (Fouts & Burggraf, 1999, 2000). However, this hypothesis remains untested. Furthermore, media content that promotes the thin ideal through devaluing individuals on the basis of actual or perceived excess body weight is viewed by many researchers as not only reflecting cultural norms regarding beliefs about weight, but also as helping to shape anti-fat attitudes and prejudices towards overweight and obese individuals (Himes & Thompson, 2007; Thompson, Herbozo, Himes & Yamamiya, 2005; Fouts & Burggraf, 2000).

#### *Anti-Fat Attitudes and Media Exposure*

Currently, overweight people appear to be one of the last socially acceptable targets of ridicule and derision (Puhl & Heuer, 2009). Negative attitudes and behaviours directed towards overweight and obese individuals are highly prevalent in Western

society and studies have demonstrated that people of varying ages and body sizes explicitly endorse anti-fat attitudes (Brochu & Morrison, 2007; Cramer & Steinwert, 1998; Crandall, 1994; Morrison & O'Connor, 1999; Schwartz, Vartanian, Nosek & Brownell, 2006; Wang, Brownell, & Wadden, 2004).

Not only has the media has been hypothesized to reflect the social acceptability of anti-fat attitudes and negative behaviours directed towards overweight persons, it also has been hypothesized to contribute to the development of anti-fat attitudes among viewers through both the glorification of thinness and the denigration of overweight (Himes & Thompson, 2007; Lin & Reid, 2009). At this time, there are only a few studies in the literature that have investigated the proposed relationship between media exposure and anti-fat attitudes, but the existing studies suggest that media exposure is related to anti-fat attitudes in both children and adults. One study, that surveyed a sample of first to third graders about fat stereotyping and total amount of television viewing, found that among boys, television viewing predicted increased fat stereotyping of overweight girls (Harrison, 2000). More recently, Latner, Rosewall, and Simmonds (2007) surveyed 10-13 year old girls on media exposure and attitudes towards overweight persons and found that total media use, videogame use, and magazine exposure were significantly positively related to anti-fat attitudes. Lin and Reid (2009) examined the relationship between media exposure and anti-fat attitudes among female undergraduate students between the ages of 18 and 29. Time spent reading fashion magazines was correlated positively with anti-fat attitudes, while total time spent watching television was not significantly related to anti-fat attitudes. The researchers concluded that their findings were consistent with the hypothesis that reading fashion magazines, which are likely to endorse unrealistically thin beauty ideals, may lead to increased anti-fat attitudes among women. However, given the



correlational nature of the study, they asserted that it is also plausible that women who hold more negative attitudes towards overweight and obese individuals are more likely to spend time reading fashion magazines (Lin & Reid, 2009).

To date, there has been only one experimental investigation of the impact of media exposure on anti-fat attitudes. Geier, Schwartz, and Brownell (2003) investigated the effect of “before and after” diet ads, which promote the idea that being thin is greatly preferable to being overweight, and that weight status can be changed easily through altering eating behaviour. The researchers exposed a sample of female undergraduate students to a magazine presentation. In the “before and after” condition, participants viewed a dieting ad with a “before” photo of an attractive and well-groomed overweight woman on the left and an “after” photo of a slimmer version of the same woman on the right. In the other two conditions, participants viewed either the “before” or the “after” picture embedded in an ad promoting gardening. Compared to women in the “before” only condition or the “after” only condition, women who viewed the “before and after” diet ad more strongly endorsed the belief that weight is easily controllable. Additionally, women who were exposed to either the “before” only condition or the “before and after” diet ad reported significantly stronger negative attitudes towards obese persons than individuals who were exposed to the “after” only condition, though there were no significant differences between the “before and after” and the “before” only conditions. The results of this study suggest that mere exposure to an image of an overweight woman may, at least in the short term, be enough to increase endorsement of anti-fat attitudes among female viewers. If merely viewing a media image of an overweight individual can affect women’s anti-fat attitudes, then exposure to media that explicitly derogates females regarding their weight may produce a similar, if not greater, effect.

*Weight-Based Derogatory Media as Vicarious Exposure to Weight-Related Teasing*

Despite previous theorizing and a call for the investigation of new types of media that promote the thin-ideal (Thompson, 2009), to date are no published studies that have experimentally investigated the impact of media that specifically derogates women for being overweight or gaining weight on women's perceptions of their own weight and shape, or the weight and shape of others. There is, however, a small amount of research on the negative impact of exposure to cosmetic surgery reality television shows. This literature is relevant to the current study because cosmetic surgery makeover programs typically involve female participants who are subjected to a full body critique of their supposed physical flaws, which are then "corrected" with numerous surgeries and other appearance enhancing procedures (Mazzeo, Trace, Mitchell, & Gow, 2007). Viewing such full body critiques of physical flaws is, in some ways, similar to witnessing media that derogate women for their current weight. Sperry, Thompson, Sarwer, and Cash (2009) found that viewership of cosmetic surgery reality television shows predicted body image dissatisfaction and eating disturbances beyond viewership of other types of television shows (comedy, news shows, etc.). Exposure to cosmetic surgery reality television shows also has been positively correlated with more favourable attitudes towards cosmetic surgery, and interest in undergoing cosmetic surgery (Markey & Markey, 2010; Nabi, 2009; Sperry et al., 2009; Delinsky, 2005). In an experimental investigation, Mazzeo and colleagues (2007) found that following exposure to an episode of a cosmetic surgery program, White women reported greater perceptions of media pressures to be thin and more strongly endorsed beliefs about their ability to control their body's appearance compared to women who watched a home improvement program. These differences persisted at follow-up two weeks later. Additionally, women in the

cosmetic surgery condition who reported higher initial levels of internalization of the thin ideal reported significantly lower self-esteem following media exposure. In another experimental investigation, Markey and Markey (2010) found that participants who viewed a cosmetic surgery reality television program reported a greater interest in using cosmetic surgery to alter their appearance than participants who viewed a home improvement show.

Cosmetic surgery reality television shows typically include a critique of the physical appearance of the participants on the show, and existing research suggests a potential link between exposure to this type of media and decreased body image satisfaction and self-esteem, increased eating disturbances, and positive attitudes towards cosmetic surgery. However, there exist a number of important differences between this type of media and media that simply derogates individuals (either on-screen fictional characters or actual celebrities) for being overweight or gaining weight. Most obviously, cosmetic surgery makeover shows convey a message about the benefits and social acceptability of cosmetic surgery, which is related to women's increased positive attitudes towards and desire to pursue plastic surgery (Markey & Markey, 2010; Nabi, 2009; Sperry et al., 2009; Delinsky, 2005). In contrast, media that derogates women for being overweight or gaining weight transmits a clear message about the social undesirability of fatness or weight-gain and, as previously discussed, may potentially increase anti-fat attitudes among female viewers. Furthermore, cosmetic surgery makeover programs critique and surgically alter not only weight and body shape, but also other aspects of appearance such as facial attractiveness and birth defects (e.g. cleft palate; Nabi, 2009). Media that berates women for their current weight status, however, sends a much more targeted message about the unacceptability of excess weight, and by extension, about the

importance of thinness to being considered beautiful by current social standards. Finally, and perhaps of greatest importance, participants in cosmetic surgery makeover programs are self-selected. Individuals who appear on such shows are interested in receiving feedback on their physical appearance and undergoing surgery to change the way they look. In contrast, television characters or celebrities who are derogated for their weight are not inviting or encouraging this feedback, but are instead victims of weight-related teasing. Thus, viewing this type of weight-based derogatory media is perhaps best conceptualized as vicarious exposure to weight-related teasing.

### *History of Weight-Related Teasing*

Weight-based teasing is a form of stigmatization that reinforces the societal value of thinness (Thompson et al., 2005). Numerous studies have shown that among both obese and non-obese women, a perceived history of receiving derogatory weight-related comments is associated with a variety of lasting negative effects, particularly body image dissatisfaction (Cash, Winstead, & Janda, 1986; Fabian & Thompson, 1989; Stormer & Thompson, 1996). Early research employed single-item measures of teasing, which provided the impetus for the development of more sophisticated measures (Thompson et al., 2005). The first psychometrically evaluated measure to be developed was the Physical Appearance Related Teasing Scale (PARTS; Thompson, Fabian, Moulton, Dunn, & Altabe, 1991), which assesses frequency of both Weight/Size Teasing and General Appearance Teasing. The Perception of Teasing Scale (POTS) was an extension and revision of the PARTS (Thompson, Cattarin, Fowler, and Fisher, 1995). The POTS consists of Weight-Related Teasing and Competency Teasing subscales. Unlike the PARTS, which assesses only the frequency of teasing, the POTS includes separate ratings for teasing frequency and effect of teasing (which reflects the severity of the respondent's

negative emotional response to the teasing).

In an early study using data from a nationwide survey, Cash et al. (1986) found that women who were teased about their weight and appearance in childhood were more likely to be dissatisfied with their appearance as adults. This study employed a single-item index of teasing frequency. Fabian and Thompson (1989) replicated this finding with an adolescent sample. Teasing frequency was assessed with a single item that asked: “How often have you been teased about your weight or size in the past?” (response choices: often, once in a while, almost never, never). Additionally, the researchers assessed the emotional impact of teasing on participants with a single item that asked: “If you were teased about your weight or size in the past, how did this affect you?” (response choices: really upset me, somewhat upset me, upset me a little, did not upset me). The researchers found that among premenarchal girls, body dissatisfaction, eating disturbance, low self-esteem, and depression were associated with both frequency and negative emotional consequences of teasing. In postmenarchal girls, teasing frequency was found to be correlated with body dissatisfaction, while teasing effect was associated with eating disturbance, body size overestimation, and depression. Using a sample of female college students, Stormer & Thompson (1996) also found that a childhood history of weight-related teasing was a significant predictor of body image disturbance. History of weight-related teasing was assessed using the Weight-Related Teasing subscale from the POTS.

More recent correlational studies also demonstrate a relationship between self-reported history of weight-related teasing and body image dissatisfaction in both adolescents and adults. Ata, Ludden, and Lally (2007) found that among a sample of male and female adolescents, a self-reported history of weight-related teasing was associated with body image dissatisfaction and dysfunctional eating attitudes. Teasing was assessed

with two questions about the frequency of negative weight-related comments received from family and friends. McLaren, Kuh, Hardy, and Gauvin (2004) examined the relationship between weight- and body shape- related comments recalled throughout the life span and current body image satisfaction among a nationally representative sample of middle-aged British women. Frequency of negative comments recalled from childhood and adolescence and frequency of more recent negative comments received from a romantic partner were each associated with lower body image satisfaction, regardless of current or adolescent body mass index (BMI). Furthermore, there was no significant interaction between positive weight and shape-related comments received from a romantic partner and a history of negative weight and shape-related comments. Based on these findings, the authors concluded that there was no evidence that the negative effects of derogatory weight-related comments recalled while growing up could be reversed by compliments from one's partner, and that derogatory weight-related comments received during childhood have a negative impact on body image satisfaction that is enduring and resistant to change.

Lieberman, Gauvin, Bukowski, and White (2001) used a modified version of the Weight-Related Teasing subscale from the POTS to assess teasing history, and found that among a sample of female adolescents in grades seven to ten, a history of weight-related teasing that was rated as hurtful was a significant predictor of dieting and body image dissatisfaction. A history of weight-related teasing that was not rated as hurtful was unrelated to body image dissatisfaction, thus highlighting the importance of assessing both frequency of teasing and the amount of emotional distress caused by the teasing. In a subsequent study that investigated the effects of both frequency and emotional impact of weight-related teasing among a sample of female undergraduate students, Herbozo and

Thompson (2006) found that a greater frequency of weight-related teasing during the previous two years was correlated with decreased overall appearance satisfaction ( $r = -.34, p < .01$ ) and greater body dissatisfaction ( $r = .44, p < .01$ ). There was also a low but significant association between frequency of weight-related teasing and both self-esteem ( $r = -.25, p < .01$ ) and fear of being negatively evaluated by others on the basis of one's appearance ( $r = .20, p < .01$ ). Fear of negative appearance evaluation constitutes another conceptually unique aspect of body image (Lundgren, Anderson, & Thompson, 2004). Additionally, a greater negative emotional response to weight-related teasing was related to decreased overall appearance satisfaction ( $r = -.39, p < .01$ ), lower self-esteem ( $r = -.28, p < .01$ ), greater body dissatisfaction ( $r = .52, p < .01$ ), and greater fear of negative appearance evaluation ( $r = .37, p < .01$ ). Regression analyses revealed the unique predictive ability of frequency and emotional impact of history of weight-related teasing. Both frequency and emotional impact of weight-related teasing were significant predictors of body image dissatisfaction, while only the emotional impact of weight-related teasing was a strong predictor of fear regarding negative appearance evaluation.

Cross-cultural studies also provide support for the relationship between teasing and body image disturbance (Thompson et al., 2005). Using samples of college females from the United States, Italy, and England; Mautner, Owen, and Furnham (2000) found that history of weight-related teasing, as measured by the POTS, predicted body-image dissatisfaction across all three Western cultures. The relationship between teasing history and body image dissatisfaction was not affected by culture. Shroff and Thompson (2004) also conducted a cross-cultural study using a sample of undergraduate women from a metropolitan city in India. The researchers evaluated the relationships between BMI, history of weight-related teasing, media internalization, eating disturbance, and body

image satisfaction. History of weight-related teasing was assessed using the POTS. Results indicated that weight-related teasing mediated the relationship between BMI and body dissatisfaction. The authors interpreted these results as suggesting that it is not a higher BMI per se that leads to body dissatisfaction, but rather whether or not an individual has experienced significant weight-based teasing in addition to having a high BMI.

Although the majority of the work on the relationship between weight-related teasing and body image dissatisfaction is correlational, there are a few longitudinal studies that provide evidence for the directional effect of weight-related teasing on body image dissatisfaction. Cattarin and Thompson (1994) measured levels of appearance dissatisfaction, eating dysfunction, psychological functioning, and multiple developmental variables, including frequency of weight-based teasing (as assessed by the Weight Teasing subscale of the PARTS). They used a sample of 10 – 15 year old girls, and then retested after a three-year period. Results indicated that a history of weight-related teasing predicted overall appearance dissatisfaction, which in turn predicted restrictive eating practices. In a subsequent longitudinal study, Eisenberg, Neumark-Sztainer, Haines, and Wall (2006) examined whether frequency of weight-based teasing predicted subsequent body image dissatisfaction, low self-esteem and depressive symptoms among a sample of racially and socio-economically diverse adolescents who were assessed in 1998-99 and again in 2003-04. Frequency of weight-based teasing was measured with a single item. Approximately two thirds of the sample was comprised of middle adolescents who transitioned into young adulthood, and one third were early adolescents who transitioned into middle adolescence. Results revealed that weight-based teasing at Time 1 predicted lower self-esteem, lower body image satisfaction, and higher



depressive symptoms at 5-year follow-up for males and females in both the older and younger age brackets. However, this relationship was completely mediated by Time 2 teasing and Time 1 emotional health. Early weight teasing that did not result in early emotional damage, and did not continue into middle or later adolescence, did not appear to impact later body image satisfaction and emotional wellbeing. In contrast, ongoing weight-based teasing occurring during middle and later adolescence was related to significantly greater body image dissatisfaction, and depressive symptoms, and lower self-esteem. The researchers concluded that reducing early teasing and the concurrent damage to emotional wellbeing may prevent longer-term consequences on emotional wellbeing. Unfortunately, at this time there are no prospective adult studies on the effects of weight-based teasing (Thompson et al., 2005).

#### *The Negative Impact of Vicarious Exposure to Derogatory Comments*

Although there are still gaps in the literature, there is substantial evidence suggesting that direct pressure to conform to the thin ideal, coming in the form of derogatory weight-based comments, is linked with body image dissatisfaction and other negative outcomes (Ata et al., 2007). To date, there have been no studies in which the impact of vicarious exposure to weight-related teasing through media sources has been examined. However, there is research suggesting that indirect exposure to derogatory comments has the potential to negatively impact individuals, and that some individuals may be more vulnerable than others. In two experimental studies, Aubie and Jarry (2009) found that exposing groups of binge eaters and non binge eaters to vignettes depicting weight-related teasing of another female resulted in increased negative affect among both groups, and an increase in eating only among the binge eating group. However, participants were asked to imagine themselves as the main character of the vignettes in

this study. The specific impact of exposure to weight-related teasing of another individual, without explicit instructions to identify with the target, has not been addressed in any prior published studies.

Stice, Maxfield, and Wells (2003) conducted an experimental investigation of the adverse effects of social pressures to be thin on young women. A sample of undergraduate women were randomly assigned either to an experimental condition where an ultra-thin female confederate engaged in self-derogation regarding her weight and voiced intentions to lose weight, or a control condition where the same confederate discussed a neutral topic. Women who witnessed the thin confederate self-derogate about her weight reported increased body image dissatisfaction compared to women in the control condition, though there were no significant differences in negative affect between the two groups. This effect was not moderated by initial body image dissatisfaction, thin-ideal internalization, or perceived adequacy of current social support. In a similar study, Shomaker and Furman (2007) investigated the impact of vicarious exposure to peer pressure to be thin on women's body image satisfaction and mood. Female undergraduates were randomly assigned to observe one of two pre-arranged conversations between average-weight female confederates. In both conversations, one confederate engaged in self-derogation surrounding her weight. In the pressure to be thin condition, the other confederate agreed with her and encouraged her to "stop eating crap" and to exercise more frequently. In the encouragement condition, the second confederate encouraged the self-derogating confederate not to worry about her weight and assured her that she looked good. Using this very subtle manipulation, the researchers did not find a main effect of condition. However, the researchers did find that social comparison tendency (the degree to which individuals rely on observations of other's physical

appearance to judge their own self-appearance) and appearance orientation (the extent to which individuals consider physical appearance to be important and engage in appearance enhancing grooming behaviours) moderated the effects of pressure to be thin on body image and negative emotions. Females who were high on these dimensions experienced significantly greater body dissatisfaction and increased negative affect after vicarious exposure to peer pressure to be thin. These findings indicate that vicarious exposure to even very mild negative weight-related feedback has the potential to impact certain groups of vulnerable women.

Research from other areas also provides evidence that people who witness the verbal mistreatment of others may be impacted in ways that are similar to how the actual target reacts. Witnessing sexual or ethnic harassment of coworkers that is predominantly characterized by derogatory verbal commentary, is associated with deleterious psychological, occupational, and health consequences that are comparable to the outcomes experienced by individuals who are the direct targets of such acts (Low, Radhakrishnan, Schneider & Rounds; 2007; Miner-Rubino & Cortina, 2004; Glomb, Richman, Hulin & Drasgow, 1997). Additionally, experiencing both direct ethnic harassment and witnessing the ethnic harassment of coworkers is associated with the poorest outcomes on these measures, compared to experiencing direct ethnic harassment or witnessing ethnic harassment alone (Low et al., 2007). These findings suggest that vicariously experiencing weight-related teasing through media exposure may result in negative consequences comparable to those resulting from directly experiencing weight-related teasing, and the impact may be greatest for those who have personally experienced such teasing.

*Teasing History and Vulnerability to Vicarious Appearance-Based Teasing*

The proposition that a history of weight-related teasing may make individuals more vulnerable to being impacted negatively by derogatory weight-based comments that are directed towards others is consistent with personal accounts of the consequences of childhood and adolescent weight-based teasing. After experiencing frequent and hurtful weight-based comments throughout childhood and adolescence, obesity researcher Carol Johnson (2005) recounts that as a young adult she was affected negatively by derogatory weight-related comments directed towards others. She argues that an individual does not have to be the target of weight-related teasing to feel its effects, and that her history of teasing influenced her to internalize negative weight-related messages from peers and media sources that were directed towards others as being especially personally applicable.

In the first, and only other study to experimentally examine the influence of teasing using a vicarious exposure paradigm, Furman and Thompson (2002) also hypothesized that a history of appearance-based teasing would predict changes in mood and body image satisfaction among female undergraduates who read vignettes depicting appearance-based teasing. The vignettes required participants to imagine themselves as the teasing victim in the story. Teasing history was not expected to explain variance associated with mood changes among participants who read vignettes depicting abilities-related teasing, or positive comments regarding appearance or abilities. Findings indicated that exposure to both the appearance and abilities teasing vignettes resulted in moderate levels of mood disturbance compared to vignettes depicting positive appearance or abilities comments. Unexpectedly, teasing history was not a significant predictor of changes in mood or body image among participants in the appearance-teasing condition. However, the failure of teasing history to predict changes in mood and body image

satisfaction may be at least partially related to issues with the reliability and validity of the scale that was used to assess this construct, the Physical Appearance Related Teasing Scale (PARTS; Thompson et al., 1991).

The PARTS measures both Weight/Size teasing and General Appearance teasing during childhood and early adolescence. The General Appearance scale is comprised of six questions, two of which refer to teasing over manner of dress, one to hairstyle, and one to whether or not the participant was teased for “looking like a weakling.” The remaining question asks participants whether they were teased for being “funny looking.” In the initial development and validation of the PARTS scale, the Weight/Size teasing scale was positively correlated with measures of body image dissatisfaction, eating disturbance, self-esteem, depression, and a tendency to compare oneself to others in terms of appearance, while the General Appearance teasing subscale was not significantly correlated with any of these variables. The correlation between the General Appearance and Weight/Size teasing scales was only .24 (Thompson et al., 1991). Additionally, subsequent factor analyses of the General Appearance subscale revealed that the items failed to cohere to form a strong single factor (Thompson & Cattarin, 1992). Furthermore, in a later extension and revision of the PARTS, the items from the General Appearance subscale were eliminated entirely based on these previous findings, and additional findings of low internal consistency (Thompson et al., 1995). Another limitation of the PARTS is that several items on the Weight/Size teasing subscale fail to specify whether the teasing targeted a large or small body size. This is an obvious problem given that it is teasing about excessive weight/size that engenders body dissatisfaction in women (Thompson et al., 1995). Additionally, the PARTS only assesses teasing frequency and does not measure the emotional impact of negative verbal commentary, despite evidence

of the importance of this aspect of teasing (Fabian & Thompson, 1989; Lieberman, Gauvin, Bukowski, & White, 2001; Herbozo & Thompson, 2006). Thus, given the measurement issues that exist with respect to the PARTS, the finding that history of teasing does not predict changes in mood or body image satisfaction following vicarious exposure to appearance-related teasing may be misleading.

Another limitation of the study by Furman and Thompson (2002) is that the appearance-based teasing vignettes included incidents of both weight-based teasing as well as teasing about other aspects of appearance, and participants were not grouped according to whether they experienced weight-based or appearance based teasing while growing up. Thus, it is possible that the weight-based teasing vignettes may have had a more negative impact on participants with a history of weight-related teasing, but the effect was obscured by variability in specific teasing history.

Given the limitations of the study by Furman and Thompson (2002) with regards to measurement of teasing history and the use of an experimental manipulation that combined vicarious exposure to weight-related teasing with general appearance teasing, it would appear that the hypothesis that a history of weight-related teasing may make individuals more vulnerable to negative effects of vicarious exposure to weight-related teasing has yet to be adequately tested. Furthermore, no published studies have examined the impact of exposure to media messages that promote the thin ideal through depictions of weight-related teasing.

Similar to both personal exposure to weight-related teasing and media exposure to thin ideal images, exposure to weight-based derogatory media may result in increased body dissatisfaction and other negative effects among female viewers, possibly through increasing the salience of viewers' personal distance from the thin ideal and modeling the

potential repercussions of failing to meet this nearly unattainable standard. Individuals with a history of weight-related teasing may be especially vulnerable to experiencing increased body dissatisfaction, negative affect, and fears about negative appearance evaluation following exposure to this derogatory weight-based media, as their personal experiences of receiving such feedback may cause them to internalize this message as being personally applicable (Johnson, 2005). In addition to a history of weight-related teasing, restraint status is another individual difference variable that may moderate the effects of exposure to this type of derogatory media on female viewers.

*Restraint Status: An Important Individual Difference*

Restraint status has recently received increased attention as a potential moderator of the effects of exposure to thin ideal promoting media. Restrained eaters (or chronic dieters, as opposed to non-dieters or unrestrained eaters) are characterized by repeated attempts to lose weight through the restriction of food intake (Heatherton, Polivy, & Herman, 1991). They attempt to ignore internal cues of hunger and satiety in favour of adhering to a calorically restricted eating regimen that they believe will result in weight loss (Heatherton et al., 1991). However, although restrained eaters attempt to restrict their food intake, they are susceptible to episodes of disinhibited eating (Polivy & Herman, 1999). Consequently, over both the short term and the long term, restrained eaters are unlikely to lose substantial amounts of weight (Heatherton et al., 1991; Klesges, Isbell, & Klesges, 1992). Furthermore, chronic dieters experience significantly more weight fluctuations than do unrestrained eaters (Heatherton et al., 1991; Tiggeman, 1994; Provencher, Polivy, Wintre, Pratt, Pancer et al., 2009), and dieting has been found to predict weight-gain and overweight status over time (Stice, Cameron, Killen, Hayward, & Taylor, 1999; Field, Austin, Taylor, Malspeis, Rosner, et al., 2003; Stice, Presnell, Shaw,

& Rhode, 2005; Neumark-Sztainer, Wall, Haines, Story, & Eisenberg, 2007). Thus, despite their resolve to lose weight through dieting, restrained eaters are likely to fail in their attempts (Polivy & Herman, 2002).

In addition to differences in eating patterns and weight fluctuations, restrained eaters have lower trait self-esteem than do non-dieters (McFarlane, McCabe, Jarry, Olmsted, & Polivy, 2001; Polivy, Heatherton, & Herman, 1988; Polivy & Herman, 1987), and exhibit heightened body dissatisfaction and weight and shape concerns (Cachelin, Striegel-Moore, & Paget, 1997; Heatherton et al., 1991). Perhaps as a consequence of their heightened weight and shape concerns, compared to non-dieters, restrained eaters exhibit a greater focus on weight-related information about other women (King, Polivy, & Herman, 1991). Specifically, in an experiment investigating memory for weight-, food-, and appearance-related information among restrained and unrestrained female undergraduate students, participants read a one page essay about the appearance and behaviour of a target female and were asked to reproduce the essay as completely as possible. Restrained eaters recalled more weight- and food- related items than appearance-related items in comparison to unrestrained eaters (King et al., 1991).

Restrained eaters are also more sensitive to negative weight-related feedback that suggests they have gained weight and have thus failed at their weight loss goals (Mills & Miller, 2007; McFarlane, Polivy, & Herman, 1998). Mills and Miller (2007) examined the effects of having one's weight guessed as 15 lbs heavier than it actually is on mood, self-esteem, and body image satisfaction of restrained and unrestrained eaters. In accordance with their hypotheses, receiving this type of negative weight-related feedback from a confederate pretending to be a fellow undergraduate student made restrained eaters feel more depressed, fatter, and more dissatisfied with their bodies. Differences between



restrained and unrestrained eaters remained significant even after controlling BMI, and the researchers concluded that dietary restraint is a moderator of negative weight-related feedback. In addition to evidence that restrained eaters react more negatively than unrestrained eaters when presented with feedback that suggests they have failed at their weight loss goals, restrained eaters may be more susceptible to feeling as if they have failed in their attempts to lose weight, even if they have achieved some success. Polivy and Herman (1999) found that compared to unrestrained eaters who made a resolution to diet for two weeks, chronic dieters who made the same resolution were more likely to abandon it because they felt they had failed, despite objective evidence that as a group restrained eaters were more successful than unrestrained eaters in their weight loss attempts and actually lost some weight, although only a small amount.

*Restraint as a Moderator of Exposure to Thin Ideal Images*

Based on evidence that weight and shape information is of particular concern for restrained eaters, Mills, Polivy, Herman, and Tiggeman (2002) hypothesized that restrained eaters would respond differently to media promoting the thin ideal than unrestrained eaters. Mills et al. (2002) conducted a series of studies to investigate the impact of exposure to magazine advertisements featuring thin models, plus size models, or products on mood, self-esteem, and body size estimation among restrained and unrestrained eaters. Restrained eaters in the thin model condition experienced a number of positive outcomes that were not observed among restrained eaters who were exposed to magazine ads featuring products or plus size models. For example, even though restrained eaters as a group reported lower levels of state self-esteem than did unrestrained eaters, restrained eaters who viewed the thin ads reported higher appearance self-esteem than restrained eaters in the other two conditions. Among unrestrained eaters,

self-esteem did not vary across experimental conditions. Additionally, despite the finding that restrained eaters had a higher BMI than unrestrained eaters, and the former generally provided accurate estimates of their larger body size, restrained eaters in the thin model condition reported a significantly smaller body size than restrained eaters in the plus size or product only conditions. The opposite effect was found among unrestrained eaters, with participants in the thin model condition reporting their current body size to be larger than unrestrained eaters who viewed the two other types of advertisements. Thus, following exposure to advertisements featuring thin models, restrained eaters demonstrated self-enhancement in the form of decreased body size estimation and increased appearance self-esteem.

The findings of Mills et al. (2002) conflict with those of a previous study conducted by Ogden and Munday (1996), who investigated the effects of magazine advertisements portraying either thin, plus-size, or no models on both male and female undergraduate students. The researchers found that compared to participants who were exposed to advertisements depicting either plus-size models or no models, participants who viewed advertisements of thin models reported feeling more fat, and less sexy, fit, and attractive. Additionally, students who viewed the thin images rated their hips, waist, and overall current body size as larger than did participants in the other two conditions. Restraint status was examined as a potential moderator, but no differences were found in the reactions of restrained and unrestrained eaters. However, these conflicting findings may be a consequence of methodological differences between the study conducted by Ogden and Munday (1996) and the work of Mills et al. (2002).

One important methodological difference between the studies is that while Mills et al. (2002) used a sample comprised exclusively of female undergraduates, Ogden and

Mundray (1996) used a mixed sample of male and female students and failed to analyze their results by gender. Given that males and females differ in their response to idealized female images (Lavine, Sweeney, & Wagner, 1999), in addition to evidence that the majority of restrained eaters are female (Wardle & Beales, 1986; Wiedel & Dodd, 1982-1983), including data from both males and females could have obscured potential differences between restrained and unrestrained female participants. This is a particularly serious limitation of the study, as Thompson (2004) argues that pooling data from males and females is one of the worst errors made by researchers and clinicians in body image research.

A second important methodological difference between the studies is the choice of measures used to classify participants as restrained versus unrestrained eaters. Ogden and Mundray (1996) used the Dutch Eating Behavior Questionnaire (DEBQ; van Strien, Frijters, Bergers, & Defares, 1986), while Mills et al. (2002) used the Restraint Scale (RS; Herman & Polivy, 1980). Although they are both measures of restraint, the DEBQ and the RS typically identify different types of dieters (Heatherton, Herman, Polivy, King, & McGree, 1988; Laessle, Tuschl, Kotthaus, & Pike, 1989). The RS is primarily comprised of items that assess respondents' attitudes towards eating and weight. Thus, it is mainly a cognitive measure of restraint. The scale typically identifies unsuccessful dieters, who have a great desire to lose weight by reducing their food intake, but alternate between periods of caloric restriction and disinhibited overeating, which results in little actual weight loss (Heatherton et al., 1988). Unlike the RS, the DEBQ is primarily comprised of behavioural items. Thus, it identifies successful dieters, who have actually managed to restrict their food intake in everyday life (Heatherton et al., 1988). Since research from other areas has found different patterns of results depending on whether the RS or the

DEBQ was employed as the measure of restraint (e.g. Ouwens, van Strien, & van der Staak, 2003), it is possible that the discrepant findings between the studies conducted by Mills et al (2002) and Ogden and Munday (1996) also may result from differences in the measures used to classify participants as restrained or unrestrained eaters.

Joshi et al. (2004) reported further evidence of self-enhancement among restrained eaters who were exposed to thin model advertisements. Female undergraduates were classified as either restrained or unrestrained eaters using the Restraint Scale, and then randomly assigned to view thirty advertisements that depicted either thin models or products. Each ad was presented for a duration of either 150 milliseconds (short-exposure) or 7 seconds (long-exposure). Results revealed that restrained eaters in the thin condition (regardless of exposure length) reported higher levels of self-image and state social self-esteem than did restrained eaters in the product condition. In contrast, unrestrained eaters who viewed thin images in the long-exposure condition reported lower state appearance self-esteem than unrestrained eaters in either the control or short exposure conditions. The researchers concluded that, consistent with the findings of Mills et al. (2002), restraint status moderates the effect of exposure to thinness-promoting images on the viewer's own body image, with restrained eaters more likely to self-enhance following exposure than to be adversely affected.

As one possible explanation of the self-enhancement observed among restrained eaters, both Mills et al. (2002) and Joshi et al (2004) suggest that the thin images might inspire a "thin fantasy" among restrained eaters, who project themselves onto the idealized body shape of the model in the advertisement and are inspired to believe that they too can achieve the weight and shape goals that they are currently pursuing. Subsequent research supports the idea that engaging in fantasy processing while viewing

thin-ideal media images may result in a positive response to this type of media.

Tiggemann, Polivy, and Hargreaves (2009) exposed a sample of undergraduate women to advertisements containing either thin ideal images or product images. Instructional set was manipulated to produce a control, social comparison, and fantasy viewing condition. One third of participants were randomly assigned to each viewing condition. The control instructional set prompted participants to focus on the non-appearance aspects of the images, while the social comparison instructional set encouraged participants to directly compare themselves with the images. In contrast, the fantasy instructional set encouraged participants to imagine what it would be like to be the woman in the image. For the thin ideal images, social comparison instructions led to relatively greater negative mood and body dissatisfaction, while fantasy instructions led to improved positive mood.

Additionally, regression analyses conducted on women's self-reports about what type of processing they engaged in while viewing the thin ideal images revealed that fantasy processing predicted increased positive mood and appearance self-esteem, while comparison processing predicted increased negative mood and decreased appearance self-esteem.

#### *Restraint as a Moderator of Exposure to Weight-Based Derogatory Media*

In contrast to exposure to thin media images, which may result in self-enhancement effects among restrained eaters by inspiring a "thin fantasy", viewing media that berates women for being overweight or gaining weight may be more akin to a dreaded nightmare scenario for restrained eaters, making them especially vulnerable to experiencing decreases in body image satisfaction and appearance self-esteem, and increased negative affect and fear of negative appearance evaluation. This type of media may be particularly detrimental to restrained eaters given evidence that restrained eaters

are motivated to diet not only to achieve the thin ideal, but also to avoid gaining weight and attaining an unfavourable over-fat identity. Vartanian, Herman, & Polivy (2006) examined whether restrained eaters are motivated to diet in order to attain a thin ideal body, or to avoid fatness and weight gain. Results indicated that restrained eaters were equally concerned with losing weight and avoiding weight gain, while unrestrained eaters were equally unconcerned with losing weight and avoiding weight gain. Additionally, restrained eaters had stronger beliefs about the positive outcomes of being thin (e.g. “I would be happier if I were thinner) and the negative consequences associated with being overweight (e.g. “I would be derogated by others if I were heavier”) (Vartanian et al., 2006). Jarry, Polivy, Herman, Arrowood, and Pliner (2006) also found evidence that restrained and unrestrained eaters differ in their beliefs about the positive and negative outcomes of being thin. The researchers found that restrained eaters associated thinness with both professional and romantic success significantly more than did unrestrained eaters. Additionally, when making attributions about the success and failure of either a thin or large supposedly real woman, restrained eaters attributed her romantic success to thinness and her romantic failure to being overweight. In contrast, unrestrained eaters’ attributions of success and failure were not influenced by weight. In another study, restraint status also was found to be significantly associated with fears about being negatively evaluated by others on the basis of appearance ( $r = .64, p < .01$ ; Lundgren et al., 2004). Based on this research, it appears that restrained eaters are motivated to diet, at least in part, by concerns about weight-gain and the negative social consequences associated with being heavy.

Unfortunately, because restrained eating is largely unsuccessful as a weight loss method and is typically correlated with increased BMI (Heatherton et al., 1991; Klesges

et al., 1992), similar to media targets who are attacked for gaining weight or being overweight, restrained eaters also have failed (often repeatedly) in their attempts to meet the thin ideal. Furthermore, research suggests that restrained eaters are personally sensitive to feedback indicating that they have failed in their weight loss goals (Mills & Miller, 2007; McFarlane et al., 1998), are prone to experience feelings of failure even when they are experiencing some success in attempts to lose weight (Polivy & Herman, 1999), and tend to focus on weight-related information about other women more so than do unrestrained eaters (King et al., 1991). Thus, when exposed to media that derogates another woman for gaining weight, restrained eaters may be more adversely impacted as this information likely will be perceived as personally relevant, and may increase the salience of instances of their own painful failures to meet the thin ideal, potentially leading these chronic dieters to internalize the negative weight-related comments as being especially personally applicable.

#### *Restraint and Anti-Fat Attitudes*

In addition to moderating the impact of exposure to derogatory weight-related media on individuals' perceptions of their own weight and shape, restraint status also may moderate the effect of this media on viewers' anti-fat attitudes. Vartanian et al. (2005) conducted two studies examining restrained and unrestrained eaters' implicit and explicit attitudes towards fatness and thinness. Results of both studies revealed that restrained eaters endorsed stronger explicit negative attitudes and beliefs about fatness than did unrestrained eaters. Thus, restrained eaters might be particularly susceptible to an explicit anti-fat media message that corresponds with their greater pre-existing anti-fat attitudes. Consequently, restrained eaters exposed to this type of media may report greater anti-fat

attitudes than both unrestrained eaters exposed to weight-related derogatory media and restrained eaters exposed to non-derogatory media.

### *Goals of the Present Research*

The aim of the present study was to investigate the impact of a specific subtype of weight-based derogatory media – magazine articles with accompanying images that derogate average-weight female celebrities for gaining weight – on women’s body image satisfaction, appearance self-esteem, negative affect, fear of negative appearance evaluation, and anti-fat attitudes. Furthermore, frequency and effect of weight-related teasing and dietary restraint were examined as potential moderating variables.

### *Hypotheses*

- 1) Females exposed to weight-based derogatory media will report lower body image satisfaction and appearance self-esteem, and greater negative affect and fear of negative appearance evaluation than females exposed to neutral magazine articles.
- 2) History of weight-related teasing will moderate the relationship between type of media exposure and outcome variables such that following exposure to weight-based derogatory media, individuals with a more extensive history of weight-related teasing will report lower body image satisfaction and appearance self-esteem, as well as greater negative affect and fear of negative appearance evaluation compared to individuals with a less extensive history of weight-related teasing.
- 3) Restraint status will moderate the relationship between type of media exposure and outcome variables such that following exposure to weight-based derogatory media, participants with higher scores on dietary restraint will report lower body image satisfaction and appearance self-esteem, as well as greater negative affect



and fear of negative appearance evaluation compared to both unrestrained eaters in the derogatory media condition, and restrained eaters in the neutral media condition.

- 4) Following exposure to weight-based derogatory media, participants with higher scores on dietary restraint and a more extensive history of weight-related teasing will report the lowest levels of body image satisfaction and appearance self-esteem, and the highest levels of negative affect and fear of negative appearance evaluation.
- 5) Females exposed to weight-based derogatory media will report greater anti-fat attitudes than will females exposed to neutral magazine articles.
- 6) Restrained eaters will report higher explicit anti-fat attitudes than will unrestrained eaters.
- 7) Restrained eaters in the weight-based derogatory media condition will report greater anti-fat attitudes than both restrained eaters in the neutral media condition, and unrestrained eaters in the derogatory media condition.

## METHOD

### *Participants*

A total of 240 females enrolled in undergraduate psychology courses at the University of Windsor participated in the study. Participants were recruited from the psychology participant pool over two academic semesters, beginning in October 2010 and ending in March 2011. Psychology students who chose to enroll in the participant pool were asked to respond to several screening questions. One question addressed whether participants had ever received an eating disorder diagnosis. Male students and individuals who responded that they had ever received an eating disorder diagnosis were unable to view or sign up for the current study on the participant pool website. All other eligible participants were able to view an advertisement for the study (see Appendix A). Interested participants signed up for a study timeslot online. All participants received course credit for their participation.

The mean age of participants was 22.46 years ( $SD = 6.07$ ), with ages ranging from 18 to 53 years. The self-reported ethnicity of the participants was as follows: 64.1% Caucasian, 8.3% Middle Eastern, 7.1% European, 6.2% South Asian, 4.1% African-Canadian, 3.7% East Asian, 0.8% Southeast Asian, 0.8% Hispanic, 4.9% reported two or more ethnic backgrounds. Objective BMI was calculated for all study participants that consented to be weighted and measures. According to the BMI classifications established by the World Health Organization (2000), 8.5% of participants were underweight (BMI <18.5), 61.9% of participants were of normal weight (BMI = 18.5 to 24.9), 19.3% of participants were overweight (BMI = 25.0 to 29.9), and 10.3% of participants were obese (BMI  $\geq$  30.0). Data collected by Statistics Canada from 2007 to 2009 indicated that, among women aged 18 to 39 in the general population, 5.0% were underweight, 52.4%

were of normal weight, 22.9% were overweight, and 19.7% were obese (Canadian Health Measures Survey, 2010). Thus, the current sample had a somewhat greater proportion of underweight and normal weight individuals, and a somewhat lower proportion of overweight and obese persons compared to Canadian women aged 18-39. However, it is important to note that 85.0% of participants in the current study were between the ages of 18-25. Because the 25-39 age bracket is underrepresented in the sample compared to the general population, and age is related to increased BMI for adults under age 65 (Shields, Connor Gorber & Tremblay, 2008), these differences between the sample and the population may be attributable to the age distribution of the sample.

In terms of years of university education, 15.4% were in their first year, 25.4% were in their second year, 30.8% were in their third year, 22.1% were in their fourth year, and 6.3% had attended university for more than four years. The relatively low proportion of first year students that participated in the study may be attributable to the availability of study timeslots. When the study timeslots were posted to the participant pool website in October through November 2010, and again in January and February 2011, very few other studies were being conducted. This meant that timeslots filled up extremely quickly, often within an hour of being posted. Upper year students may have had an advantage in signing up quickly as they had previous experience using the participant pool website. Furthermore, upper year students are more likely to be aware that it is important to participate in studies earlier in the semester in order to ensure that it is possible to participate in enough studies to receive the maximum number of course credits for study involvement.

### *Materials*

Eight tabloid-style magazine articles with accompanying images were constructed for the purpose of this study (see Appendix B). All images were taken from the website for the British tabloid newspaper, The Daily Mail ([www.dailymail.co.uk](http://www.dailymail.co.uk)). Five sets of images of “normal” weight British celebrities were obtained from articles that derogated these women for gaining weight, or for wearing an unflattering garment that supposedly caused them to appear as if they had gained weight. For each image set, at least one of the photos shows the celebrity’s full body. Additionally, for all of the images, the target celebrity is the only person in the photo. British celebrities were selected for this study to reduce the chance that participants would be familiar with them, and have personal opinions about them as people. If participants had strong opinions about certain celebrities, it could impact how they respond to that celebrity being criticized. For example, they might be outraged at a well-liked celebrity being criticized. Selecting relatively minor British celebrities minimized the likelihood of this potential confound.

Using the derogatory comments from the original articles as a template, weight-based derogatory articles were written for three celebrities. Headlines were kept as close to those of the original articles as possible. For the control condition, neutral articles were written for the same three sets of images. The neutral articles were carefully constructed to avoid mention of the physical appearance of the celebrity and contain only neutral information about their life. For example, one neutral article describes a celebrity picking up her dry cleaning. The identifying information for the celebrities in both the neutral and derogatory conditions is accurate (e.g. name, age, location of picture), while descriptions of what the celebrities are doing in the neutral articles were made up by the researcher based on elements in the background of the accompanying photos. Additional

filler details also were added when necessary to keep the lengths of the neutral and derogatory articles approximately the same, plus or minus five words. Finally, neutral articles were written based on the same criteria for the remaining two sets of images.

In total there are five sets of photos. Both neutral and derogatory articles were written for three of the photo sets. Only neutral articles were written for the remaining two sets of photos. In the control condition, participants viewed five sets of photos with accompanying neutral articles. In the experimental condition, participants viewed the same five sets of photos. However, weight-based derogatory articles accompanied three of the photo sets, while the same neutral articles used in the control condition accompanied the remaining two photo sets. The presence of these neutral articles in the derogatory media condition was deemed necessary in order to maintain the plausibility of the cover story. Including only weight-based derogatory articles in the experimental condition likely would have raised suspicions about the true purpose of the study. The decision to use a total of five articles in each condition, with only three derogatory articles included in the experimental condition, was based on the results of a meta-analysis of experimental effects of thin media images on body image satisfaction. Groesz et al. (2002) found that studies that included between one and nine experimental stimuli produced larger effect sizes ( $d = -.45$ ) than did studies using ten to nineteen stimuli ( $d = -.31$ ), or 20 or more stimuli ( $d = -.28$ ).

Because accurate weight information was not available for all five celebrities at the time the photos were taken, it was not possible to firmly establish that their BMI's are within the "normal range". To overcome this problem, the images (without the accompanying articles) were pilot tested with a panel of three experts from the Bulimia and Anorexia Nervosa Association in Windsor, Ontario. These experts all had experience

estimating BMI based on appearance alone. Average BMI ratings for the celebrities used exclusively as neutral stimuli were 20.33 (range = 18.0-22.0) and 21.67 (range = 18.0-24.0) respectively. Average BMI ratings for the celebrities who were used as both neutral and derogatory stimuli were 21.67 (range = 19.0-23.0), 22.0 (range = 20.0-24.0), and 22.67 (range = 20.0-25.0).

*Measures: Dependent Variables*

*Body Image States Scale (BISS)*

The BISS is a 6-item self-report measure that assesses state body image satisfaction (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). Participants are asked to respond to items on a 9-point Likert-type scale based on how they feel “right now, at this very moment”. Higher scores indicate greater state body satisfaction. Following a preliminary investigation of the measure, Cash et al. (2002) concluded that the BISS possessed sound psychometric properties. Internal consistency was found to be acceptable, with Cronbach’s alphas ranging from 0.77 to 0.90 among female samples. At two or three weeks, test-retest reliability was 0.69. This is considered acceptable for a state measure, which is expected to be less temporally stable than trait measures. The convergent validity of the BISS also was demonstrated, as the scale was appropriately correlated with the Body Areas Satisfaction subscale of the Multidimensional Body-Self Relations Questionnaire ( $r = .77$ ; Cash et al., 2002), a trait measure of body image satisfaction.

*Fear of Negative Appearance Evaluation Scale (FNAES)*

The FNAES is a 6-item measure designed to assess fears about being negatively evaluated on the basis of one’s physical appearance (Lundgren et al., 2004). A sample item is, “I am concerned about what other people think of my appearance”. Items are

scored on a 5-point Likert scale ranging from 1 (“not at all”) to 5 (“extremely”). This scale has demonstrated good internal consistency with a sample of female undergraduates ( $\alpha = .94$ ; Lundgren et al., 2004). The FNAES also has good convergence with measures of body image, eating disturbance, anxiety, and mood (Lundgren et al., 2004).

For the purpose of the current study, the instructions and the wording of two items were modified slightly to gather state rather than trait information. For example, the item “When I meet new people, I wonder what they think about my appearance” was changed to “If I met a new person right now, I would wonder what they thought about my appearance”. This item was altered to better capture the degree to which individuals would be concerned about their appearance if meeting a new person at that moment, rather than how participants feel about their appearance when meeting new people in general. Thompson’s (2004) article on the mis-measurement of body image recommends that, in the absence of assessment tools that fully address the research question, researchers should make slight changes to adapt the scale for the needs of the study. This is particularly true when these slight changes are needed to change trait measures into state measures, as using trait measures to assess the short term effects of an experimental manipulation is one of the most common mistakes made by body image researchers (Thompson, 2004). Specifically, Thompson states “if a slight change in the wording of a scale or the inclusion of additional items is required by the research question, then it is bad science not to tinker with existing scales.” Given that there is no state-measure of fear of negative appearance evaluation, and this study is investigating the short-term effects of exposure to weight-based derogatory media, these minor changes were deemed necessary in order to fully address the research question.

*Anti-Fat Attitudes Test (AFA)*

A modified version of Crandall's (1994) 13-item anti-fat attitudes scale was used to assess explicit anti-fat attitudes. Although a number of other questionnaires have been constructed to assess anti-fat attitudes, most of the measures have been used in only a few studies and information on their psychometric properties is quite limited (Teachman & Mallatt, 2005). Crandall's original 13-item scale is comprised of three subscales: dislike of fat people (e.g. "I really don't like fat people much"), beliefs about the willpower of overweight individuals (e.g. "Fat people tend to be fat pretty much through their own fault"), and personal fear of fat ("I worry about becoming fat"). Items are scored on a 9-point Likert scale ranging from 1 ("very strongly disagree") to 9 ("very strongly agree").

The original scale has adequate psychometric properties (Crandall et al., 1999; Teachman & Mallett, 2005), but to increase internal consistency, Quinn and Crocker (1999) added 3 items to the Dislike subscale (e.g. "Fat people disgust me") and 5 items to the Willpower subscale (e.g. "Overweight people are responsible for their own problems"). Internal consistency for the Dislike subscale increased from .81 for the original scale to .89 with the additional items, while the internal consistency for the Willpower subscale increased from .74 to .82. The current study employed the extended version of the AFA Dislike and Willpower subscales. However, because this research aimed to address how weight-based derogatory media affects participants' attitudes towards overweight individuals rather than personal fear of fat, the 3-item Fear of Fat subscale was not included in analyses. In the development of the scale, Crandall (1994) found a strong positive correlation between the Dislike and Willpower subscales, but the Fear of Fat subscale was uncorrelated with the Dislike and Willpower subscales. Additionally, in their investigation of whether anti-fat attitudes predict anti-fat



discrimination, Obrien et al. (2008) also excluded the Fear of Fat subscale because it was not relevant to their investigation.

In order to modify this trait measure to assess the short-term effects of the experimental manipulation, instructions were altered to ask participants to respond to questions based on what they are thinking “at this moment”. Still following the recommendations made by Thompson (2004), a few items were altered to make them more state-dependent. For example the item, “I don’t have many friends that are fat”, was modified to “I do not want to become friends with a fat person”.

#### *State Self-Esteem Scale (SSES)*

The SSES is a 20-item self-report measure designed to assess short-lived changes in self-esteem (Heatherton & Polivy, 1991). Each item is scored on a 5-point scale ranging from 1 (“not at all”) to 5 (“extremely”), and higher scores reflect greater state self-esteem. The SSES consists of three subscales: Performance, Social, and Appearance self-esteem. An example of an item from the Performance subscale is: “I feel confident about my abilities”. A sample item from the Social subscale is: “I feel inferior to others at this moment”. Finally, sample items from the Appearance subscale include: “I feel unattractive”, and “I am dissatisfied with my weight”. All three factors are sensitive to changes occurring as a result of experimental manipulation. For example a clinical program designed to increase pride in appearance and social effectiveness produced substantial changes on the social and appearance subscales of the SSES, but only minor changes on the performance self-esteem scale (Heatherton & Polivy, 1991).

The scale has been reported to have good discriminant and convergent validity, high internal consistency ( $\alpha = .92$ ) and acceptable test-retest reliability for a state scale ( $r_s$  ranged from .48 to .75; Heatherton & Polivy, 1991).

### *Positive and Negative Affect Schedule (PANAS)*

The PANAS (Watson, Clark, & Tellegen, 1988) is one of the most frequently used affect measurement scales (Schmukle, Egloff, & Burns, 2002). It was used in this study to assess negative affect after participants read the vignettes. The PANAS is a 20-item self-report measure that is divided into two subscales that assess positive (PA) and negative affect (NA) respectively. The current study employed the state version of this scale, which instructs participants to respond in accordance with how they feel “right now, that is, at the present moment”. Respondents indicate the extent to which they are experiencing twenty different adjectives, which are representative of positive or negative affective states, using a Likert scale ranging from 1 (“very slightly to not at all”) to 5 (“extremely”).

In a preliminary investigation of the psychometric properties of the PANAS, internal consistency for the two subscales using the state instructions ranged from 0.85 to 0.89 for the PA subscale and from 0.85 to 0.91 for the NA subscale (Watson et al., 1988). Low correlations have been found between the PA and NA subscales, demonstrating acceptable discriminant validity ( $r$ s ranged from -0.15 to -0.27; Schmukle et al., 2002; Watson et al., 1988).

### *Measures: Independent Variables*

#### *Perception of Teasing Scale (POTS)*

The Perception of Teasing Scale (Thompson et al., 1995) is an eleven-item, self-report scale that measures history of weight and competency teasing. The POTS is an extension and revision of the Physical Appearance Related Teasing Scale (PARTS; Thompson et al., 1991). The POTS is divided into four subscales, two of which measure frequency of teasing (Weight- Teasing Frequency and Competency-Teasing Frequency),

while the remaining two subscales assess the emotional impact of the teasing (Weight Teasing-Effect and Competency Teasing Effect). Teasing Frequency is rated using a 5-point Likert-type scale ranging from “Never” to “Very Often”. After each teasing frequency item, participants are asked to rate “How upset were you?” on a 5-point scale ranging from “Not Upset” to “Very Upset”. The POTS is scored by summing the frequency and effect subscales for Weight Teasing and for Competency Teasing separately. For the purpose of this study, only the total Weight Teasing scores (sum of frequency and effect) were used in moderation analyses.

Both the Weight-Teasing and Competency-Teasing scales of the POTS have been shown to have good internal consistency with a sample of female college students (Weight-Teasing  $\alpha = .84$ , Competency-Teasing  $\alpha = .88$ ; Thompson et al., 1995). Two-week test-retest reliabilities for each of the four subscales were reported as follows: Weight-Teasing Frequency ( $r = .90$ ), Weight-Teasing Effect ( $r = .85$ ), Competency-Teasing Frequency ( $r = .82$ ), Competency-Teasing Effect ( $r = .66$ ; Thompson et al., 1995). The POTS also has good convergent validity when correlated with measures of body dissatisfaction, physical appearance related anxiety, eating disturbance, and self-esteem (Thompson et al., 1995).

#### *Revised Restraint Scale (RRS)*

The Revised Restraint Scale (Polivy, Herman, & Howard, 1988) was used to assess dieting status. The RRS is a 10-item self-report measure with subscales assessing concerns with dieting and weight fluctuations. The RRS was designed to measure instances of both restrained eating and eating disinhibition, and thus identifies unsuccessful dieters (Heatherton, Polivy, King, & Mcgee, 1988). Scores can range from 0 to 35, with higher scores indicating greater restraint. The scale also includes one question

about current height and one question about current weight. These are not scored, but were used to calculate BMI for participants who did not wish to have their height and weight measured (see procedure below). When employed with samples of “normal” weight participants, but not with obese participants, the psychometric properties of the RS are generally sound (Heatherton et al., 1988; Ruderman, 1986). The RRS has high test-retest reliability (Polivy et al., 1988; Klesges, Klem, Epkins, & Klesges, 1991; Allison, Kalinsky, & Gorman, 1992) and acceptable internal consistency (Ruderman, 1983; Klem, Klesges, Bene, & Mellon, 1990). The convergent validity of the RRS also has been demonstrated, as it is highly correlated with other measures of restrained eating, such as the DEBQ ( $r = .80$ ), and the Three-Factor Eating Questionnaire ( $r = .74$ ; Allison et al., 1992).

#### *Measures: Covariates*

##### *Body Mass Index*

Participants’ height and weight were measured to determine their BMI. BMI was calculated by dividing weight (in kilograms) by height (in metres) squared. Because BMI is typically positively associated with dietary restraint (McFarlane, Polivy, & Herman, 1998; Mills & Miller, 2007; Trottier et al., 2007) it was tested as a covariate in all analyses in order to rule out the possibility that observed differences between restrained and unrestrained eaters were due to their objective body sizes.

##### *Rosenberg Self-Esteem Scale (RSES)*

The RSES is a 10-item self-report scale designed to measure global trait self-esteem (Rosenberg, 1965, 1979). Items such as “I feel that I have a number of good qualities” are measured on a 4-point scale ranging from “strongly agree” to “strongly disagree”. The RSES has been reported to have high internal consistency ( $\alpha = .92$ ;

Rosenberg, 1979). Test retest-reliability ranges from .85 at two week (Silber & Tippett, 1965) to an average of .69 at six years (Robins, Hendin, & Trzesniewski, 2001). The RSES also correlates significantly with other measures of self-esteem, demonstrating good convergent validity (Demo, 1985).

RSES scores were tested as a covariate in all analyses because trait self-esteem has been demonstrated to be highly correlated with state self-esteem and mood (Heatherton & Polivy, 1991), as well as body image disturbance among women (Furnham, Badmin, & Sneade, 2002; Lowery et al., 2005).

#### *Appearance Schemas Inventory – Revised (ASI-R)*

The ASI-R (Cash, Melnyk, & Hrabosky, 2004) is a 20-item self-report trait measure that assesses the investment component of body image, or the importance individuals place on physical appearance. In addition to yielding a total composite score, the ASI-R includes two subscales – Self-Evaluative Saliency, and Motivational Saliency. The Self-Evaluative Saliency subscale assesses the extent to which respondents' self-worth and self-concept are based on physical appearance. The Motivational Saliency subscale assesses respondents' attitudes and behaviours related to improving or maintaining a certain level of attractiveness (Cash et al., 2004). Participants rate their agreement with each item on a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Total scores range from 20 to 100, with higher scores indicating greater body image investment.

In a preliminary investigation, Cash et al. (2004) demonstrated that the ASI-R possessed good psychometric properties for both males and females. However, since the present study only included female participants, only data for the female sample will be discussed. The entire measure has high internal consistency ( $\alpha = .88$ ). Internal consistency

also is high for both the Motivational Salience subscale ( $\alpha = .90$ ) and Self-Evaluative Salience subscale ( $\alpha = .82$ ). The ASI-R also has good convergent validity, as it is highly correlated with other body image measures, such as the Situational Inventory of Body-Image Dysphoria ( $r = .67, p < .001$ ) and the Body Image Ideals Questionnaire ( $r = .53, p < .001$ ).

Body image investment is significantly correlated with several of the dependent variables employed in this study, including state body image satisfaction ( $r$ s ranged from  $-.28$  to  $-.41, p < .05$ ; Cash et al., 2002), fear of negative appearance evaluation ( $r = .54, p < .01$ ; Lundgren et al., 2004), and both the Dislike subscale ( $r = .16, p < .05$ ) and Willpower subscale ( $r = .20, p < .20$ ) of Crandall's anti-fat attitudes scale (O'Brien, Hunter, Halberstadt, & Anderson 2007). Consequently, the ASI-R was examined as a potential covariate in all statistical analyses.

#### *Marlowe Crowne Social Desirability Scale*

The Marlowe-Crowne Social Desirability Scale – Form C (Reynolds, 1982) is a 13-item self-report measure. Scores on this scale were tested as a potential covariate to control for participants' tendencies to respond to items in a socially desirable manner. Respondents indicate whether a series of statements are either true or false. Examples of items include “There have been occasions when I took advantage of someone”, and “No matter who I'm talking to, I'm always a good listener”. This scale has been reported to have good internal reliability ( $r_{KR-20} = .76$ ; Reynolds, 1982).

#### *Demographic Questionnaire*

This questionnaire was used to obtain demographic related information from participants, such as ethnicity and age (see Appendix C). Age was tested as a covariate in

all statistical analyses to ensure that any significant differences between groups were independent of participant age.

### *Beck Depression Inventory-II (BDI-II)*

The BDI-II (Beck, Steer, Ball, & Ranieri, 1996) is a 21 item-self report measure designed to quantify the intensity of cognitive, affective, and neurovegetative symptoms of depression. Respondents rate items on a 4-point scale ranging from 0 (absence of symptom) to 3 (severe level of that symptom). The BDI-II demonstrates good psychometric properties for both clinical and non-clinical populations (Beck et al., 1996). Internal consistency is high ( $\alpha = .92$ ; Beck et al., 1996). Correlational analyses conducted by Osman and colleagues (1997) found satisfactory evidence for the convergent validity of the BDI-II. The BDI-II was appropriately correlated with measures of depression, anxiety, self-esteem, and stress. The BDI-II was examined as a potential covariate in all statistical analyses to ensure that the effects of media exposure on body image dissatisfaction, negative affect, appearance self-esteem, anti-fat attitudes, and fear of negative appearance evaluation were independent of depressive symptoms.

### *Procedure*

Participants were tested individually in sessions lasting approximately ninety minutes. Table 1 displays the order of administration of all study measures and materials. After arriving in the lab, individuals were asked to read and sign the consent form (see Appendix D). They received a copy of the letter of information for their own records (see Appendix E). In order to minimize demand characteristics, the study was conducted under a cover story adapted from the one used by Trottier, Polivy, and Herman (2007). This deception was necessary as previous research has shown that women may have pre-existing ideas about how thin-ideal promoting media will impact their well being, and

they can respond in accordance with these beliefs when they are aware of the purpose of the study (Mills et al., 2002). Participants were told that the researchers were interested in examining the effects of individual differences and publication type on person memory. Participants were informed that they were to complete a few questionnaires, view pictures and read descriptions of 5 target persons, fill out a second set of questionnaires, and then complete a multiple choice format memory test.

Prior to arriving in the lab, participants were assigned to either the weight-related teasing or neutral media condition using a randomization table. After giving consent, participants completed a demographic questionnaire and measures assessing trait self esteem (RSES), depressive symptoms (BDI-II), and socially desirable responding (Marlowe-Crowne). After completing the first set of questionnaires, participants were presented with a series of five tabloid-style magazine articles, each providing information about a “normal” weight (as established by estimated BMI) female British celebrity (see Appendix B). In the weight-based teasing media condition, participants viewed three derogatory articles, and two neutral articles. The order of presentation of the neutral and derogatory articles was counterbalanced. The inclusion of the neutral articles in the weight-based teasing condition was deemed necessary to maintain the plausibility of the cover story. In the control condition, participants received the same two neutral articles presented in the experimental condition, in addition to three other neutral articles accompanying the same picture sets used with the derogatory articles.

Participants were instructed that they had a total of 15 minutes to read and try to remember the details of each article. Participants were reminded that, at the end of the study, they would complete a multiple-choice test on the content presented to them in the articles. The 15-minute time limit was selected to allow participants approximately three



minutes to read and try to remember each article and examine the pictures. Ensuring that participants had ample time was important so that they did not rush through the articles, or feel any increased anxiety about having inadequate time to prepare for the “memory test”. After giving these instructions the researcher exited the room and returned 15 minutes later to collect the experimental materials and administer the remaining questionnaires. Participants were given the following instruction, which are nearly identical to the instruction given to participants by Trottier and colleagues (2007):

“These are some questionnaires that I would like you to complete that ask about your thoughts and feelings. I’m giving you these questionnaires because your thoughts and feelings about yourself could affect your memory of the descriptions that you read.”

After receiving these instructions, participants were given the questionnaire packet to complete. The first measures presented were the state mood and self-esteem measures (PANAS and SSES), followed by the state body image measure (BISS). Next, participants completed the Fear of Negative Appearance Evaluation scale (FNAES), and the modified Anti-Fat Attitudes scale (AFA). Next, participants completed the trait measure of body image investment (ASI-R). The measures of the two moderating variables, restraint (RRS) and history of weight-related teasing (POTS), were included at the end of the questionnaire packet. The POTS was the final questionnaire. The POTS and the RRS were administered last to avoid contamination of the procedure. The RRS is widely accepted as a trait measure that is not susceptible to temporary changes as a result of experimental manipulations (Mills & Miller, 2007; Mills et al., 2002). Additionally, Thompson et al. (1995) conducted regression analyses and ruled out the hypothesis that subjects who are currently more distressed or overweight may artificially report elevated histories of weight-related teasing on the POTS. After completing the final set of

questionnaires, participants completed a 25-item multiple-choice test on the content of the articles that they read. There were 4 response options for each question and 5 questions on each article. Two versions of this test were used, one for the experimental and one for the control condition (see Appendices F and G). This test served as a manipulation check to ensure that participants read the articles. Data collected from participants with scores less than 75% on this test was to be excluded from the study. However, none of the participants received scores of less than 75%, so no participants were excluded from the study on the basis of memory test scores.

Following the completion of the manipulation check, participants were debriefed and informed of the true purpose of the experiment. They were also asked about whether they had any suspicions that the study was about body image, and at what point during the study these suspicions arose. For participants who indicated that they had guessed that the study was about body image, further enquiries were made about whether they had guessed any of the specific hypotheses of the study, and at what point during the study they came to that conclusion (see Appendix H). After being debriefed, participants were informed that obtaining accurate measures of their height and weight was an important component of the study. They were asked if they would consent to have their height and weight measured in order to calculate their BMI. Participants who agreed were asked to complete an additional consent form, as the original consent form did not include details about this procedure (see Appendix I).

Table 1

*Order of Administration for All Study Measures and Materials*

Step	Procedure	Order of Information Completed
1.	Cover story and consent form	Consent form
2.	Completion of questionnaire packet 1	Demographic questionnaire. <b>Covariates:</b> Rosenberg Self Esteem Scale, Beck Depression Inventory, Marlowe-Crowne scale.
3.	Experimental manipulation – 15 minutes to read and remember 5 articles	---
4.	Completion of questionnaire packet 2	<b>Outcome Measures:</b> Positive and Negative Affect Schedule, State Self-Esteem Scale, Body Image States Scale, Fear of Negative Appearance Evaluation, Anti-Fat Attitudes Scale <b>Covariate:</b> Appearance Schemas Inventory – Revised <b>Moderators:</b> Revised Restraint Scale, Perception of Teasing Scale
5.	Debriefing and Final Consent	Recorded participants' impressions of the study, suspicions about body image and study hypotheses. Completed final consent form.
6.	Weight/ Height Consent	Weight/ Height Consent Form
7.	Measurement of weight and height	Weight and height recorded

## RESULTS

### *Approach to Data Analysis*

All analyses were performed using SPSS for Mac, Version 19.0. Reliability and descriptive analyses were performed on all variables included in this study. Next, a series of independent sample t-tests were performed to ensure that randomization had been successful and participants in the experimental condition did not differ significantly from participants in the control condition on any of the covariates or the moderator variables. Finally, all of the hypotheses were tested using a series of hierarchical linear regressions.

### *Missing Data and Reliability Analyses*

Prior to analysis, the data were checked for accuracy of entry and missing values. A total of 9 missing values were identified and replaced with the participant's mean score on the respective subscale. One participant in the control condition did not complete the Fear of Negative Appearance Evaluation Scale. Consequently, this participant was not included in the hierarchical regression for Fear of Negative Appearance evaluation. Additionally, 7.1% of participants ( $n=17$ ) did not consent to have their height and weight measured. The range of self-reported BMI for participants who refused to be weighed and measured was as follows: 5.9% were underweight (BMI < 18.5), 47.1% were of normal weight (BMI= 18.5-24.9), 23.5% were overweight (BMI= 25.0-29.9), and 23.5% were obese (BMI  $\geq$  30.0). The number of participants who refused to have their weight and height measured did not differ by experimental condition,  $\chi^2(1, N = 240) = 0.57, p = .45$ . An independent t-test also revealed that self-reported BMI for these 17 participants did not differ across experimental condition ( $p = .42$ ). However, subsequent independent t-tests indicated that although participants who did not consent to objective measures of height and weight were not higher in dietary restraint ( $p = .15$ ), they did report a

significantly greater history of weight-related teasing than participants who agreed to have their weight and height measured,  $t(238) = -2.86, p < .01$ . This greater teasing history may have contributed to their refusal to be weighed and measured. Given the high correlation between self-reported and objectively measured BMI in the current study ( $r = .91, p < .001$ ), self-reported estimates of height and weight were used to calculate BMI for these 17 participants. Since the number of participants who refused to be measured did not differ across experimental condition, any error of measurement resulting from the use self-reported estimates of BMI should be evenly distributed across experimental conditions. After the missing values were filled-in, the internal reliability Cronbach alpha coefficients were calculated for each measure. Table 2 contains the reliability coefficients, as well as the overall ranges, means, medians, and standard deviations for all of the measures. The reliability analyses yielded coefficients ranging from 0.70 to 0.91.

Table 2

*Descriptive Data for Participants and Study Measures (N = 240)*

Variable	Range	Mean	Median	Standard Deviation	Cronbach's Alpha
Age	18.00-53.00	22.46	21.00	6.01	---
BMI*	16.10-45.59	23.83	22.63	5.34	---
BDI*	0.00-37.00	10.50	9.00	7.51	0.87
Marlowe Crowne	0.00-13.00	6.50	7.00	2.90	0.70
ASI-R	1.60-4.85	3.36	3.40	0.57	0.87
RSES	10.00-30.00	23.42	24.00	4.48	0.87
Restraint Scale	0.00-27.00	13.08	13.00	5.98	0.78
POTS – Weight Teasing Subscale*	6.00-58.00	13.26	9.00	10.47	0.90
BISS	1.00-9.00	5.20	5.17	1.55	0.87
SSES – Appearance Subscale	7.00-30.00	19.91	20.00	4.76	0.85
FNAES	6.00-30.00	15.54	15.00	5.93	0.91
Anti-fat Attitudes*	1.28-7.44	3.49	3.39	1.14	
PANAS – Negative subscale*	10.00-31.00	13.47	12.00	4.29	0.81

\*Indicates that the variable was transformed prior to further analyses, and the median is the more appropriate measure of central tendency.

### *Descriptive Analyses*

Next, descriptive analyses were performed on each variable to check for univariate normality and the presence of outliers. Univariate outliers were assessed by converting residuals into standardized residuals with a mean of 0 and a standard deviation of 1. Standardized residuals with absolute values greater than 3.29 were identified as outliers. Histograms, Q-Q plots, the Shapiro-Wilk (*SW*) statistic, and standardized scores of skewness and kurtosis were evaluated to determine whether each variable was normally distributed (Field, 2000). BMI and scores on the BDI, POTS Weight Teasing subscale, Anti-fat attitudes scale, and PANAS Negative subscale were significantly non-normally distributed, and had numerous outliers. All other scales closely approximated the normal distribution and did not contain outlying scores. Although having normally distributed predictors (e.g. BMI, BDI, POTS Weight Teasing scale) is not an assumption of multiple regression, according to Tabachnick and Fidell (2007), “the solution is degraded if variables are not normally distributed”. Specifically, non-normally distributed variables can cause heteroscedasticity, thus violating one of the assumptions of multiple regression. Consequently, transformations were performed on all non-normally distributed variables to improve pairwise linearity, reduce the impact of outliers, and minimize the likelihood of heteroscedasticity (Tabachnick & Fidell, 2007).

A square root transformation was applied to the BDI scores to correct for moderate positive skewness and kurtosis. The square root transformation is among those recommended for data with moderate positive skewness (Tabachnick & Fiddell, 2007). After applying the transformation, the data more closely approximated the normal distribution, the *SW* statistic was no longer significant, and previously identified outliers were reduced to standardized residuals with absolute values of less than 3.29. A reflect

and square root transformation was applied to the Anti-fat Attitudes scale to correct for moderate negative skewness and kurtosis. Again, after applying the transformation, the data more closely approximated the normal distribution, the *SW* statistic was no longer significant, and previously identified outliers were reduced to standardized residuals with absolute values of less than 3.29.

To correct for substantial positive skewness and kurtosis, a logarithmic transformation was applied to the POTS Weight Teasing subscale. The logarithmic transformation is among those recommended for data with substantial positive skewness (Tabachnick & Fidell, 2007). Following this transformation, z-scores for skewness and kurtosis were substantially reduced, the histogram appeared to more closely approximate the normal distribution, and an examination of the standardized residuals no longer revealed outlying values. Finally, to correct for substantial to severe positive skewness, inverse transformations were applied to BMI and the PANAS Negative Affect subscale. The inverse transformation is among those recommended for data with substantial to severe positive skewness (Tabachnick & Fidell, 2007). The transformations substantially reduced z-scores for skewness and kurtosis, produced histograms that were closer to a normal distribution, and reduced outliers to standardized residual scores of less than an absolute value of 3.29.

It is important to note that after a transformation has been applied to normalize a scale, the mean is equal to the median. Because the transformation does not change the rank order of cases, the median is not affected. Thus, for the variables that were subsequently transformed, the median is the more appropriate measure of central tendency (Tabachnick & Fidell, 2007). For ease of understanding and interpretation, descriptive statistics are provided for the untransformed variables. Table 3 provides the



means, medians, and standard deviations for the moderator and dependent variables, broken down by experimental condition. In both Tables 1 and 2, variables that were later transformed are denoted with an asterisk. The transformed variables were included in all subsequent analyses, and are clearly marked in each table.

Table 3

*Descriptive Statistics for Moderator and Dependent Variables by Experimental Condition*

Variable	Control Condition (n=120)			Experimental Condition (n=120)		
	<i>M</i>	Median	<i>SD</i>	<i>M</i>	Median	<i>SD</i>
Restraint Scale	13.08	13.00	5.90	13.08	13.00	6.07
POTS Weight	13.51	10.00	10.71	13.02	8.50	10.26
Teasing Subscale*						
BISS	5.30	5.17	1.54	5.10	5.00	1.56
SSES Appearance Subscale	20.29	20.00	4.66	19.52	20.00	4.84
FNAES	15.00	14.00	5.81	16.07	16.00	6.02
AFA Willpower & Dislike Subscales*	3.58	3.39	1.00	3.39	3.19	1.26
PANAS Negative Subscale*	13.55	12.00	4.23	13.39	12.00	4.35

\*Indicates that the variable was transformed prior to further analyses, and the median is the more appropriate measure of central tendency.

### *Participant Characteristics*

To ensure that randomization had been effective, a series of independent t-tests were conducted to check if there were any significant differences between the experimental conditions on any of the moderator variables or covariates. The results revealed that randomization was effective. There were no significant differences between participants in the experimental and control condition in terms of age, BMI, depression, trait self-esteem, socially desirable responding, body image investment, history of weight-related teasing, or dietary restraint ( $ps > .16$ ).

### *Credibility of the Cover Story*

The credibility of the cover story was assessed through post-experimental questions. A total of 25 participants (experimental condition = 18, control condition = 7) claimed to have guessed the specific hypotheses of the study while reading the articles. An additional 28 participants (experimental condition = 25, control condition = 3) claimed to have suspected that the study was about body image while they were reading the articles. Combined, 22.1% of participants claimed to have known the specific hypotheses of the study, or to have suspected that the study was about body image, while they were reading the articles.

A further 147 participants (63.1% of the sample) reported that they began to suspect that the study was about body image when they were completing the questionnaires following the experimental manipulation. Specifically, most participants claimed that the presence of several questionnaires about body image caused them to wonder if there was more to the study than they had originally been told. However, at this stage of the study it was less crucial for participants to be unaware that the study was investigating body image and anti-fat attitudes, as the manipulation was complete. The

majority of participants did not have suspicions about the cover story until after the experimental manipulation, so the cover story appears to have been fairly effective. However, a substantial minority of participants did claim to have guessed the hypotheses and/or that the study was about body image while they were reading the articles. Thus, to control for any effect that this knowledge might have had on the results, a dichotomous variable was computed and was tested as a covariate in all analyses. For this variable, participants who had any suspicions about the hypotheses or body image while reading the articles were coded 1. All other participants were coded 0. This variable was only significantly correlated with fear of negative appearance evaluation (see Table 4). Consequently, it was entered as a covariate in the hierarchical regression predicting fear of negative appearance evaluation, but it was not a significant covariate ( $\beta = .047$ ,  $p = .328$ ), nor did its inclusion alter the results. Thus, this variable was removed from the regression and does not appear in any of the regression results reported below.

Table 4

*Summary of Intercorrelations between Covariates, Outcome, and Predictor Variables*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	-												
2. BMI (Inverse)	-.30**	-											
3. Trait Self- Esteem	.13	-.06	-										
4. BDI (SQRT)	-.08	-.36	-.60**	-									
5. ASI-R	-.21**	.15*	-.22**	.25**	-								
6. Marlowe- Crowne	.01	-.07	-.37**	-.43**	-.38**	-							
7. Hypotheses/ Body Image Knowledge	.01	.03	.00	.02	.19**	-.06	-						
8. Weight Teasing (Log)	-.07	-.47**	-.31**	.26**	.11	-.12	-.05	-					
9. Dietary Restraint	.03	-.48**	-.20**	.23**	.26**	-.15*	.10	.52**	-				
10. Body Image Satisfaction	-.02	.38**	.44**	.39**	-.20**	.18**	.06	-.40**	-.45**	-			
11. State Self Esteem- Appearance	.01	.26**	.57**	-.50**	-.27**	.34**	.08	-.39**	-.44**	.85**	-		
12. Fear of Negative Appearance Evaluation	-.18**	-.01	-.43**	.41**	.62**	-.40**	.15*	.34**	.34**	-.48**	-.56**	-	
13. Anti-fat Attitudes (SQRT)	-.10	.27**	-.16*	.21**	.26**	-.23**	.02	-.09	.07	.14*	.03	.13	-
14. PANAS – Negative (Inverse)	.20**	-.07	.30**	-.37**	-.14*	.23**	-.01	-.21**	-.06	.13*	.18**	-.27**	-.08

Note: Inverse transformations change the direction correlations; \* $p < .05$ , \*\*  $p < .01$

### *Assumptions of Multiple Regression*

The assumption of no perfect multicollinearity was assessed by examining intercorrelations between variables, and checking the variance inflation factors (VIF). Multicollinearity was not identified as a concern as none of the variables had a correlation above 0.65 (see Table 4). Furthermore, none of the VIFs had values that approached the cutoff of 10 (Field, 2005). Data also were checked for the assumptions of normally distributed errors and homoscedasticity. For each regression, the scatterplots of standardized residual versus predicted residuals appeared to be approximately rectangular with a concentration of scores around the centre. Additionally, the histograms of standardized residuals approximated the normal curve. Thus, it was concluded that the assumptions of linearity and homoscedasticity had been met. Error terms also were found to be independent, as assessed by the Durbin-Watson statistic. While no univariate outliers were identified through the earlier descriptive analyses, the assumption of absence of outliers among the independent and dependent variables also requires the absence of multivariate outliers. Multivariate outliers were assessed through examining Mahalanobis distances. Cut-off values for multivariate outliers were determined using the Chi squared distribution (Tabachnick & Fidell, 2007). Three cases (participants 31, 75, and 120) were identified as multivariate outliers and were removed from all regression analyses. However, because the cut-offs for the Chi squared distribution are dependent on the number of predictors in the model, and some hierarchical regressions included fewer covariates, the number of additional multivariate outliers that were identified and removed varied across the regressions. Removal of additional identified multivariate outliers was deemed necessary because, according to Tabachnick and Fidell (2007), if multivariate outliers are allowed to remain, they can distort the results in any direction.

Further explanation of which additional outliers were removed is included in the results section for each regression.

### *Main Analyses*

Correlations between each predictor and outcome variable are presented in Table 4. Among the planned covariates, age did not correlate with body image satisfaction, appearance self-esteem, or anti-fat attitudes, and therefore it was not entered as a covariate in the regressions for these dependent variables. Similarly, BMI was not significantly correlated with fear of negative appearance evaluation or negative affect, so it was not entered as a covariate in those regressions. All of the covariates that were significantly correlated with each dependent variable were entered into the regression analyses. Covariates that did not contribute significantly to the model were removed, and each regression was re-run including only the significant covariates (Field, 2005). For each regression, all of the covariates were entered in the first step (Tabachnick & Fidell, 2007). Experimental condition, history of weight-related teasing, dietary restraint, and all of the interaction terms were entered in the second step. To avoid problems of multicollinearity, continuous variables were centered prior to computing the interaction terms (Tabachnick & Fidell, 2007).

#### *Body Image Satisfaction*

The first regression examined predictors of body image satisfaction (see Table 5). The Marlowe-Crowne scale of socially desirable responding was not a significant covariate, and was removed from the regression. Additionally, one case (participant 216) was identified as an influential case based on a high standardized DFFITS value (greater than 1). This case was also an outlier in the solution, with a studentized deleted residual

value greater than 3.3 (Tabachnick & Fidell, 2007). Thus, this case was removed from the regression, leaving a total  $N$  of 236.

With only the covariates included in the model (ASIR, BDI, BMI, RSES), the model was significant ( $F= 45.36, p <.001$ ) and accounted for 44.0% of the variance in body image satisfaction. Once all of the variables were included in the model, the model was again able to significantly predict body image satisfaction ( $F= 2.28, p =.035$ ), and accounted for an additional 3.2% of the variance. The complete model accounted for 47.2% of the variance in body image satisfaction.

Each predictor was then examined to determine whether it significantly contributed to the model (see Table 4). All of the covariates contributed significantly to the model, with the exception of BDI, which was very nearly significant ( $p=.055$ ), so it was retained in the model. As predicted, experimental condition significantly predicted body image satisfaction ( $t=-2.21, p=.028$ ), with participants in the experimental condition reporting lower body image satisfaction than participants in the control condition. The squared partial correlation between experimental condition and body image satisfaction was .021, which is defined by Cohen (1988) as a small effect size. Additionally, dietary restraint contributed significantly to the model ( $t=-2.54, p=.012$ ), with participants who scored higher on restrained eating reporting lower body image satisfaction. Contrary to predictions, none of the interaction terms contributed significantly to the model ( $ps >.14$ ).



Table 5

*Predictors of Body Image Satisfaction (N=236)*

		<i>SE b</i>	<i>b</i>	$\beta$	<i>t</i>	<i>Sig.</i>
Step	Variables Entered					
I.	Constant	0.88	0.69	-	0.77	.440
	RSES	0.02	0.13	0.37	6.01	.000
	BDI (SQRT)	0.08	-0.17	-0.13	-2.12	.035
	BMI (Inverse)	9.19	83.00	0.45	9.03	.000
	ASI-R	0.14	-0.46	-0.17	-3.28	.001
II.	Constant	0.92	0.96	-	1.04	.298
	RSES	0.02	0.13	0.37	5.89	.000
	BDI (SQRT)	0.08	-0.15	-0.12	-1.93	.055
	BMI (Inverse)	11.49	71.74	0.39	6.24	.000
	ASI-R	0.15	-0.36	-0.13	-2.48	.014
	Condition	0.16	-0.36	-0.12	-2.21	.028
	Dietary Restraint	0.02	-0.06	-0.22	-2.54	.012
	Weight Teasing	0.48	0.61	0.11	1.26	.210
	(Log)					
	Condition x Teasing	0.67	-0.97	-0.12	-1.45	.149
	(Log)					
	Condition x	0.03	0.04	0.11	1.34	.181
	Restraint					
	Condition x Teasing	0.08	0.00	0.00	0.01	.994
	(Log) x Restraint					

### *Appearance Self-Esteem*

The second regression examined predictors of appearance self-esteem (see Table 6). The Marlowe-Crowne scale of socially desirable responding was not a significant covariate, and was removed from the regression. After the three multivariate outliers were removed, no additional multivariate outliers were identified, and no outliers were identified in the solution.

With only the covariates included in the model (ASIR, BDI, BMI, RSES), the model was significant ( $F= 55.53, p <.001$ ) and accounted for 48.9% of the variance in appearance self-esteem. Once all of the variables were included in the model, the model again significantly predicted appearance self-esteem ( $F= 3.24, p =.004$ ), and accounted for an additional 4.1% of the variance. The complete model accounted for 53.0% of the variance in appearance self-esteem.

Each predictor was then examined to determine whether it contributed significantly to the model (see Table 5). All of the covariates contributed significantly to the model ( $ps <.01$ ). As predicted, experimental condition significantly predicted appearance self-esteem ( $t=-2.97, p=.003$ ), with participants in the experimental condition reporting lower appearance self-esteem than did participants in the control condition. The squared partial correlation between experimental condition and appearance self-esteem was .037, which is defined by Cohen (1988) as a small effect size. Dietary restraint also contributed to the model, but just barely failed to reach significance ( $t=-1.93, p=.055$ ). Participants who scored higher on restrained eating reported lower appearance self-esteem. Contrary to predictions, none of the interaction terms contributed significantly to the model ( $ps >.58$ ).

Table 6

*Predictors of Appearance Self-Esteem (N=237)*

		<i>SE b</i>	<i>b</i>	$\beta$	<i>t</i>	<i>Sig.</i>
Step	Variables Entered					
I.	Constant	2.62	9.12	-	3.48	.001
	RSES	0.06	0.45	0.42	7.24	.000
	BDI (SQRT)	0.24	-0.86	-0.21	-3.61	.000
	BMI (Inverse)	27.41	185.73	0.32	6.78	.000
	ASI-R	0.41	-1.58	-0.19	-3.81	.000
II.	Constant	2.70	9.49	-	3.51	.001
	RSES	0.06	0.46	0.43	7.24	.000
	BDI (SQRT)	0.23	-0.81	-0.20	-3.48	.001
	BMI (Inverse)	33.87	151.56	0.26	4.48	.000
	ASI-R	0.43	-1.14	-0.13	-2.64	.009
	Condition	0.47	-1.40	-0.15	-2.97	.003
	Dietary Restraint	0.07	-0.13	-0.16	-1.93	.055
	Weight Teasing	1.42	0.97	0.06	0.68	.497
	(Log)					
	Condition x Teasing	1.96	-1.06	-0.04	-0.54	.589
	(Log)					
	Condition x	0.09	-0.01	-0.01	-0.14	.893
	Restraint					
	Condition x Teasing	0.25	-0.03	-0.01	-0.11	.911
	(Log) x Restraint					

### *Fear of Negative Appearance Evaluation*

The third regression examined predictors of fear of negative appearance evaluation (see Table 7). BMI was not significantly correlated with fear of negative appearance evaluation (see Table 4), and was not included in the regression. Age, socially desirable responding, and participant claims that they knew the hypotheses of the study and/or that the study was about body image while reading the articles, were not found to be significant covariates, and they were removed from the regression. After the three initially identified multivariate outliers were removed, an additional multivariate outlier was identified based on a Mahalanobis distance with a value greater than the cut-off determined using the Chi squared distribution for 9 predictors at the .001 significance level. Removal of this additional outlier did not change the results of the regression, so the case was not deleted (Tabachnick & Fidell, 2007). The total  $N$  for this regression was 236, because one participant failed to complete the entire FNAES scale and was thus excluded from the regression.

With only the covariates included in the model (ASIR, BDI, RSES), the model was significant ( $F= 73.49, p < .001$ ), and accounted for 48.7% of the variance in fear of negative appearance evaluation. Once all of the variables were included in the model, the model significantly predicted fear of negative appearance evaluation ( $F= 3.50, p = .002$ ), and accounted for an additional 4.4% of the variance. The complete model accounted for 53.1% of the variance in fear of negative appearance evaluation.

Each predictor was then examined to determine whether it contributed significantly to the model (see Table 5). All of the covariates contributed significantly to the model ( $ps < .05$ ). As predicted, experimental condition significantly predicted fear of negative appearance evaluation ( $t=2.47, p=.014$ ), with participants in the experimental

condition reporting a greater fear of negative appearance evaluation than did participants in the control condition. The squared partial correlation between experimental condition and fear of negative appearance evaluation was .026, which is defined by Cohen (1988) as a small effect size. History of weight related teasing also contributed significantly to the model, ( $t=2.38, p=.018$ ), with participants who scored higher on history of weight-related teasing reporting a greater fear of negative appearance evaluation. Contrary to predictions, none of the interaction terms contributed significantly to the model ( $ps > .27$ ).

Table 7

*Predictors of Fear of Negative Appearance Evaluation (N=236)*

		<i>SE b</i>	<i>b</i>	$\beta$	<i>t</i>	<i>Sig.</i>
Step	Variables Entered					
I.	Constant	3.00	1.73	-	0.58	.564
	RSES	0.08	-0.31	-0.24	-4.01	.000
	BDI (SQRT)	0.30	0.64	0.13	2.17	.031
	ASI-R	0.51	5.70	0.54	11.14	.000
II.	Constant	2.99	0.90	-	0.30	.764
	RSES	0.08	-0.26	-0.19	-3.26	.001
	BDI (SQRT)	0.29	0.60	0.12	2.06	.041
	ASI-R	0.52	5.41	0.51	10.47	.000
	Condition	0.58	1.44	0.12	2.47	.014
	Dietary Restraint	0.08	0.07	0.07	0.84	.402
	Weight Teasing	1.79	4.26	0.20	2.38	.018
	Condition x Teasing	2.45	-1.15	-0.04	-0.47	.639
	(Log)					
	Condition x	0.11	-0.09	-0.06	-0.76	.448
	Restraint					
	Condition x Teasing	0.31	-0.34	-0.06	-1.10	.271
	(Log) x Restraint					

### *Anti-Fat Attitudes*

The fourth regression examined predictors of anti-fat attitudes (see Table 8). Body image investment, depression, and trait self-esteem were not significant covariates, and therefore were removed from the regression. After the three initially identified multivariate outliers were removed, three additional multivariate outliers (cases 92, 193, and 225) were identified based on Mahalanobis distances with values greater than the cut-off determined using the Chi Squared distribution for 8 predictors at the .001 significance level. Removal of these additional outliers altered the results of the regression, indicating that they were in fact influential cases, so they were excluded from the final regression model (Tabachnick & Fidell, 2007).

With only the covariates included in the model (BMI and Marlowe-Crowne scale of socially desirable responding), the model was significant ( $F= 15.20, p <.001$ ), and accounted for 11.6% of the variance in anti-fat attitudes. Once all of the variables were included in the model, the model again significantly predicted anti-fat attitudes ( $F= 3.50, p =.002$ ), and accounted for an additional 5.3% of the variance. The complete model accounted for 16.9% of the variance in anti-fat attitudes.

Each predictor was then examined to determine whether it contributed significantly to the model (see Table 6). All of the covariates contributed significantly to the model ( $ps \leq .001$ ). Experimental condition significantly predicted anti-fat attitudes ( $t=-2.04, p=.042$ ). However, unexpectedly, participants in the experimental condition reported lower anti-fat attitudes than did participants in the control condition. This finding is the opposite of what was predicted. The squared partial correlation between experimental condition and anti-fat attitudes was .018, which is defined by Cohen (1988)

as a small effect size. Also in contrast to what was hypothesized, none of the interaction terms contributed significantly to the model ( $p > .18$ ).



Table 8

*Predictors of Anti-Fat Attitudes (N=234)*

		<i>SE b</i>	<i>b</i>	$\beta$	<i>t</i>	<i>Sig.</i>
Step	Variables Entered					
I.	Constant	0.11	1.65	-	14.71	.000
	BMI (Inverse)	2.54	8.08	0.22	3.58	.000
	Marlowe-Crowne	.01	-.024	-0.22	-3.84	.000
II.	Constant	0.13	1.55	-	11.76	.000
	BMI (Inverse)	2.65	10.74	0.30	4.05	.000
	Marlowe-Crowne	0.01	-0.02	-0.22	-3.40	.001
	Condition	0.04	-0.08	-0.14	-2.04	.042
	Dietary Restraint	0.01	0.01	0.12	1.01	.315
	Weight Teasing	0.12	-0.15	-0.14	-1.28	.202
	(Log)					
	Condition x Teasing	0.17	0.23	0.14	1.34	.182
	Condition x	0.01	0.01	0.08	0.73	.465
	Restraint					
	Condition x Teasing	0.02	0.02	0.06	0.83	.409
	(Log) x Restraint					

### *Negative Affect*

The fifth regression examined predictors of negative affect (see Table 9). BMI was not significantly correlated with negative affect (see Table 4) and was not included in the regression. Body image investment, socially desirable responding, and trait self-esteem were not found to be significant covariates, and were removed from the regression. After the three initially identified multivariate outliers were removed, six additional multivariate outliers (cases 5, 92, 110, 140, 223, and 225) were identified based on Mahalanobis distances with values greater than the cut-off determined using the Chi squared distribution for 8 predictors at the .001 significance level. Removal of these additional outliers altered the results of the regression, indicating that they were influential cases. Therefore, they were excluded the final regression model (Tabachnick & Fidell, 2007).

With only the covariates included in the model (age and depression), the model was significant ( $F= 26.23, p <.001$ ), and accounted for 18.6% of the variance in negative affect. The addition of experimental condition, dietary restraint, history of weight-related teasing, and their interaction terms did not contribute significantly to the model ( $F= 0.76, p =.603$ ), and only accounted for an additional 1.6% of the variance. The complete model accounted for 20.3% of the variance in negative affect. Only the covariates consisting of age and depression contributed significantly to the model ( $ps <.01$ ).

Table 9

*Predictors of Negative Affect (N=231)*

		<i>SE b</i>	<i>b</i>	$\beta$	t	Sig.
Step	Variables Entered					
I.	Constant	0.01	0.08	-	13.16	.000
	BDI (SQRT)	0.00	-0.01	-0.38	-6.28	.000
	Age	0.00	0.00	0.16	2.88	.004
II.	Constant	0.01	0.08	-	12.53	.000
	BMI (Inverse)	0.00	-0.01	-0.35	-5.48	.000
	Marlowe-Crowne	0.00	0.00	0.16	2.65	.008
	Condition	0.00	-0.00	-0.03	-0.47	.636
	Dietary Restraint	0.00	0.01	0.10	0.89	.376
	Weight Teasing	0.01	0.00	-0.19	-1.67	.097
	(Log)					
	Condition x Teasing	0.01	-0.01	0.04	0.39	.698
	Condition x	0.00	0.00	-0.07	-0.60	.549
	Restraint					
	Condition x Teasing	0.01	0.00	0.06	0.78	.436
	(Log) x Restraint					

Table 10

*Summary of Hypotheses, Statistical Procedures, and Results*

Hypothesis	Statistical Procedure(s) – Hierarchical Regression			Results
	Dependent Variable	Significant Covariates	Predictor of Interest	
1. Women exposed to weight-based derogatory media were predicted to report lower body image satisfaction and appearance self-esteem, and greater negative affect and fear of negative appearance evaluation than women exposed to neutral magazine articles.	Body Image Satisfaction = Regression # 1	Trait Self-Esteem, Depression, BMI, Body Image Investment	Condition	Lower body image satisfaction in the experimental condition
	Appearance Self-Esteem = Regression #2	Trait Self-Esteem, Depression, BMI, Body Image Investment	Condition	Lower appearance self-esteem in the experimental condition
	Fear of Negative Appearance Evaluation = Regression # 3	Trait Self-Esteem, Depression, Body Image Investment	Condition	Greater fear of negative appearance evaluation in the experimental condition
	Negative Affect = Regression # 5	Age, Depression	Condition	Non-significant
2. Following exposure to weight-based derogatory media, women with a greater history of weight related teasing were predicted to report lower body image satisfaction and appearance self-esteem, and greater negative affect and fear of negative appearance evaluation than women with a less extensive history of weight-based teasing.	Body Image Satisfaction = Regression # 1	Trait Self-Esteem, Depression, BMI, Body Image Investment	Condition x Teasing	Non-significant
	Appearance Self-Esteem = Regression #2	Trait Self-Esteem, Depression, BMI, Body Image Investment	Condition x Teasing	Non-significant
	Fear of Negative Appearance Evaluation = Regression # 3	Trait Self-Esteem, Depression, Body Image Investment	Condition x Teasing	Non-significant
	Negative Affect = Regression # 5	Age, Depression	Condition x Teasing	Non-significant
3. Following exposure to weight-based derogatory media, participants who scored higher in dietary restraint were predicted to report lower body image satisfaction and appearance self-esteem, as well as greater negative affect and fear of negative appearance evaluation compared to both unrestrained eaters in the	Body Image Satisfaction = Regression # 1	Trait Self-Esteem, Depression, BMI, Body Image Investment	Condition x Restraint	Non-significant
	Appearance Self-Esteem = Regression #2	Trait Self-Esteem, Depression, BMI, Body Image Investment	Condition x Restraint	Non-significant
	Fear of Negative Appearance Evaluation = Regression # 3	Trait Self-Esteem, Depression, Body Image Investment	Condition x Restraint	Non-significant

derogatory media condition, and restrained eaters in the neutral media condition.	Negative Affect = Regression # 5	Age, Depression	Condition x Restraint	Non-significant
4. Following exposure to weight-based derogatory media, participants with higher scores on dietary restraint and history of weight-related teasing were predicted to report the lowest levels of body image satisfaction and appearance self-esteem, and the highest levels of negative affect and fear of negative appearance evaluation.	Body Image Satisfaction = Regression # 1	Trait Self-Esteem, Depression, BMI, Body Image Investment	Condition x Teasing x Restraint	Non-significant
	Appearance Self-Esteem = Regression #2	Trait Self-Esteem, Depression, BMI, Body Image Investment	Condition x Teasing x Restraint	Non-significant
	Fear of Negative Appearance Evaluation = Regression # 3	Trait Self-Esteem, Depression, Body Image Investment	Condition x Teasing x Restraint	Non-significant
	Negative Affect = Regression # 5	Age, Depression	Condition x Teasing x Restraint	Non-significant
5. Women who were exposed to the weight-based derogatory media were expected to report greater anti-fat attitudes than women in the neutral media condition.	Anti-Fat Attitudes = Regression #4	BMI, Socially Desirable Responding	Condition	Contrary to predictions, participants in the experimental condition reported lower anti-fat attitudes than participants in the control condition.
6. Participants who scored higher on dietary restraint were expected to report greater anti-fat attitudes.	Anti-Fat Attitudes = Regression #4	BMI, Socially Desirable Responding	Restraint	Non-significant
7. Restrained eaters in the weight-based derogatory condition were expected to report greater anti-fat attitudes than both restrained eaters in the control condition, and unrestrained eaters in the experimental condition.	Anti-Fat Attitudes = Regression #4	BMI, Socially Desirable Responding	Condition x Restraint	Non-significant

## DISCUSSION

### *Hypothesis 1*

The first hypothesis of this study stated that women exposed to weight-based derogatory media would report lower body image satisfaction and appearance self-esteem, and greater negative affect and fear of negative appearance evaluation than would women exposed to neutral magazine articles. This hypothesis was mainly supported. Women in the experimental condition reported lower body image satisfaction and appearance self-esteem, and greater fear of negative appearance evaluation than did women in the neutral media condition. However, there were no differences in negative affect between participants in the control and experimental conditions.

This is the first study to find that exposure to weight-based derogatory media has a negative impact on how satisfied women are with their bodies and how concerned they are about being judged negatively by others on the basis of appearance. Thus far, researchers had only investigated the impact of media that glorifies thinness on the body image dissatisfaction so prevalent among girls and women in North America (Ricciardelli & McCabe, 2004; Rodin et al., 1984; Bearman et al., 2006; Monteath & McCabe, 1997), but this study provides the first evidence that media that glorifies thinness through denigrating fat may also be contributing to this so called “normative” body discontent.

The absence of an effect of experimental condition on negative affect, while unexpected, is similar to the pattern of findings reported by Stice, Maxfield, and Wells (2003). The researchers found that women who were exposed to social pressure to be thin through conversation with a confederate who engaged in self-derogation regarding her weight, reported lower body image satisfaction than did women in the control condition. However, this manipulation had no effect on negative affect. Stice et al. (2003) suggested

that one possible interpretation of these findings was that exposure to social pressure to be thin may not contribute significantly to the development of affective disturbances.

However, there exists substantial research in the literature in which social pressure to be thin in the form of exposure to thin-ideal media has been found to lead to increased negative mood (Cattarin et al., 2000; Durkin & Paxton, 2002; Pinhas, Toner, Ali, Garfinkel, & Stuckless, 1999; Stice & Shaw, 1994; Tiggeman & McGill, 2004). Thus, if social pressure to be thin stemming from peers is unrelated to affective disturbances, it suggests that either peer pressure to be thin differs from media pressure to be thin in its effects on mood, or previously reported relationships between media pressure to be thin and negative affect may be the product of a shared third variable. Similarly, one possible interpretation of the current findings is that exposure to media that pressures women to be thin through denigrating fat, unlike other types of thin-ideal promoting media, does not impact mood or contribute to affective disturbances. However, it remains unclear why weight-based derogatory media would be different from other thin-ideal promoting media in its impact on mood.

An alternative explanation of the null findings for negative affect evinced by Stice et al. (2003) was that their experimental manipulation might have been too subtle to produce changes in affect. This is a plausible explanation because etiological theory suggests that social pressure to be thin (originating from family, peers, or media sources) directly increases body dissatisfaction, which in turn promotes negative affect (Stice et al., 2003; Stice, 2001). Based on this model, negative affect is a more distal consequence of pressure to be thin than is body image dissatisfaction, and therefore a stronger experimental manipulation might produce changes in both body image satisfaction and negative affect. This explanation is equally applicable to the current findings. The weight-

based derogatory media employed in the current study, although based on real-world media examples, could be considered rather tame in comparison to many other print-based examples of weight-based derogatory media. In order to ensure that the same images could be used in both the control and experimental conditions without compromising the believability of the articles in the control condition, the images that were selected were not as unflattering as many of the images typically used in this type of media. These images often feature women with exposed skin sitting or standing in a position that accentuates any cellulite or other fat deposits that are visible. In the images employed in the current study, only one female celebrity had exposed legs with visible cellulite. The remaining images were of women who were fully clothed, and none of the images featured women in particularly unflattering body positions. Additionally, the text accompanying especially unflattering images tends to be much more scathing than the comments employed in the current study, which included statements about women having a “muffin top”, a “touch of cellulite”, and needing to work out more to lose weight. Perhaps the use of a stronger experimental manipulation using this particularly harsh derogatory media would produce the hypothesized effects on negative affect. Also, a stronger manipulation may have produced stronger main effects on the body image variables. As such, the current study should be considered a somewhat conservative test of the effects of weight-based derogatory media.

### *Hypothesis 2*

Hypothesis 2 stated that following exposure to weight-based derogatory media, women with a greater history of weight related teasing would report lower body image satisfaction and appearance self-esteem, and greater negative affect and fear of negative appearance evaluation than would women with a less extensive history of weight-based



teasing. This hypothesis was completely unsupported. History of weight-related teasing did not have a significant effect on women's responses to the weight-based derogatory media. These results cannot be explained by inadequate power. A post-hoc power analysis revealed that power to detect an interaction was 0.95. One interpretation of these findings is that teasing is not a powerful factor affecting women's responses to weight-based derogatory media.

Another possible explanation of these results comes from the low frequency of teasing experiences that were reported by participants. Approximately 44% of the participants in the study reported they had never been teased, and only 13% of the sample scored at or above the midpoint on the scale. This finding is similar to other studies that have investigated history of weight related teasing (e.g. Furman & Thopmson, 2002). It is possible that weight-based derogatory media does have a more negative impact on individuals with a substantial history of weight-based teasing. However, because too few participants reported such a teasing history, an internal analysis including only the individuals who reported a history of weight-related teasing could not be conducted. In future studies, it may be helpful to target a sample with a greater likelihood of weight-based teasing and limit analyses to people reporting a history of weight-related teasing.

A final possible explanation of the null findings stems from the measurement of weigh-related teasing. The POTS, which was used to measure history of weigh-related teasing, does not distinguish between teasing that occurred during childhood and adolescence. However, Eisenberg and colleagues (2006) found that early weight teasing that did not cause early emotional damage and did not continue into middle or later adolescence did not impact later body image and emotional wellbeing. In contrast, weight-based teasing occurring during middle and later adolescence was related to

significantly greater body image dissatisfaction and depressive symptoms, and lower self-esteem. Thus, individuals who experienced only early teasing, without substantial emotional upset, might not be expected to be more adversely effected by weight-based derogatory media than persons without such a teasing history. Unfortunately, because age when teasing occurred was not measured in this study, in combination with the low frequency of teasing reported by study participants, it was impossible to test the hypothesis that weight-related teasing measured only for the period of middle adolescence to young adulthood may moderate exposure to weight-based derogatory media.

### *Hypothesis 3*

Hypothesis 3 stated that following exposure to weight-based derogatory media, participants who scored higher in dietary restraint would report lower body image satisfaction and appearance self-esteem, as well as greater negative affect and fear of negative appearance evaluation compared to both unrestrained eaters in the derogatory media condition, and restrained eaters in the neutral media condition. None of these hypotheses were supported. Dietary restraint did not have a significant impact on women's responses to the weight-based derogatory media. These results suggest that dietary restraint may not be an important moderator of exposure to weight-based derogatory media. However, it is also possible that the experimental manipulation was not strong enough to evoke a heightened negative response from dieters. Similar to previous research findings, restrained eaters in the present study had greater body mass indexes ( $r=.48, p<.01$ ), and reported lower body image satisfaction and appearance self-esteem than did unrestrained eaters (e.g. McFarlane et al., 2001; Cachelin et al., 1997; Heatherton et al., 1991). Additionally, previous research has demonstrated that restrained eaters are

more likely to focus on weight-related information (King et al., 1991) and to attribute romantic failure to overweight status (Jarry et al., 2006). Consequently, it is possible that restrained eaters chronically perceive a greater number of weight-related derogatory messages, and the rather mild derogatory messages presented in the experimental condition were not processed as a potential dreaded nightmare scenario, but rather as a more commonplace reminder of the thin-ideal that they fail to meet.

#### *Hypothesis 4*

Hypothesis 4 stated that following exposure to weight-based derogatory media, participants with higher scores on dietary restraint and history of weight-related teasing would report the lowest levels of body image satisfaction and appearance self-esteem, and the highest levels of negative affect and fear of negative appearance evaluation. This hypothesis was completely unsupported. The possible interpretations and explanations of the separate null interaction effects for weight-related teasing and dietary restraint that were put forth in the previous sections may also account for the non-significant three-way interaction. While one interpretation of these results is that individuals who are high on both dietary restraint and history of weight-related teasing are not more adversely effected by weight-based derogatory media than are women who are low on these factors, the strength of the experimental manipulation, the measurement of weight-related teasing, and the low frequency of teasing reported in the sample may also have contributed to this null finding.

#### *Hypothesis 5*

This hypothesis stated that women who were exposed to the weight-based derogatory media would report greater anti-fat attitudes than would women in the neutral media condition. There was a small effect of experimental condition on anti-fat attitudes,

but contrary to predictions, women in the derogatory media condition reported lower anti-fat attitudes than did women in the control condition. These findings suggest that exposure to weight-based derogatory media that targets average weight women results in small decreases in women's anti-fat attitudes, at least in the short term. However, it is important to note that anti-fat attitudes were measured through an explicit self-report measure rather than an implicit measure that assesses automatic anti-fat attitudes. While previous studies have found that overweight individuals are one of the last socially acceptable targets of ridicule (Puhl & Heuer, 2009), and numerous studies have demonstrated that people of varying ages and body sizes explicitly endorse anti-fat attitudes (e.g. Brochu & Morrison, 2007; Crandall, 1994; Schwartz et al., 2006), it is possible that exposure to the experimental condition may have made participants uncomfortable explicitly reporting the same anti-fat attitudes espoused by media that had negatively impacted their own body image and self-esteem, and thus the decrease in explicit anti-fat attitudes may have been defensive.

Very recently published research by Brochu, Gawronski, and Esses (2011) on implicit and explicit anti-fat attitudes provides direct support for this possible interpretation of the findings. The researchers investigated how general motivation to appear nonprejudiced, and the specific perception that overweight people are the targets of discrimination, affects the relationship between implicit and explicit anti-fat attitudes. Explicit anti-fat attitudes were assessed with the Dislike subscale of Crandall's (1994) Anti-Fat Attitudes Scale, while implicit attitudes were assessed through a sequential priming task. The researchers found that stronger implicit anti-fat attitudes led to decreased explicit anti-fat attitudes among those who endorsed a personal goal of appearing nonprejudiced and who perceived the overweight to be the targets of systematic

discrimination. However, implicit anti-fat attitudes were positively related to explicit anti-fat attitudes among those who endorsed a goal of being non-prejudiced but did not perceive systematic discrimination, and among participants who perceived the overweight to be targets of discrimination but did not endorse a personal goal of appearing nonprejudiced. In the current study, it is quite plausible that exposure to the weight-based derogatory media may have temporarily increased participants' goals of appearing nonprejudiced (both to themselves and others), as well as their perceptions of overweight individuals as the targets of discrimination. Thus, if the findings produced by Brochu et al. (2011) had been available at the outset of the study, lower explicit anti-fat attitudes may have been predicted for participants in the weight-based derogatory media condition. Unfortunately, the current findings cannot speak to the impact of weight-based derogatory media on women's implicit anti-fat attitudes, or to the long-term effects of exposure to such media. However, the results from Brochu et al. suggest that the finding that exposure to weight-based derogatory media targeting average weight women was related to decreased explicit anti-fat attitudes among women should not be interpreted as evidence that fat stigmatizing media does not contribute to the development of anti-fat attitudes. Further research into the impact of weight-based derogatory media on both implicit and explicit anti-fat attitudes is required to fully address that research question.

#### *Hypotheses 6 and 7*

Hypotheses 6 and 7 stated that participants who scored higher on dietary restraint would report greater anti-fat attitudes, and that restrained eaters in the weight-based derogatory condition would report greater anti-fat attitudes than both restrained eaters in the control condition, and unrestrained eaters in the experimental condition. Neither of these hypotheses was supported. These results suggest that restrained eaters do not hold

greater anti-fat attitudes than individuals who score lower on dietary restraint, and that restrained eaters' attitudes towards overweight people are not more susceptible to influence from weight-based derogatory media than are the attitudes of unrestrained eaters.

Given the lack of research investigating the relationship between dietary restraint and anti-fat attitudes, these predictions were primarily based on research by Vartanian et al. (2006), who found that restrained eaters endorsed stronger explicit negative attitudes and beliefs about fatness than did unrestrained eaters. Extrapolating from this information, I predicted that restrained eaters might be particularly susceptible to anti-fat media messages that correspond with their greater pre-existing anti-fat attitudes. However, subsequent examination of how attitudes towards fatness were measured in the study by Vartanian et al. revealed that the researchers employed the three-item Fear of Fat subscale from Crandall's (1994) Anti-Fat Attitudes Scale, in addition to one item ("I am preoccupied with a desire to be thinner") taken from the Eating Attitudes Test (Garner, Olmsted, Bohr, & Garfinkel, 1982), and another item constructed by the researchers ("Thinness is something people should strive for"). In contrast to the items used in the current study, which addressed dislike for overweight individuals and beliefs about the ease with which weight can be controlled, these items addressed personal fear of weight gain and a more general belief in the importance of thinness. Given that the study by Vartanian et al. was not addressing attitudes towards overweight individuals, it is less surprising that the hypotheses about anti-fat attitudes among participants who were high in dietary restraint were unsupported. While, compared to unrestrained eaters, restrained eaters may have greater negative attitudes about personal fatness and fat in general, the

results of the current study suggest that these heightened negative attitudes do not extend to beliefs about overweight individuals.

#### *Limitations of the Current Study*

In addition to the limitations previously discussed regarding the strength of the experimental manipulation, the small number of participants reporting a history of weight-related teasing, and the measurement of history of weight-related teasing and anti-fat attitudes, another limitation of this study was the composition of the sample. The majority of participants were Caucasian university students in their third, fourth, or fifth year of studies, who were majoring in psychology. This very specific sample limits the generalizability of the findings, and may even have contributed to the null findings for negative affect, and the absence of interactions between exposure to derogatory media and history of weight-related teasing and dietary restraint. Since the majority of the sample was not only highly educated, but also familiar with psychological concepts, participants may have been able to leverage knowledge and techniques gained in their studies to help protect against the adverse effects of the media exposure. A second limitation of this study is the reliance on self-report measures. It would be useful if future experiments employed physiological and behavioural measures of the outcomes (e.g. observer ratings of affect and participant behaviour during a subsequent interaction with a peer). One particularly poignant example of the utility of including behavioural measures comes from Aubie and Jarry (2009), who found that exposing groups of binge eaters and non binge eaters to vignettes depicting weight-related teasing of another female resulted in increased negative affect among both groups, and an increase in eating only among the binge eating group. Thus, while exposure to the weight-based teasing vignettes did not

have a greater adverse impact on mood, the behavioural measure was able to capture the greater deleterious consequences of weight-based teasing among binge eaters.

Finally, another limitation of this study was the artificial nature of the exposure to the magazine articles. Participants spent 15 minutes reading and trying to remember the articles in the study. While this procedure was employed to maintain the believability of the cover story and to ensure all participants were exposed to the materials for the same amount of time, this method is not representative of how women would typically read magazine articles. Furthermore, given that exposure to this type of print-based derogatory media requires women to actively engage in reading specific types of publications, it is very likely that some women avoid consuming this type of media. During the debriefing process a number of women voiced opinions that they despise this type of media and refuse to read articles in magazines or on Internet sites that derogate women. In contrast, many other women indicated that they found the study to be very interesting, and that they enjoy reading tabloid articles about celebrities. Using this type of experimental manipulation lacked external validity because it forced all participants assigned to the experimental manipulation to read the derogatory articles, even though in a naturalistic setting a subset of these women would actively avoid this type of media. This may have resulted in an underestimate of the adverse effects of weight-based derogatory media as women who actively avoid this type of media may have a greater understanding of both the message put forth by this media and its potential negative impact, such that when they are exposed to this media they may be able to use this knowledge to protect themselves against any adverse effects.



### *Implications and Suggestions for Future Research*

The current findings have several implications for theory, prevention, and future research. These results provide preliminary experimental evidence that, similar to thin-ideal media that glorify thinness, weight-based derogatory media also promotes body image dissatisfaction. Furthermore, these results support expanding the definition of thin-ideal media to include both media that glorifies thinness, and media that denigrates fat. Future research should attempt to replicate the findings regarding the adverse effect of weight-based derogatory media on women. It might be particularly useful to employ a more powerful manipulation in order to maximize the ability to detect effects on outcome variables such as negative affect, as well as potential moderators, such as dietary restraint. In particular, using images of women with exposed skin in particularly unflattering body positions accompanied by scathing comments about weight and shape would constitute a more powerful manipulation, and might produce more deleterious effects.

Subsequent investigations should explore other potential vulnerability factors and mitigating factors of exposure to weight-based derogatory media. Two potential moderators of exposure to weight-based derogatory media are social comparison tendency and body image investment. Shomaker and Furman (2007) investigated the impact of vicarious exposure to weight-based derogatory comments on women's body image satisfaction and mood. While there was no main effect of experimental condition, the researchers found that women who were high in social comparison tendency and body image investment reported lower body image satisfaction after vicarious exposure to peer pressure to be thin. Thus, if witnessing other women engage in a derogatory conversation about weight and shape has a greater negative impact on body image satisfaction among women who make more frequent social comparisons and women who are more heavily

invested in their appearance, these variables may also moderate the impact exposure to weight-based derogatory media. Further support for the importance of investigating body image investment as a potential moderator comes from Ip & Jarry (2007), who found that women who were high in body image investment reported lower appearance self-esteem and greater body image importance following exposure to thin-ideal media. Furthermore, in the current study body image investment was included as a covariate in regression analyses and was significantly related to lower body image satisfaction and appearance self-esteem, as well as greater fear of negative appearance evaluation. Similar to the findings of Ip and Jarry (2007) and Shomaker and Furman (2007), women reporting greater body image investment in the current study may have been more negatively impacted by the weight-based derogatory media. Because body image investment was not originally predicted to moderate this relationship, it was not tested as such. However, post hoc analyses will be conducted to investigate body image investment as a potential moderator.

Another direction for future studies would be to investigate different forms of weight-based derogatory media, such as exposure to television clips, movie clips, and commercials that feature weight-based teasing. Additionally, it should be noted that unlike the study conducted by Geier and colleagues (2003), which found that exposure to weight loss ads including before and after photos of women resulted in increased explicit anti-fat attitudes, the current study only included images of average weight women. It is possible that the size of the woman targeted in fat stigmatizing media may be an important factor in determining the effect on anti-fat attitudes. Consequently, future studies should investigate the effects of media that targets women who are actually

overweight. Exposure to this type of media may have a stronger impact on anti-fat attitudes, which should be assessed using both explicit and implicit measures.

To correct for one of the major limitations of the current study, it will be important for future investigations to utilize more diverse, community-based samples. It is entirely possible that women with less knowledge of psychological constructs will be more vulnerable to this type of derogatory media. Finally, in order to increase external validity, it may be fruitful to investigate the effects of print-based fat stigmatizing media on women who are actually regular consumers of this type of media.

In terms of prevention implications, these results suggest that interventions that decrease vulnerability to weight-based derogatory media may help reduce the risk for body image disturbances, which may in turn reduce the risk for eating disturbances, given that body image dissatisfaction is an established risk factor for eating pathology (Johnson & Wardle, 2005; Neumark-Sztainer et al., 2006; Cooley & Toray, 2001; Stice & Shaw, 2002; Stice et al., 1998). Specifically, media literacy programs aimed at making individuals more resilient to media pressure to be thin may benefit from including strategies that target weight-based derogatory media. Programs that have attempted to increase youth resiliency to thin-ideal media have had promising effects (e.g. Irving, DuPen, & Berel, 1998), and broadening the type of media addressed in these programs to include fat stigmatizing media may increase program effectiveness.

### *Conclusions*

Since past research has not experimentally addressed the possible negative impact of weight-based derogatory media, the current study used a randomized experiment to explore the effects of print-based fat stigmatizing media that targeted average weight female celebrities. Results indicated that exposure to weight-based derogatory media

resulted in decreased body image satisfaction and appearance self-esteem, and increased fear of negative appearance evaluation. However, results suggested that weight-based derogatory media did not increase negative affect. Also, contrary to expectations, weight-based derogatory media exposure led to decreased explicit anti-fat attitudes. It is important to note, however, that exposure to the derogatory media may have increased participants' reluctance to report explicit anti-fat attitudes, and it is uncertain how the experimental manipulation may have affected implicit anti-fat attitudes. History of weight-related teasing and dietary restraint were expected to emerge as individual vulnerability factors, but women who scored highly on these measures were not more negatively impacted by the weight-based derogatory media than were women who did not report high scores on these measures. Thus, the results provide some experimental evidence that weight-based derogatory media has adverse effects, though these effects were not as far reaching as originally expected. Future studies should investigate the possible negative effects of various types of weight-based derogatory media, and should continue to explore potential vulnerability and resiliency factors that increase or mitigate the impact of this type of media.

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## Appendix A

## PARTICIPANT POOL ADVERTISEMENT

Title of Study: The influence of publication type and individual differences on person memory

Description: The purpose of the study is to examine the factors that influence memory for information about people. The factors of interest are: (a) personality differences, and b) the type of publication used to present the information. If you volunteer to participate in this study, we would ask you to do the following things. Firstly, you will be asked to complete 4 questionnaires. Second, you will be asked to view pictures and read descriptions of five females. Next, you will complete a packet of 8 questionnaires. Finally, you will complete a multiple-choice format memory test on the information presented to you about the five target females. The study will require approximately 90 minutes to complete. Students will receive 1.5 bonus points for participation in this study.

## Appendix B

### EXPERIMENTAL MATERIALS - VIGNETTES

#### **Dannii Minogue Steps Out In An Unflattering Pair of Hotpants**

X Factor judge Dannii Minogue was spotted running errands yesterday in an unfortunate pair of hotpants that looked a size too small and gaped open at the pockets. The unflattering black and white garment clung to every lump and bump. The shorts also failed to hide what looked like a touch of cellulite on the Australian singer's thighs. It's shocking how much the star's figure has changed since she ended sessions with her long-time personal trainer, Sasha Curran. When Dannii first shot to fame she was known for her sensational legs. You would never guess that from these photos though!

#### **Dannii Minogue Is Shaken After Car Accident In East London**

Dannii Minogue was out running errands earlier this week when she hit from behind by a careless driver. Luckily, the damage to her vehicle was only minor, but the accident definitely appears to have shaken up the star. The X Factor judge appeared rather stiff as she walked towards the other driver to exchange information. Although she was uninjured, she immediately called friends to pick her up and drive her car home. However, the star was spotted yesterday out on her Vespa, so we think it's safe to assume she has gotten over her shock.

#### **L.A. Life Is Taking Its Toll On Leona Lewis' Once Stunning Figure**

X Factor winner Leona Lewis was recently spotted leaving a Starbucks in L.A. looking significantly heavier than she was 3 months ago at the Elle Style Awards. Born and raised in Hackney, East London, the former Pizza Hut waitress relocated to L.A. last year to record an album. But L.A. life appears to be taking its toll on the singer. According to close friends, Leona is so busy working she never has time to cook and has started eating out most nights. It looks like all the fast food and high calorie gourmet meals that she's been eating are starting to settle on her arms, hips and thighs. Her stretchy leggings and flowing top help to conceal the added pounds, but if she wants to fit into her sexy evening gowns Leona will definitely need to start eating better.

#### **Coffee Break for Leona Lewis**

X Factor winner Leona Lewis was recently spotted leaving a Starbucks near her recording studio in L.A. with two delicious coffees. Born and raised in Hackney, East London, the former Pizza Hut waitress relocated to L.A. last year to record an album. However, according to friends and family, the 24-year-old singer is having a very difficult time being so far away from home. Since leaving last February, Leona has returned to London three times to visit with loved ones and attend her three-year old niece's birthday party. While she has been away, Leona has made daily phone calls to her parents and boyfriend, electrician Lou Al-Chamaa. Luckily, Leona won't have to be away from her longtime

boyfriend for too much longer. Lou plans to travel to L.A next month for a two-week visit.

### **Student Life Catching Up To You, Lily? The Actress Cuts A Frumpy Figure As She Lands In Miami**

It is called the 'freshman 15' in the United States and it refers to the number of pounds students gain during their first year at university. You might expect the maxim would not apply to international stars like our very own English rose, Lily Cole. However, yesterday at Miami International Airport the flame-haired beauty cut a distinctly frumpy figure.

Lily has just completed her first year at Cambridge University, where she is studying History of Art at King's College after taking two gap years to concentrate on her acting career. But after this year's weight gain, she'll have to shape up before she's ready to reappear on-screen.

Her clearly rounder face and very noticeable muffin top gave her the appearance of someone who's munched on too many Pot Noodles. Rather than strut her stuff on the red carpet, the 22-year-old looked ready to slump on a sofa and watch Countdown. Lily, we think it's time to consider making better use of the excellent sporting facilities at King's College!

### **A Brief Reprieve From Student Life! Lily Cole Lands In Miami For A Family Vacation**

Actress Lily Cole has just completed her first year at Cambridge University, where she is studying History of Art at King's College after taking two gap years to concentrate on her acting career. After spending a year hitting the books, Lily landed at Miami International Airport yesterday to join her family on a much deserved week long vacation.

Leaving the big screen for college is a bit of an unusual choice in the entertainment world, but Lily is more traditional and down to earth than most international stars. Lily's friends report that, just like most other first year students, the 22-year-old really felt the pressure of final exams. She spent countless hours studying, and tried to de-stress by taking breaks to watch Countdown and other favourite shows.

After putting in all that hard work, we're glad to hear that this English rose is taking some time off to relax with her mother and sisters in sunny Miami. Just don't forget the sunscreen Lily!

### **No more Contact Lenses for Kim! The Singer Celebrates Her New 20/20 Vision**

*Girls Aloud* singer Kimberly Walsh has completely recovered after having laser eye surgery yesterday morning to correct her nearsightedness. Friends report that the singer wanted to have her vision corrected for years, but was too afraid of the actual procedure to have it done. Kim finally overcame her fears after being convinced by close friend



Denise Van Outen. Both Kim and Denise had their vision corrected at the popular London Vision Clinic. To celebrate, Kim threw away her last pair of contact lenses then headed out dancing with her sisters Amy and Sally at the Century Club, in Shaftesbury Avenue.

### **Running Errands Solo: Jennifer Metcalfe Is off To The Cleaners**

Jennifer Metcalfe, who plays the feisty Mercedes on the show *Hollyoaks*, was off to the dry cleaners yesterday to pick up a number of delicate frocks. Metcalfe is often seen running her own errands, typically with her dog Jasper in tow. Ever since she got the toy poodle as a puppy 4 years ago, Jen and Jasper have rarely been far apart. He even travels with her on vacation. Not to worry though, despite our initial fears about his absence from Jen's side, Jasper isn't sick. He was just at the dog groomers for the afternoon.

## Appendix C

## DEMOGRAPHIC QUESTIONNAIRE

Age: \_\_\_\_\_ Sex: \_\_\_\_\_

**Marital status:**Married/common law  Divorced/separated  Single  Widowed Number of children: 0  1  2  3  4  more than 4 **What is your ethnic background?**

Caucasian  South Asian  Hispanic

African-Canadian  European  Native-Canadian

East Asian  Other (please specify): \_\_\_\_\_

**School enrolment:** Full time student  Part time student **Years in University:**

First year  Third year  More than 4 years

Second year  Fourth year

Including your current psychology course, how many psychology courses have you taken so far? \_\_\_\_\_

What is/are your major(s)? \_\_\_\_\_

What is/are your minor(s)? \_\_\_\_\_

**If currently employed, your occupation is:**

Full time  Clerical  Labourer

Part time  Professional  Self-employed

Owner/manager  Unemployed

Other: \_\_\_\_\_

**Mother or guardian's occupation:**

Full time	<input type="checkbox"/>	Clerical	<input type="checkbox"/>	Labourer	
Part time	<input type="checkbox"/>	Professional	<input type="checkbox"/>	Self-employed	<input type="checkbox"/>
		Owner/manager	<input type="checkbox"/>	Unemployed	<input type="checkbox"/>
Other:	_____				<input type="checkbox"/>

**Father or guardian's occupation:**

Full time	<input type="checkbox"/>	Clerical	<input type="checkbox"/>	Labourer	
Part time	<input type="checkbox"/>	Professional	<input type="checkbox"/>	Self-employed	<input type="checkbox"/>
		Owner/manager	<input type="checkbox"/>	Unemployed	<input type="checkbox"/>
<input type="checkbox"/> Other:	_____				

## Appendix D

### CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: The influence of publication type and individual differences on person memory

You are asked to participate in a research study conducted by Katelyn Boersma from the psychology department at the University of Windsor. The results will contribute to a Masters thesis project supervised by Dr. Josée Jarry.

If you have any questions about the research, please feel free to contact Dr. Josée Jarry at 253-3000, ext. 2237, or via email at [jjarry@uwindsor.ca](mailto:jjarry@uwindsor.ca).

#### PURPOSE OF THE STUDY

The purpose of the study is to examine the factors that influence memory for information about people. The factors of interest are: (a) personality differences, and b) the type of publication used to present the information.

#### PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things. Firstly, you will be asked to complete 4 questionnaires. This will take approximately 10-15 minutes to complete. Afterwards, you will be asked to view pictures and read descriptions of five females for a total of 15 minutes. Next, you will complete a packet of 8 questionnaires. This will take approximately 25-30 minutes. Finally, you will have 15 minutes to complete a multiple-choice format memory test on the information presented to you about the five target females. The study will require approximately 90 minutes to complete. You will remain in this room for the duration of the study.

#### POTENTIAL RISKS AND DISCOMFORTS

You will be asked a variety of questions which may be personal in nature. A risk associated with this study is the possibility that thinking about these personal issues may raise some psychological and emotional concerns for you. If you have any concerns you wish to discuss, please feel free to contact Student Counselling Centre at 253-3000, ext. 4616.

#### POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

You will not benefit from the current study other than the opportunity to learn about and contribute to psychological research. The benefit to society is increasing scientific knowledge in the area of person memory.

#### COMPENSATION FOR PARTICIPATION

You will not receive any monetary payment for your participation. You will, however, receive 1.5 bonus marks toward a psychology course of your choice, as long as the instructor is providing an opportunity to earn bonus points.

#### CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Any information you provide will be used for research purposes only, which may eventually include publication in a research article. You will only be required to put your name on the consent form. You do not have to put your name on any of the questionnaires you fill out. The consent forms and the data will be stored separately in locked filing cabinets. The data will be destroyed five years after the publication of work associated with this research.

#### PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without any consequences of any kind. You may exercise the option of removing your data from the study. You may also refuse to answer any questions you do not want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise that warrant doing so.

#### FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Research findings for this study will be available to participants in September 2011. Results will be posted on the University of Windsor REB website: [www.uwindsor.ca/reb](http://www.uwindsor.ca/reb)

#### SUBSEQUENT USE OF DATA

This data will not be used in subsequent studies.

#### RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. This study has been reviewed and received ethics clearance through the University of Windsor Research Ethics Board. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: [ethics@uwindsor.ca](mailto:ethics@uwindsor.ca)

#### SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study “The influence of publication type and individual differences on person memory” as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

\_\_\_\_\_  
Name of Subject

\_\_\_\_\_  
Signature of Subject

\_\_\_\_\_  
Date

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

\_\_\_\_\_  
Signature of Investigator

\_\_\_\_\_  
Date

## Appendix E

### LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: The influence of publication type and individual differences on person memory

You are asked to participate in a research study conducted by Katelyn Boersma from the psychology department at the University of Windsor. The results will contribute to Katelyn Boersma's Masters thesis project, supervised by Dr. Josée Jarry.

If you have any questions about the research, please feel free to contact Dr. Josée Jarry at 253-3000, ext. 2237, or via email at [jjarry@uwindsor.ca](mailto:jjarry@uwindsor.ca).

#### PURPOSE OF THE STUDY

The purpose of the study is to examine the factors that influence memory for information about people. The factors of interest are: (a) personality differences, and b) the type of publication used to present the information.

#### PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things. Firstly, you will be asked to complete 4 questionnaires. This will take approximately 10-15 minutes to complete. Afterwards, you will be asked to view pictures and read descriptions of five females for a total of 15 minutes. Next, you will complete a packet of 8 questionnaires. This will take approximately 25-30 minutes. Finally, you will have 15 minutes to complete a multiple-choice format memory test on the information presented to you about the five target females. The study will require approximately 90 minutes to complete. You will remain in this room for the duration of the study.

#### POTENTIAL RISKS AND DISCOMFORTS

You will be asked a variety of questions which may be personal in nature. A risk associated with this study is the possibility that thinking about these personal issues may raise some psychological and emotional concerns for you. If you have any concerns you wish to discuss, please feel free to contact Student Counselling Centre at 253-3000, ext. 4616.

#### POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

You will not benefit from the current study other than the opportunity to learn about and contribute to psychological research. The benefit to society is increasing scientific knowledge in the area of person memory.

#### COMPENSATION FOR PARTICIPATION

Participants will receive 1.5 bonus points for 90 minutes of participation towards the psychology participant pool, if registered in the pool and enrolled in one or more eligible courses.

#### CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Any information you provide will be used for research purposes only, which may eventually include publication in a research article. You will only be required to put your name on the consent form. You do not have to put your name on any of the questionnaires you fill out. The consent forms and the data will be stored separately in locked filing cabinets. The data will be destroyed five years after the publication of work associated with this research.

#### PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without any consequences of any kind. You may exercise the option of removing your data from the study. You may also refuse to answer any questions you do not want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise that warrant doing so.

#### FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Research findings for this study will be available to participants in September 2012. Results will be posted on the University of Windsor REB website: [www.uwindsor.ca/reb](http://www.uwindsor.ca/reb)

#### SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

#### RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. This study has been reviewed and received ethics clearance through the University of Windsor Research Ethics Board. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: [ethics@uwindsor.ca](mailto:ethics@uwindsor.ca)

#### SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

---

Signature of Investigator

---

Date



## Appendix F

## MEMORY TEST – CONTROL CONDITION

1. Before she became famous, Leona Lewis worked as a \_\_\_\_\_.
  - a) Pizza Hut waitress
  - b) Golf instructor
  - c) McDonald's employee
  - d) Teacher
  
2. Leona Lewis was spotted leaving \_\_\_\_\_.
  - a) Pizza Hut
  - b) The Gap
  - c) Starbucks
  - d) Her home
  
3. Leona Lewis was born and raised in \_\_\_\_\_.
  - a) Hackney, East London
  - b) North London
  - c) Scotland
  - d) Ireland
  
4. Leona Lewis' boyfriend works as a(n) \_\_\_\_\_.
  - a) Lawyer
  - b) Chef
  - c) Electrician
  - d) Doctor
  
5. Leona Lewis appeared on which television show:
  - a) X Factor
  - b) Pop Idol
  - c) The Apprentice UK
  - d) Britain's Next Top Model
  
6. Dani Minogue was recently involved in:
  - a) A car accident
  - b) A motor boating accident
  - c) A motorcycle accident
  - d) A sailboat accident
  
7. The damage to her mode of transportation was:
  - a) Minor
  - b) Moderate
  - c) Severe
  - d) There was no damage
  
8. As a result of the accident, Dani Minogue experienced:

- a) A broken leg
  - b) A broken arm
  - c) Minor injuries
  - d) Life threatening injuries
9. Dannii Minogue is a judge on:
- a) X Factor
  - b) Pop Idol
  - c) The Apprentice UK
  - d) Britain's Next Top Model
10. A few days after the accident, Dannii Minogue was spotted:
- a) At a horse ranch
  - b) Driving to work
  - c) At a Starbucks
  - d) Riding a Vespa
11. Lily Cole just completed her \_\_\_\_\_ year of university.
- a) First
  - b) Second
  - c) Third
  - d) Fourth
12. Lily Cole is studying:
- a) Biology
  - b) Chemistry
  - c) Physics
  - d) History of Art
13. Lily likes to de-stress after studying by:
- a) Watching shows like Countdown
  - b) Reading
  - c) Swimming
  - d) Taking a bath
14. Lily Cole went on vacation with:
- a) Her boyfriend
  - b) Her best friend
  - c) Her mother and sisters
  - d) Her cousins
15. Lily Cole went to \_\_\_\_\_ on her vacation.
- a) Brazil
  - b) Hawaii
  - c) Miami
  - d) Mexico

16. Kimberly Walsh is a singer in the group:
- a) The Cover Girls
  - b) Girls Aloud
  - c) No Angels
  - d) The Veronicas
17. Kimberly Walsh just recovered from:
- a) Liposuction
  - b) Rhinoplasty
  - c) Laser eye surgery
  - d) Breast reduction surgery
18. To celebrate, Kimberly went out with:
- a) Her boyfriend
  - b) Her best friend
  - c) Her sisters
  - d) Her mother
19. Kimberly went out:
- a) Dancing
  - b) For brunch
  - c) For dinner
  - d) To a charity benefit
20. Kimberly was convinced to have surgery by:
- a) Her boyfriend
  - b) Her close friend
  - c) Her cousin
  - d) Her father
21. Jennifer Metcalfe was spotted:
- a) Picking up her dry cleaning
  - b) Buying cleaning supplies
  - c) Buying shoes
  - d) Riding her bike
22. Jennifer Metcalfe's plays Mercedes on the show \_\_\_\_\_.
- a) Eastenders
  - b) Hollyoaks
  - c) The Royle Family
  - d) People Like Us
23. Jennifer Metcalfe's dog is a \_\_\_\_\_.
- a) Golden Retriever
  - b) Dalmation
  - c) Toy Poodle
  - d) Beagle

24. Jennifer Metcalfe's dog is named \_\_\_\_\_.
- a) Amber
  - b) Pickles
  - c) Jasper
  - d) Spot
25. Jennifer Metcalfe's dog was \_\_\_\_\_ for the afternoon.
- a) At the vet
  - b) At a kennel
  - c) At the dog groomers
  - d) With a friend

## Appendix G

## MEMORY TEST – EXPERIMENTAL CONDITION

1. Before she became famous, Leona Lewis worked as a \_\_\_\_\_.
  - a) Pizza Hut waitress
  - b) Golf instructor
  - c) McDonald's employee
  - d) Teacher
  
2. Leona Lewis was spotted leaving \_\_\_\_\_.
  - a) Pizza Hut
  - b) The Gap
  - c) Starbucks
  - d) Her home
  
3. Leona Lewis was born and raised in \_\_\_\_\_.
  - a) Hackney, East London
  - b) North London
  - c) Scotland
  - d) Ireland
  
4. Leona Lewis appeared significantly heavier than she was 3 months ago at \_\_\_\_\_.
  - a) The Brit Awards
  - b) The British Independent Film Awards
  - c) London Fashion Week
  - d) The Elle Style Awards
  
5. Leona Lewis moved to L.A. to \_\_\_\_\_.
  - a) Film a movie
  - b) Record an album
  - c) Appear on a reality television series
  - d) Live with her boyfriend
  
6. Dani Minogue is a judge on:
  - a) X Factor
  - b) Pop Idol
  - c) The Apprentice UK
  - d) Britain's Next Top Model
  
7. Dani Minogue was wearing a pair of \_\_\_\_\_ hotpants.
  - a) green
  - b) orange
  - c) black and white
  - d) pink

8. Danii Minogue was criticized for \_\_\_\_\_.
  - a) Behaving inappropriately
  - b) Having cellulite on her legs
  - c) Having an unsightly mole
  - d) Having flabby arms
  
9. Danii Minogue is originally from \_\_\_\_\_.
  - a) England
  - b) Australia
  - c) New Zealand
  - d) Ireland
  
10. Danii Minogue recently stopped seeing \_\_\_\_\_.
  - a) Her therapist
  - b) Her long-time personal trainer
  - c) Her boyfriend
  - d) Her best friend
  
11. Lily Cole just completed her \_\_\_\_\_ year of university.
  - a) First
  - b) Second
  - c) Third
  - d) Fourth
  
12. Lily Cole is studying:
  - a) Biology
  - b) Chemistry
  - c) Physics
  - d) History of Art
  
13. According to the article, Lily should spend more time:
  - a) Watching shows like Countdown
  - b) Reading
  - c) Exercising
  - d) Visiting with family
  
14. Lily Cole went on vacation with:
  - a) Her boyfriend
  - b) Her best friend
  - c) Her mother and sisters
  - d) Her cousins
  
15. Lily Cole went to \_\_\_\_\_ on her vacation.
  - a) Brazil
  - b) Hawaii
  - c) Miami
  - d) Mexico

16. Kimberly Walsh is a singer in the group:
- The Cover Girls
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  - Her sisters
  - Her mother
19. Kimberly went out:
- Dancing
  - For brunch
  - For dinner
  - To a charity benefit
20. Kimberly was convinced to have surgery by:
- Her boyfriend
  - Her close friend
  - Her cousin
  - Her father
21. Jennifer Metcalfe was spotted:
- Picking up her dry cleaning
  - Buying cleaning supplies
  - Buying shoes
  - Riding her bike
22. Jennifer Metcalfe's plays Mercedes on the show \_\_\_\_\_.
- Eastenders
  - Hollyoaks
  - The Royle Family
  - People Like Us
23. Jennifer Metcalfe's dog is a \_\_\_\_\_.
- Golden Retriever
  - Dalmation
  - Toy Poodle

d) Beagle

24. Jennifer Metcalfe's dog is named \_\_\_\_\_.

- a) Amber
- b) Pickles
- c) Jasper
- d) Spot

25. Jennifer Metcalfe's dog was \_\_\_\_\_ for the afternoon.

- a) At the vet
- b) At a kennel
- c) At the dog groomers
- d) With a friend



## Appendix H

### DEBRIEFING

First, I would like to hear from you what you think about what we did today, any impressions about this study? [Give participant the time needed to answer, note answers]

If participant says they suspected something about body image or anti-fat attitudes, ask them when they started thinking about that and note here:

There is more to this study than I have told you about so far. But before I tell you exactly what it is, I would like to explain why it is necessary for some kinds of psychological studies not to tell people about the purpose of the study at the very beginning. In some kinds of studies, if we tell people what the purpose of the experiment is and what we predict will happen, some participants might deliberately do whatever they think we want them to do, just to help us out and give us the results they think we want. Alternatively, other participants might deliberately do the opposite of what they think we want, maybe to show us that we can't figure them out. In either case, these participants' reactions would not be a good indication of how they might react in a situation in everyday life, when they didn't think they were being studied. This would make the results of the study not very informative. Therefore, can you see why in some studies we can't tell people about the purpose of the study at the beginning, because it would influence the results and make the data invalid? [Pause and give the participants a chance to ask questions or comment].

Now I would like to explain exactly what we are trying to get at in this study. We told you that we were looking at the effects of publication type and individual differences on memory for information about people. However, the study that you just participated in actually looked at the effects of exposure to media that makes fun of women for gaining weight on how women feel about their own bodies and other peoples' bodies. Only some of the articles used in this study actually derogated a woman for gaining weight. In the control condition, all of the articles provided neutral information about the lives of female celebrities. In the experimental condition, three of the articles were derogatory and two articles were neutral. The neutral articles were included to try to keep participants from guessing what the study is about. We are going to compare the responses of people in the control condition to responses of people in the experimental condition to see if exposure to media that makes fun of women for gaining weight impacts how women feel about their own bodies and other peoples' bodies.

There is research that suggests that exposure to thin media images makes people feel bad about how they look, and makes them try to change their appearance with

unhealthy strategies. In this study, we are trying to figure out whether exposure to media that makes fun of women for gaining weight will also make women feel bad about how they look. Additionally, there is research that suggests that exposure to certain types of media may change peoples' attitudes towards overweight individuals. In this study we are trying to find out if exposure to media that makes fun of women for gaining weight will increase negative attitudes towards overweight individuals. This research is important because negative body image feelings are a major trigger for eating disorders. So, it's essential for psychologists to have as much information as possible about factors that may increase body image dissatisfaction. That is why we are conducting this study.

There were three instances during the course of this study where we were required to be deceptive. The first instance was the presentation of the purpose of the study as a memory investigation. Secondly, we were also deceptive about the purpose of the tasks, such as why you read the articles, filled out the questionnaires, and completed the multiple-choice test. The multiple-choice test at the end of this study was only given so we can be sure that participants actually read the articles. Thirdly, we were deceptive in not informing you at the beginning of the study of the fact that we would be requesting a measure of your height and weight later on. If we were to inform you of this request at the beginning, it would have compromised the integrity of the study as you may have wondered why you were doing so. I hope you can see why it was important that deception was used in this study. Do you understand why we had to do that? Do you have any questions? [Pause and allow participant to talk about this if they had any concerns or questions]. Once again, I want to assure you that the use of deception has concluded and we are no longer withholding information from you about this study.

Did you have any idea that this is what we were looking at in this study? Yes \_\_\_  
No \_\_\_

Did you have at any point any suspicion that we were interested in body image? Yes \_\_\_  
No \_\_\_

If Yes, at what point?

Your participation in research is very important. In a study like this where we didn't give you all the information up front, we want to make sure that you are satisfied with your participation and that you wish to keep your data in the study. If you tell me now that you do not want your data to be used, we will remove it from our pool of data. Do you want to keep your data in the study, or have it removed? Do you have any questions about that?

Finally, I will have to ask you not to say anything about the true purpose of the study to anyone else. If you told someone else all the things that I just told you, and then they participated in the study themselves, their reactions wouldn't be spontaneous and natural, and their results couldn't be used. So, I would like to ask you not to say anything about the study, other than that you read some paragraphs and filled out some questionnaires. Will you promise me that you will not tell others about the study?

We also want to let you know that we realize that some of the questionnaires we asked you to complete were personal in nature. Some of them might have made you think about past experiences you did not want to think about. Some people might be upset after completing questionnaires, while others will not be upset at all. Both of these responses are perfectly normal. If you have any concerns, I really want to encourage you to discuss your reactions with me, either now or later on. I will give you a way to contact both me and my research advisor. If you would prefer to discuss your reactions to the study with someone else, we will give you a list of resources on and off campus that you may contact.

We hope you found your experience of participating in this study interesting. I would be glad to answer any questions you might have.

## Appendix I

## WEIGHT/HEIGHT CONSENT FORM

You have just participated in a research study conducted by Katelyn Boersma and Dr. Josee Jarry at the University of Windsor entitled: The Impact of Exposure to Weight-Based Derogatory Media on Body Image and Anti-Fat Attitudes.

As a final part of the study you have just completed, you have been asked to allow the investigator to obtain a measure of your height and weight, so your body mass index (BMI) can be calculated.

The information you provide the investigator will remain confidential and will be disclosed only with your permission. Any information you provide will be used for research purposes only, which may eventually include publication of a research article.

Taking part in this final portion of the study is completely voluntary. If you do not wish to be weight or have your height measured, you are free to refuse without any penalty or loss of bonus points.

If you are willing to participate in this study and understand all that will be asked of you in participating, please sign your name following this consent statement.

I hereby acknowledge that, after reading this statement, I am willing to allow the investigator to measure my height and weight. I understand that all information I provide will be used for research purposes only and that confidentiality is assured. I also realize I am free to withdraw from the study at any time without penalty.

\_\_\_\_\_  
Signature of participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of investigator

\_\_\_\_\_  
Date

## VITA AUCTORIS

NAME	Katelyn Boersma
PLACE OF BIRTH	Newmarket, Ontario
YEAR OF BIRTH	1986
EDUCATION	Bradford District High School, Bradford, Ontario 2000 – 2004 University of Toronto, Toronto, Ontario 2004 – 2008 B.Sc. (Hons) Psychology University of Windsor, Windsor, Ontario 2009 – 2011 M.A. Clinical Psychology