

The Effect of a Media Literacy Intervention on
Female Body Image

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Abstract

OBJECTIVE: The present study was designed to examine whether a brief media literacy intervention could reduce the negative impact of media exposure to the feminine ideal on body image. We also explored the extent to which the level of internalization of the feminine ideal and degree of social comparisons moderated the negative effects of exposure and response to intervention. We hypothesized that the media literacy intervention would reduce the negative media exposure effects in high internalizers/high social comparers only, and without the media literacy intervention, control participants (high internalizers/high social comparers only) would be negatively affected by the thin and beautiful media images at post-test. In addition, we investigated the extent to which our media literacy intervention influenced dieting behaviours, self-esteem, BMI, media skepticism, and media habits to determine if the intervention has broader effects than that previously studied. **METHODS:** College females (N = 105) were randomized into control and experimental groups and evaluated in our laboratory at baseline, post intervention, and 1-month follow-up time periods. Participants were divided into high and low internalization/social comparison groups based on median splits. Both control and intervention conditions included messages presented on a 7-minute audiotape. The control message included information concerning parenting skills and child behaviour management, and the intervention audiotape included information about “Artificial Beauty” and “Genetic Realities.” The primary dependent measure was the body dissatisfaction subscale of the Eating Disorders Inventory (EDI-BD). **RESULTS:** Contrary to expectations, both control and experimental manipulations had no effect on participants’ body dissatisfaction levels. The intervention was effective at

increasing participants' skepticism about the realism, similarity, and positive expectancies of media that depict a thin ideal of beauty. The intervention also decreased negative affect following exposure to thin ideal images. Additional results are discussed.

CONCLUSIONS: The findings suggest that a brief media literacy intervention may have broader effects than previously studied in that they engender media skepticism and reduce negative affect; however, negative attitudes about one's body shape and weight may require more extensive, longer-term interventions. The content of the intervention, future directions, and implications for the treatment and prevention of body image disturbance and eating pathology are discussed.

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Introduction

There has been a steady increase in the incidence of body dissatisfaction, disordered eating, and eating disorders throughout the last 30 years (Cameron & Ferraro, 2004; Levine & Smolak, 2001). Not only are eating disorders more common in females, its prevalence is higher in cultures where the “thin ideal” prevails than in cultures without this ideal (Jansen & de Vries, 2002). It has been argued that the pervasiveness of media images of the ideal female, and the continuous experience of failing to meet these unrealistic expectations created by these images, have had a detrimental impact on female body image (Garner, Garfinkel, Schwartz, & Thompson, 1980). Both correlational and experimental research support this by indicating that exposure to the media ideal female does have negative effects on body image, amongst other constructs (i.e., mood, self-esteem), and is also associated with eating disorder related symptoms (Botta, 1999; Groesz, Levine, & Murnen, 2002; Hargreaves & Tiggemann, 2003; Irving, 1990; Wegner, Hartman, & Geist, 2000). Media literacy training has been developed and studied in the prevention of body dissatisfaction and eating disorders, and has shown several positive outcomes (Irving & Berel, 2001; McVey & Davis, 2002). Using an experimental design, the present study investigated whether a media literacy intervention could reduce the negative impact of media exposure to the feminine ideal on body image. We explored the extent to which the level of internalization of the feminine ideal and degree of social comparisons moderate the negative effects of exposure and response to intervention. In addition, we investigated whether the effects of the media literacy intervention were maintained at one-month follow-up and the extent to which our media

literacy intervention influences dieting behaviours, BMI, media skepticism, and media habits.

Body Image

The concept of body image refers to one's own perceptions, attitudes, and experiences about the body, especially its appearance (Levine & Smolak, 2001). The perceptual component refers to the accuracy of body size estimation whereas the attitudinal component reflects the attitudes/feelings towards the body (Cororve, & Gleaves, 2001; Slade, 1994). Research suggests there are two key facets of body image: body dissatisfaction and body-image distortion, of which the former is more commonly studied when assessing body image (Levine & Smolak, 2001). Body image dissatisfaction is expressed as unhappiness with specific parts, or one's entire physique (Hausenblas & Fallon, 2002). Studies indicate that body dissatisfaction is a predictor of subsequent eating pathology (Stice & Shaw, 2004), as individuals engage in unhealthy eating and weight control practices to compensate for a dissatisfied body image. Body image distortion is the misinterpretation of one's body size (Altabe & Thompson, 1992) and is linked to several clinical features in both anorexia nervosa and bulimia nervosa, including response to treatment (Hamilton & Waller, 1993). In general, body dissatisfaction is a risk factor for eating disorders, but individuals dissatisfied with their bodies are also more likely to have impaired self-esteem, social self-consciousness and anxiety, depression, and sexual difficulties (Levine & Smolak, 2001).

Sociocultural Model

As one of the most widely accepted theories of eating disorders, the sociocultural model (Thompson & Heinberg, 1999) provides an explanation for a link between body

image and eating pathology. This model argues that several sociocultural factors such as family, peers, and media contribute to the development of body image and eating disorders in an environment where the thin ideal is valued (Cameron & Ferraro, 2004).

Parents influence the development of body image in their children by selecting their children's clothing and by commenting on their child's appearance (Cash & Pruzinsky, 2002). Parents will often encourage their children to lose weight and require their child to eat or avoid certain foods (Thompson & Smolak, 2001). Research indicates that these comments are related to body image. For example, a study conducted by Taylor and colleagues (1998) found that maternal comments and concerns about their elementary school daughter's body shape were related to the girls' level of weight concerns. In addition to direct comments, parental modeling of weight concerns contributes to body satisfaction problems in children. Parents often make comments about their own appearance and may diet or exercise only to lose weight (Cash & Pruzinsky, 2002). This emphasis on appearance teaches children that satisfaction with oneself is directly linked to their physical appearance.

Although peers are more influential during the adolescent years, they are still relevant to the child's development of body image during the elementary school years. Research indicates a strong relationship between peer messages and body dissatisfaction (Thompson & Smolak, 2001; Oliver & Thelen, 1996). Peers often make comments about weight and shape, and partake in discussions about body shape and weight control techniques (Cash & Pruzinsky, 2002). Moreover, teasing is positively correlated with body dissatisfaction in elementary school (Thompson & Smolak, 2001). Research shows that boys will sometimes objectify the female body, which at times resembles sexual

harassment (e.g., flipping up skirts, commenting on appearance; Bordo, 1993; Fredrickson & Roberts, 1997). This treatment of females as sexual objects in ways that are demeaning may focus females on their physical appearance, which may include making comparisons to the cultural ideal and to other females. This may result in body dissatisfaction and low body esteem (Frederickson & Roberts, 1997).

Perhaps the most pervasive purveyor of the slender beauty ideal is the mass media. Mass media includes several outlets; however, the most current research emphasizes visual media such as magazines (e.g., fashion) and television (e.g., soap operas, music videos) as having the most detrimental impact on body image (Groesz, Levine, & Murnen, 2002). Studies have found that women who watch television programs portraying thin ideal females and who read more popular culture magazines are more likely to report higher levels of body dissatisfaction, gender role endorsement, and eating disorder symptomatology (Harrison & Cantor, 1997; Stice, Schupak-Neuberg, Shaw, & Stein, 1994).

Some researchers argue that the pervasiveness of media images of the ideal female, and the continuous experience of failing to meet these unrealistic expectations created by these images, have resulted in decreased self-confidence, self-esteem, and an increase in concern with physical attractiveness among women. Moreover, there is evidence to suggest there are mental and physical health implications resulting from the cultural pressures to be thin and beautiful (Garner, Garfinkel, Schwartz, & Thompson, 1980).

Research indicates that there are at least two factors that can account for the varying body image responses to media exposure: social comparison processes and level

of internalization of the media portrayed thin ideal (Yamamiya, Cash, Melnyk, Posavac, & Posavac, 2005).

Social Comparison Theory

According to Social Comparison Theory (Festinger, 1954), humans have an innate drive to evaluate their opinions and abilities. Festinger stated that the most effective way to evaluate one's opinions and abilities was to measure them against a direct, physical standard (i.e., those of other individuals). The original theory also proposed that whenever possible, we will compare ourselves with similar others. This similarity could be in either the dimension under evaluation (e.g., logical reasoning) or surrounding dimensions (e.g., gender, age, ethnicity). However, since the origin of social comparison theory there have been some revisions. First, social comparisons are not restricted to one's opinions and abilities. Research indicates that individuals will also compare themselves with others in areas such as physical attractiveness and eating habits (Wheeler & Miyake, 1992). Second, there are occasions when we will compare ourselves to dissimilar others (Martin & Kennedy, 1993). Third, the result of the social comparison process appears to be determined by the direction of the comparison (e.g., downward or upward) and the attributes of the comparison target (e.g., universalistic or particularistic). Downward comparisons take place when individuals compare themselves to others who are worse off/inferior on a particular dimension. Research shows that these comparisons result in enhancing subjective well-being, and increase self-esteem and positive affect (Major, Testa, & Bylsma, 1991; Wheeler & Miyake, 1992). On the other hand, upward comparisons involve comparing oneself to someone who is better off/superior on a particular dimension. The consequences of this type of comparison include a decreased

sense of well-being and self-esteem, and increases in depression and anger (Major, et al., 1991; Wheeler & Miyake, 1992). In regard to the attributes of the comparison target, universalistic targets, which include distant sources of influence, (e.g., mass media) appear to elicit a greater amount of pressure to meet idealistic standards of beauty compared to particularistic targets, which include intimate sources such as family and peers (Irving, 1990). This point is further illustrated in a study conducted by Posavac, Posavac, & Posavac (1998) who found that adolescent female body image was more threatened by an attractive model compared to an attractive peer.

Studies indicate that when individuals compare themselves to others on the dimension of physical attractiveness, they have a tendency to make upward comparisons rather than downward (Wheeler & Miyake, 1992). Evidence suggests females often use magazine advertisements as a social comparison standard (Martin & Kennedy, 1993; Shaw & Waller, 1995). In addition, when looking at the relationship between eating disorders and media exposure the process of social comparison has been used to explain why thin ideal images negatively affect body image in females (Greenwood & Pietromonaco, 2004). According to social comparison theory there are two stages to this process. First, females engage in an upward comparison between themselves and an idealized, albeit unrealistic female image (Botta, 1999; Cash, Cash, & Butters, 1983; Wilcox & Laird, 2000) Second, this comparison results in negative attitudes about the characteristic being evaluated, and feelings of body shame and dissatisfaction. It is suggested that these results occur due to a discrepancy between the actual self and the ideal possible self in relation to body image characteristics (e.g., physical appearance) (Markus & Nurius, 1986; Richins, 1991). Richins (1991) found that there is a negative

correlation with comparing one's physical attractiveness with that of fashion models in magazines and self-evaluation of attractiveness. Furthermore, it has been shown that females who use the media portrayed thin ideal images (e.g., celebrities/universalistic targets) as a comparison to evaluate their physical appearance are more likely to experience lower self-esteem, body dissatisfaction, and participate in compensatory weight control techniques (e.g., vomiting) than those who do not use these images for self-evaluation (Heinberg & Thompson, 1992; Morrison, Kalin, & Morrison, 2004).

Several experimental studies have inadvertently applied instructions to their participants in order to invoke the social comparison process. During exposure to ideal images participants have been instructed to rate models based on attractiveness and thinness (Champion & Furnham, 1999), or to deem whether the model's clothing would be flattering to the participant's own figure (Posavac, Posavac, & Posavac, 1998). Cattarin, Thompson, Thomas, & Williams (2000) intentionally manipulated the instructions to their participants whilst viewing people in a 12-minute videotape of television commercials. It was found that individuals in the comparison condition (who were instructed outright to compare themselves with the people in terms of appearance) were more negatively affected compared to those in the neutral (instructed to watch as if you were at home) or distraction (instructed to pay attention to products in the advertisements) instruction conditions. Tiggemann & McGill (2004) replicated the Cattarin et al. (2000) study; however, they manipulated the instructional set by including different conditions: social comparison (encouraging comparison with images), appearance focus (attention on model's appearance), and control (non-appearance related aspects of images). It was found that the more participants compared themselves to the

ideal images (social comparison condition), the more likely they were to experience negative mood, body dissatisfaction, and weight anxiety. Furthermore, these studies indicate that social comparison can be elicited through instructional set, idealized images, and female's natural tendency for making comparisons. Moreover, social comparison theory appears to provide a theoretical framework for understanding how exposure to the unrealistic feminine standards of attractiveness has a deleterious effect on body image and mood.

Internalization of the Thin Ideal

Internalization involves "the extent to which an individual cognitively buys into" cultural norms of size and appearance, whereby individuals will modify their behaviours in an attempt to approximate these standards (Thompson & Stice, 2001, p. 181). Individuals who are high on internalization are more likely to use media images (e.g., fashion models) as upward comparison targets and to have feelings of inferiority if failing to meet cultural standards of beauty (Heinberg & Thompson, 1992). Females at greatest risk for experiencing negative body image following exposure to ideal images include those who have higher levels of internalization of cultural standards (Heinberg & Thompson, 1992). A meta-analysis conducted by Groesz et al., (2002) supports initial results by Heinberg & Thompson (1992) by finding that the negative effect of exposure to ideal images is heightened when individuals have internalized the ideal standard of beauty. Research into the development of internalization has found that repeated exposure to visual images of thin females is associated with higher levels of internalization, which in turn fosters upward social comparison, resulting in body dissatisfaction (Stice, Schupak-Neuberg, Shaw, & Stein, 1994; Stice, Ziemba, Margolis,

& Flick, 1996). It has been found that internalization mediates the relationship between sociocultural influences and body dissatisfaction, suggesting that females who are aware of the thin ideal will experience body dissatisfaction once they have internalized the ideal standard and then make upward comparisons, consistent with Social Comparison Theory (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). It is important to note that mere awareness of the thin ideal tends to result in body dissatisfaction; however, there are greater effects via internalization and subsequent upward comparisons (Sands & Wardle, 2003).

In general, thin ideal internalization has been found to predict the onset of future eating pathology (e.g., bulimia nervosa) among adolescents (Stice & Agras, 1998; Stice, Killen, Hayward, & Taylor, 1998). It has been proposed that this takes place via increasing upward comparisons resulting in body dissatisfaction, which leads to dieting and negative affect, and ultimately eating pathology (Stice & Agras, 1998).

Internalization is also a predictor of treatment success among adolescent and adult females with anorexia nervosa (Heinberg, Guarda, & Haug, 2001). Further, there is evidence that prevention programs are successful at reducing thin ideal internalization, which in turn has resulted in decreasing body dissatisfaction, dieting, negative affect, and bulimic symptoms (Stice, Mazotti, Weibel, & Agras, 2000).

Gender Differences

Studies indicate that females are at a higher risk for eating pathology compared to males (Stice & Shaw, 2004). For females, the onset of eating pathology typically occurs between the ages of 15 to 19 (Stice & Shaw, 2004). In addition, studies show that during this period of adolescence females are greatly concerned with their body image (Levine

& Smolak, 2001). It has been suggested that this stems from the mass amounts of cultural messages that relay information such as “looks are everything”, which result in attempts to achieve physical ideals that are both extreme and seldom attainable (Levine & Smolak, 2001). In general, in comparison to males, females are more dissatisfied with their bodies and are more likely to engage in both safe and dangerous food restriction strategies in order to meet these ideals (Feingold & Massella, 1998; Ogden & Munday, 1996).

Gender differences of girls being more dissatisfied with themselves compared to boys may emerge as early as 8 to 10 years of age (Levine & Smolak, 2001). Studies indicate that among females, body dissatisfaction increases with age (Gardner, Sorter, & Friedman, 1997; Levine & Smolak, 2001). However, some studies have shown that there are age related changes in body part satisfaction during adolescence (Davis & Furnham, 1986). These findings coincide with physical changes that take place during puberty.

Between the ages of 13 to 15 females undergo increases in body mass, especially in their hips and thighs, which in turn moves them farther away from the cultural slender ideal image. Puberty for males brings their body closer to the masculine cultural ideal as they become taller, broader in the shoulders, and muscular (Dittmar, Lloyd, Dugan, Halliwell, Jacobs, & Cramer, 2000). Therefore, the increase in body dissatisfaction for girls and increase in body satisfaction for boys reflects both the changes in the development of their bodies and how these physical changes relate to the cultural standards of beauty. We have chosen to study females only in the proposed study since body dissatisfaction and eating disorders, as well as media consumption of popular culture magazines are more prevalent in females compared to males.

Sociocultural Influence

Not only are eating disorders more common in females, their prevalence is higher in cultures where the “thin ideal” prevails than in cultures without this ideal (Jansen & de Vries, 2002). Over the past four decades the average female’s weight has increased while the media’s portrayal of the “ideal” female has become thinner (Fallon & Hausenblas, 2005). The ideal body as portrayed in the media is unattainable by most women. Only 5% of females in a normal weight distribution fit this ideal, leaving out 95% of women in society (Kilbourne, 1994). Studies analyzing Miss America winners and Playboy centerfolds between the 1950’s and 1980’s have found a significant trend towards thinner and lighter models (Garner, Garfinkel, Schwartz, & Thompson, 1980; Wiseman, Gray, Mosimann, & Ahrens, 1990). Weight analysis demonstrated that 60% of the centerfolds had a weight of 15% or more below their expected weight, which so happens to be one of the major diagnostic criterion for anorexia nervosa (APA, 1994). Garner et al., (1980) also evaluated six women’s magazines (Good Housekeeping, Harper’s Bazaar, Ladies Home Journal, McCall’s, Vogue, Woman’s Day) and found a significant increase in the number of articles relating to dieting and weight loss during the same aforementioned time period. Other researchers have found steady decreases in the weights of the ideal female image in magazines over the last 30 years (Wiseman, Gray, Mosimann, & Ahrens, 1992).

Research indicates that there are 10 times as many advertisements promoting weight loss in female versus male magazines, which just so happens to coincide with a 10:1 ratio of eating disorders in women to men (Wegner, Hartmann, & Geist, 2000). On television, more female characters are described as ‘thin’ (69%) compared with their

male counterparts (less than 18%) (Silverstein, Perdue, Peterson, & Kelly, 1986).

Furthermore, Gordon (1990) found that the majority of women on television today are a lot thinner than they were in past decades.

In regard to the media portrayal of the ideal male, there has been a stable image of the V-shaped male in magazines between 1960 and 1992. However, toy action figures over the last 30 years have increased in their size and muscularity, sometimes surpassing the muscularity of the largest human bodybuilders (Pope, Olivardia, Gruber, & Borowiecki, 1999), and this depiction of masculinity has paralleled the increased prevalence of body dissatisfaction in males (Garner, 1997). Therefore, the cultural ideals of masculinity and femininity are strongly shaped by the mass media and have a strong influence on individuals of all ages.

General versus Selective Media Genres

General media use in terms of total viewing time and consumption has a small association with measures of body dissatisfaction. However, many studies have looked at more selective media genres that are high in appearance content and found significant associations with several variables, including body dissatisfaction. Stice, Schupak-Neuberg, Shaw, & Stein (1994) found that selected genres of magazines (e.g., fashion, fitness) and television shows predicted eating disorder symptomatology. The viewing of television shows containing “thin” characters such as soap operas has also been shown to predict anorexic symptoms and body dissatisfaction (Harrison, 1997; Tiggemann & Pickering, 1996). Moreover, Borzekowski, Robinson, & Killen (2000) examined the relationship between use of electronic media and perceived importance of appearance and weight concerns in adolescent females. They looked at how many hours’ females spent

watching television, watching videotapes, playing computer or video games, or watching music videos. It was found that only hours of watching music videos were significantly related to both perceived importance of appearance and weight concerns. It was suggested by the authors that his finding may be due to the high levels of sex role stereotyping and the numerous images of slender ideal females portrayed in music videos. Other studies have also found that watching music videos predicts drive for thinness, a behavioural indicator of anorexia nervosa (Tiggemann & Pickering, 1996).

The Effect of Exposure to Ideal Images

In addition to correlational data, the largest and most powerful source of data that have examined how the media effects body image and eating disorder symptoms are from laboratory experiments. These experiments expose individuals to images of the ideal physique in order to determine their acute effect on both body image and eating disorder symptoms (Groesz, et al., 2002). Researchers have conducted these experiments on both normal-weight non-clinical samples, as well as eating disordered and weight concerned/dissatisfied populations. The majority of research on eating disordered and weight concerned/dissatisfied populations has examined how viewing media images (usually thin vs. heavy images) affects body image variables, and an individuals' ability to estimate their body size and its parts accurately (Hamilton & Waller, 1993; King, Menzel, & Baird, 1997). Hamilton and Waller (1993) exposed 24 women with anorexia nervosa or bulimia nervosa and 24 control participants to 20 photographs of either fashion models or neutral images (rooms in homes) for approximately 6-7 minutes (20 seconds per picture). They found that the eating-disordered women were affected by the experimental manipulation; after viewing the fashion model photographs they showed a

significant increase in body size overestimation compared to the control group. This is consistent with research demonstrating that females with maladaptive eating attitudes overestimate their body size following exposure to images of fashion models (Pinhas, Toner, Ali, Garfinkel, & Stuckless, 1998; Waller, Hamilton, & Shaw, 1992). There is also some evidence that suggests weight plays a role in that heavier women feel worse about their bodies following exposure to ideal images from magazines (Henderson-King & Henderson-King, 1997). Furthermore, Cameron & Ferraro (2004) divided undergraduate females into those who were satisfied and those dissatisfied with their bodies. After exposing groups to 15 minutes of images (fashion magazines or fitness and health magazines or news) it was found that there was a significant decrease in body satisfaction for females in both the satisfied and dissatisfied group after viewing images from the fitness and health magazines; however, there was a stronger tendency for the dissatisfied group to report being more adversely affected. This indicates that females already dissatisfied with their bodies can experience further increases in their body dissatisfaction from only 15 minutes of exposure to thin ideal images.

Several of these experiments have also been conducted on normal weight non-clinical samples. These studies verify the negative impact that exposure to these ideal images has on individuals. First, several experimental and correlational studies have shown that there is a positive association between exposure to thin models and eating disorder related symptoms (Botta, 1999; Irving, 1990; Mills, Polivy, & Herman, 2002; Pinhas et al., 1999; Stice et al., 1994; Tiggeman & Pickering, 1996).

Second, exposure to feminine ideal media images decreases body satisfaction and increases body dissatisfaction (Hargreaves & Tiggemann, 2003; Wegner, Hartman, &

Geist, 2000). Ogden and Munday (1996) examined body satisfaction scores of individuals following brief (five minutes) exposure to thin images or overweight images. They found that subjects who viewed the thin pictures felt less satisfied with their bodies in terms of fatness, attractiveness, sexiness, and muscle tone. Participants also showed an increase in estimation of both waist size and hip size following exposure to thin pictures. However, the subjects who were exposed to the overweight images felt more satisfied in all the aforementioned areas. This study is consistent with others that show exposure to ideal images decreases participants' satisfaction with their physical appearance, attractiveness and weight (Henderson-King & Henderson-King, 2001; Irving, 1990; Richins, 1991), and increases individuals body-size distortion (Hamilton & Waller, 1993; Waller, Hamilton, & Shaw, 1992). However, exposure to a heavier-weight model increases satisfaction. These findings are consistent with Social Comparison Theory predictions of how upward and downward comparisons impact body image.

Third, research indicates that exposure to thin images results in an increased drive for thinness, a behavioural indicator of anorexia nervosa (Tiggemann & Pickering, 1996). Hargreaves & Tiggemann (2003) conducted a longitudinal study with adolescent males and females who completed drive for thinness and drive for muscularity measures at baseline and post (2 years later) time periods. At baseline, participants were exposed to either 20 appearance-related commercials (thin models) or non-appearance commercials (10 minute exposure). Two-years later it was found that the initial body dissatisfaction scores for females in response to viewing the appearance-related commercials predicted subsequent body dissatisfaction and drive for thinness. The result was similar for males in

regard to the drive for thinness measure. However, this study did not control for the amount of media image exposure or media consumption during the 2-year follow-up.

Fourth, exposure to thin images has a detrimental effect on weight esteem (Henderson-King & Henderson-King, 2001), self-esteem (Irving, 1990), and self-consciousness. Wegner et al., (2000) exposed college females to photographs (12 photos, 1 minute each) of either female models or control images (older men and women, children). Compared to the control group, participants who viewed the female model images reported higher ratings on both general self-consciousness (i.e., inner thoughts/feelings, awareness of self as a social object) and body self-consciousness (i.e., refers to one's own body).

Fifth, viewing images of the ideal physique reduces participants' mood states including, depression and anger (Groesz et al., 2002; Hausenblas, Janelle, Gardiner, & Focht, 2004; Stice & Shaw, 1994). Pinhas et al., (1999) showed that females were more depressed and angry following exposure to 20 images of female fashion models compared to females viewing control images. It is suggested that not only do these images of the thin ideal have an immediate negative impact on women's mood, but they also may play a significant role in triggering episodes of binge eating in response to negative mood states (Pinhas et al., 1999). Moreover, it has been shown that a 3-minute exposure of 12 photographs (fashion models) has resulted in increased reports of stress, guilt, shame, and insecurity compared to exposure to photographs of large models or control images (Stice & Shaw, 1994).

All of these results highlight how exposure to ideal media images affect several aspects in an individuals life; however, it is important to note that viewing these images

results in decreased self-esteem, and increased mood and body image disturbance, all of which are risk factors for eating pathologies (APA, 1994). A meta-analysis was conducted by Groesz, et al., (2002) to examine the effects of brief exposure to “unrealistic” beauty images from fashion magazines and television commercials. Data from 25 studies (N= 2,292) (43 effect sizes) were used in this analysis. The analysis revealed a small but consistent and significant negative effect size of -0.30 . In general, females’ body image was significantly more negative following exposure to thin ideal images than following exposure to average size models, plus size models, or cars and houses. Increases in negative mood and state body dissatisfaction, especially for participants under 19 years of age were observed. This meta-analysis, along with the other aforementioned studies strongly indicates that mass media (i.e., fashion magazines and television) have established a feminine cultural standard of beauty that has significant negative effects on female’s body image.

Body Image Prevention Efforts

Research conducted on the prevention of negative body image and eating problems is fairly recent. The earliest prevention study was published in 1986, and 67% of studies were published during or following 1996 (Levine & Smolak, 2001). In general, the models for prevention vary in approach; however, there is a consistent theme of promoting resistance to culturally transmitted risk factors. For example, many researchers focus on genetic influences in body size and weight, developmental changes during puberty, dangerous effects of dieting to lose weight, value of physical activity and nutrition, skepticism and critical thinking towards mass media messages, and protective factors such as self-acceptance and life skills (Kater, Rohwer, & Londre, 2002). The

majority of body image prevention studies have been conducted in elementary, middle, and high schools (McVey & Davis, 2002). As of December 2000, Levine & Smolak identified 42 published and unpublished studies of the prevention of negative body image and eating problems. Ten of these studies were conducted in elementary school children. Results indicated there were some studies that provided positive change in body image whereas others improved knowledge scores (Kater, Rohwer, & Levine, 2000; Richman, 1993). However, in general, interventions targeted at elementary school children did not improve students' attitudes about body image or behavioural choices (Levine & Smolak, 2001). The results for studies conducted in middle and high school are very similar to those from elementary schools, but there is some evidence suggesting prevention programs increase adolescents' knowledge and body satisfaction (Levine & Smolak, 2001). Moreover, any positive effects that have resulted from these prevention programs appears to be short lived with few studies showing long-term (6-12 months) prevention effects (Neumark-Sztainer, Butler, & Palti, 1995). A recent meta-analytic review (Stice & Shaw, 2004) of eating disorder prevention programs provides some explanation as to why these programs may be lacking in their effectiveness in reducing body dissatisfaction and eating related symptoms. First, universally (e.g., general population of individuals) targeted programs, which are to date the most common, are not as effective as selective programs (e.g., high risk individuals; program targets established risk factors for eating pathology). Second, the majority of prevention programs have been didactic (e.g., provides information about eating disorders) in nature, which are not as effective as interactive programs (e.g., focus on resistance to sociocultural pressures of thinness; skill acquisition). In fact, information-based approaches have been found to have harmful

effects by increasing participants' knowledge of eating disorders and by introducing them to dangerous methods of weight control (e.g., laxative abuse, vomiting) (O'Dea & Abraham, 2000). Third, larger effects have been observed for programs that included participants aged 15 or older and for female only samples.

Media Literacy

Media literacy training has been previously suggested as an important component to add to eating disorder prevention work (Levine, Piran, & Stoddard, 2000; Levine & Smolak, 1998). Media literacy refers to a communications intervention that teaches individual's to evaluate media critically, which includes awareness of media use, analysis of content and intentions, and advocacy using media (Irving, DuPen, & Berel, 1998). Consequently, it is argued this will lead to a reduction in the credibility and persuasive influence of media messages (Irving & Berel, 2001). Media literacy interventions have been successful in the public health arena. More specifically, it has been shown to be effective in changing children's attitudes about the importance of a variety of media (Austin & Johnson, 1995). For example, Austin and Johnson (1997) applied a media literacy program to alter children's perceptions, expectancies, and behaviours regarding alcohol advertising and use. This program was successful, in that it decreased the accepted norms of drinking alcohol, the intentions to drink, and made children more critical of alcohol advertisements. Voojjs and van der Voort (1993) developed a media literacy program to teach children critical evaluation skills towards violent television and found success as it decreased their acceptance, and perceived reality of television violence, a finding that remained two years later. In general, teaching children and adolescents via media literacy to resist the social pressures toward cigarette smoking,

alcohol drinking, and drug use is more effective at preventing these behaviours than applying a standard information approach (Wade, Davidson, & O'Dea, 2003).

Media literacy has also been developed and studied in the prevention of body dissatisfaction and eating disorders. This approach works with individuals to critically evaluate media content in order to identify, analyze, and challenge the thin ideal portrayed by the mass media (Levine, Piran, & Stoddard, 1999). There are various components that have been included in these media literacy interventions. Most include components that increase an individual's awareness and critical analysis of media images (Neumark-Sztainer, Sherwood, Collier, & Hannan, 2000; Posavac & Posavac, & Weigel, 2001; Wade, Davidson, & O'Dea, 2003). This is accomplished by educating individuals on the negative impact these ideal images have on body image (Irving & Berel, 2001). In addition, a small number of studies have included a media activism (e.g., letters to communicate with companies about their advertising) component as a part of the critical analysis element (Wade, et al., 2003). Some interventions focus on the various techniques (e.g., make-up and air-brushing) used by the fashion and model industry to make females look flawless, while some have also discussed the role of genetics and their influence on body weight and shape via biological predispositions (Posavac, et al., 2001; Yamamiya et al., 2005). Others have included components related to stress management and self-esteem (McVey & Davis, 2002), nutrition and healthy messages about weight and shape (Levine, et al., 1999), as well as factors that influence weight (Kater, Rohwer, & Londre, 2002). Cognitive behavioural techniques have been integrated into these programs by involving participants in structured discussions (e.g., underlying feelings, thoughts, and

beliefs) about media images and how they relate to body image (Irving & Berel, 2001; Kater, et al., 2002; Yamamiya, et al., 2005).

There is a high degree of variability in the duration of media literacy interventions in the prevention of body dissatisfaction and eating disorders. For the majority of the media literacy programs the length of the intervention has been between 5 to 10 sessions (e.g., approximately 50-90 minutes each), which span 5 to 12 weeks in duration (Kater, et al., 2002; Levine, et al., 1999; McVey & Davis, 2002; Neumark-Sztainer, et al., 2000; O'Dea & Abraham, 2000; Wade, et al., 2003). A minority of studies conducted brief one-day interventions ranging from seven minutes to one hour (Irving & Berel., 2001; Irving, et al., 1998; Posavac, et al., 2001; Yamamiya, et al., 2005). Moreover, the majority of longer studies conducted follow-ups ranging from 1 week to 12 months to determine the maintenance effects of the intervention; however, there do not appear to be any brief intervention studies that have followed participants subsequent to the intervention.

In general, there have been several positive outcomes for both brief (e.g., 1 day) and longer-term (e.g., 5-12 weeks) interventions. For longer-term studies media literacy interventions have resulted in lowering levels of weight concern (Wade, et al., 2003) and internalization of the thin ideal (Neumark-Sztainer, et al., 2000), as well as increase self-esteem, self-efficacy, knowledge of media influence (Levine, et al., 1999), media skepticism, critical thinking (Kater, et al., 2002), and body satisfaction (O'Dea & Abraham, 2000), in comparison to control groups. Studies have also found an increase of BMI, though still within the healthy weight range, and acceptance of a range of body sizes (McVey & Davis, 2002; O'Dea & Abraham, 2000). Neumark-Sztainer et al. (2002) found that at a 3 month follow-up individuals in the media literacy group still had a

decrease in internalization of the thin ideal, and increased knowledge of media influence and self-efficacy. In addition, follow-ups of 6-12 months have found maintenance effects for increased body satisfaction, BMI and decreased eating problems (McVey & Davis, 2002; O'Dea & Abraham, 2000).

There are several positive outcomes for brief media literacy interventions including an increase in media skepticism (Irving & Berel, 2001) and a reduction in the following areas: perception that images are realistic and similar to participants, desire to look like the models in the photographs (Irving & Berel, 2001), internalization of the thin ideal (Irving et al., 1998), weight concern, social comparison, and body dissatisfaction (Posavač et al., 2001; Yamamiya, et al., 2005). Unfortunately, with no follow-up data the maintenance effects of these findings cannot be determined.

There are only two studies to our knowledge that have exposed participants to thin ideal images following either media literacy or control interventions. This subsequent exposure is important to determine whether or not the intervention reduces the negative impact that these ideal images have on body image. Posavac et al. (2001) randomized body dissatisfied women to one of four conditions: Artificial Beauty (e.g., techniques that make models look flawless such as make-up and air-brushing), Genetic Realities (e.g., most women biologically predisposed to be heavier than women in media), combination condition of both Artificial Beauty and Genetic Realities, and a control group (e.g., parenting skills). The interventions included a psychologist speaking on a 7-minute videotape. It was found that exposure to ideal images increased female's weight concern; however, providing either or both media literacy interventions attenuated this effect as well as decreased social comparison and prevented media induced body

image disturbance. Yamamiya et al. (2005) replicated this study with some revisions. They randomized females (body satisfied or body dissatisfied) to one of four conditions: Control Information (parenting skills and child behaviour management)/Control Images (automobiles), Control Information/Model Images, Media Literacy (Artificial Beauty and Genetic Realities)/Model Images, and Media Literacy/Dissonance Induction (persuasive written arguments against thin ideal)/Model Images. The interventions included a psychologist speaking on a 7-minute audiotape. This study also examined the role of internalization of the thin ideal as a potential moderator variable. Results indicated that relative to a control group, exposure to thin model images (i.e., 5 minute exposure) negatively affected the state body image of participants with high internalization levels. This adverse impact was significantly reduced when high internalization participants were given the media literacy intervention prior to exposure to thin model images. Females classified by median split as low internalizers were unaffected by the experimental manipulation (e.g., both model images and media literacy). No follow-up was conducted to determine whether the media literacy intervention effects were maintained for high internalization participants. Nevertheless, this study provides evidence that a brief media literacy intervention may be effective in reducing body dissatisfaction in response to exposure to the feminine ideal portrayed in the media, and the response may be greater in high-internalizers.

Although the present study is modeled after Posavac et al. (2001) and Yamamiya et al. (2005), certain modifications are proposed. First, both previous studies were posttest only designs, which makes the results from these studies difficult to interpret. The current study corrects for this methodological limitation by including a baseline

(Time 1), post (Time 2), and a one-month follow-up (Time 3) to determine whether or not there are pre-post effects or maintenance effects for the media literacy intervention. Second, in addition to investigating media-ideal internalization we are also examining several other measures to determine if the media literacy has broader effects than that previously studied. First, we would like to see if the media literacy intervention has an effect on participants' body mass index. Research shows that heavier women feel worse about their bodies following exposure to ideal images (Henderson-King & Henderson-King, 1997). Thus, if the current intervention is effective in educating females on the negative aspects of media images, heavier females may not feel as poorly about their bodies following exposure. The intervention may also decrease participants' desire for weight loss, which may result in weight gain, albeit in the healthy range. We will be able to observe changes in body mass index because it will be measured at all three time periods. Second, studies show that one variable already found to produce behavioural eating differences in response to thin media images is dietary restraint status (Seddon & Berry, 1996; Strauss, Doyle, & Kreipe, 1994; Mills Article). Dietary restraint is an attempt to restrict one's food intake with the intent of decreasing or maintaining one's weight (Polivy & Herman, 1995). It has been demonstrated by Heatherton & Polivy (1992) that dieters engage in negative self-evaluations when confronted with ideal body images. This leads to several unsuccessful attempts at dieting to achieve the goal of thinness, which eventually leads to body dissatisfaction. It is of interest to the authors of the current study to determine if the media literacy intervention can help participant's decrease in their dietary restraint status over the course of the study, and prevent them from engaging in negative self-evaluations following exposures to ideal images.

Moreover, if participants' body image improves, it may lead to a reduction in dieting behaviours to achieve a thinness standard. In contrast, it is of interest to see if the control participants will experience increases in dietary restraint over the course of the study, especially if they increase in body dissatisfaction following exposure to ideal images. Third, as indicated previously, past media literacy intervention studies have been able to effectively increase media knowledge and scepticism of its participants (Irving & Berel, 2001). This has led to a reduction in participants' perception that images are realistic and similar to themselves, and a desire to look like the models in the photographs. Thus, we will determine if the current brief media literacy intervention can also provide similar results. Considering that the current study has a one-month follow-up, this will also be the first brief media literacy intervention to observe whether these effects can be maintained. Fourth, viewing images of the ideal physique negatively impacts participants' mood states including, depression and anger (Groesz et al., 2002; Hausenblas, Janelle, Gardiner, & Focht, 2004; Stice & Shaw, 1994). In addition, past experimental and longitudinal studies have indicated that negative affect is a predictor of bulimic pathology (Stice et al., 1996). Therefore, we will determine if the current intervention can reduce the negative effect that exposure to ideal images has on participants' mood states. This finding would be clinically relevant considering negative affect is a risk factor for eating pathology. Fifth, exposure to thin images has a detrimental effect on self-esteem (Irving, 1990). Long-term (5-12 weeks) media literacy interventions have been effective at increasing self-esteem (Levine et al., 1999). However, to the author's knowledge this is the first study to explore whether a brief media literacy intervention can improve self-esteem. Lastly, only one media literacy

intervention study measured changes in the consumption of media habits (i.e., print media/magazines) throughout the study (Neumark-Sztainer, 2000). They found that females in the experimental group were significantly less likely to report having read the magazine *Seventeen* in comparison to the control group. However, this result was based on an intervention that included six 90-minute sessions over 12 weeks. The current study would like to see whether a brief intervention can reduce the consumption of media habits for participants in the experimental group and to see if these reductions take place in both print media (i.e., magazines) and visual media (i.e., television shows). It would be clinically relevant if the current intervention could reduce media consumption that relates to thin-ideal images because repeated exposure to visual images of thin females is associated with higher levels of internalization, which in turn fosters upward social comparison, resulting in body dissatisfaction (Stice, Schupak-Neuberg, Shaw, & Stein, 1994; Stice, Ziemba, Margolis, & Flick, 1996).

Primary Objectives:

- 1) To examine whether a media literacy intervention reduces the negative impact of media exposure to the feminine ideal on body image in college age females.
- 2) Following exposure to either a media literacy or control intervention, we will examine the extent to which social comparison and internalization moderate effects of exposure to body image ideals.

Secondary/Exploratory Objectives:

- 1) To explore whether the effects of the media literacy intervention are maintained at one-month follow-up.

- 2) To explore whether changes in body dissatisfaction are related to changes in social comparison and internalization.
- 3) To explore the extent to which our media literacy intervention influences dieting behaviours, mood, self-esteem, BMI, and the extent to which internalization, and social comparison moderate these effects.

Hypotheses

Primary Hypotheses. In both conditions (control vs intervention), only those classified as High Internalizers would be significantly affected by the experimental manipulations (exposure to images and program intervention) at posttest. First, the media literacy intervention was hypothesized to reduce the negative media exposure effects in high internalizers only. These participants would have decreased levels of body dissatisfaction.

Second, without the media literacy intervention, control participants (high internalizers only) would be negatively affected by the thin and beautiful media images at posttest, evidenced by increased scores on body dissatisfaction.

Secondary and Exploratory Hypotheses. Similar to the primary hypotheses, we proposed that in both conditions, only those classified as high on social comparison would be significantly affected by the experimental manipulations at posttest.

As our first exploratory hypothesis, we explored whether changes in body dissatisfaction are related to changes in social comparison and internalization between the intervention and control groups and collapsed across the full sample to further evaluate the degree to which social comparison and internalization moderate the effects of the intervention. As our second exploratory hypothesis, we explored whether the effects of

the intervention were maintained at one-month follow-up, or whether values at follow-up differ from baseline, and the degree to which these changes were moderated by internalization and social comparison.

In our third exploratory analysis, we explored potential changes in dieting behaviours (i.e., Dietary Restraint), BMI, mood, self-esteem, media skepticism, and media habits (e.g., types of television shows and magazine purchases) between the control and intervention groups throughout the study with an emphasis on the differences between post and follow-up, and explored the degree to which internalization and social comparison moderated these effects.

Method

Participants

The sample in the present study was comprised of 124 female first year psychology students at Carleton University. The undergraduate students participating in this study received either the necessary credits (percentage increase) toward their introductory psychology final grade, with a remuneration ratio of one percent each for baseline, post-intervention, and follow-up or monetary value in the amount of ten dollars each for baseline and post-intervention, and twenty dollars for follow-up. Altogether, 73 participants chose to receive course credit and 51 chose to receive money for their involvement in the experiment.

Table 1 displays the baseline demographic and descriptive characteristics for both the control and experimental conditions grouped by internalization levels. At baseline, participants filled out the Eating Disorder Diagnostic Scale (EDDS) to screen for people who met past or current DSM-IV criteria for bulimia nervosa, anorexia nervosa, or binge eating disorder. We excluded 19 participants (13 bulimia nervosa, 3 anorexia nervosa, 3 binge eating disorder based on elevated scores in the clinical range). This resulted in a final sample size of 105 participants at baseline (52 experimental and 53 control participants). As shown in Table 2, it is evident that the excluded participants were a unique population that differed from the included participants, as indicated by significantly different scores on several variables including lower self-esteem, and higher body dissatisfaction, internalization, social comparison, dietary restraint, and the media attitudes behavioral intention subscale in comparison to the included participants.

Table 1

Demographic and Descriptive Characteristics of Sample (Mean and Standard Deviation)

Variable	High Internalization/ Experimental Group (n = 32)	Low Internalization/ Experimental Group (n = 20)	High Internalization/ Control Group (n = 26)	Low Internalization/ Control Group (n = 27)
Age	20.00 (2.91)	19.85 (2.03)	20.15 (3.35)	19.41 (2.15)
Height (m)	1.67 (.098)	1.67 (.072)	1.67 (.086)	1.67 (.075)
Weight (kg)	62.78 (13.67)	62.80 (15.51)	57.88 (8.93)	56.92 (9.38)
BMI	22.55 (4.08)	21.91 (3.55)	20.72 (2.77)	20.38 (3.10)
Ethnicity				
% Caucasian	59	70	54	70
% Asian	22	20	31	18
% AA	6	5	4	4
% Other	13	5	11	8

Note: BMI = Body Mass Index; AA = African American

Variable	High Internalization/ Experimental Group (n = 32)	Low Internalization/ Experimental Group (n = 20)	High Internalization/ Control Group (n = 26)	Low Internalization/ Control Group (n = 27)
Year				
% 1 st year	75	65	73	89
% 2 nd year	22	20	19	7
% 3 rd year	0	15	0	4
% 4 th year	3	0	8	0
Full or Part-Time				
% Full	91	95	85	93
% Part	9	5	15	7
Employed				
% Full-Time	0	5	8	4
% Part-Time	44	65	23	40
% Not at all	56	30	69	56

Note: BMI = Body Mass Index; AA = African American

Table 2

Significant independent T-test results between Excluded and Included Participants

Variable		Excluded Participants (n = 19)	Included Participants (n = 105)	P-Value
Body Dissatisfaction	M	12.10	6.91	.001
	SD	5.73	5.99	
Internalization	M	32.16	27.23	.027
	SD	6.32	32.16	
Social Comparison	M	2.75	2.36	.031
	SD	.636	.724	
Dietary Restraint	M	27.53	21.99	.000
	SD	5.04	5.58	
Behavioral Intentions (MAQ)	M	8.42	6.34	.004
	SD	1.83	3.00	
Self-Esteem	M	17.58	21.09	.003
	SD	5.21	4.63	

Note: MAQ = Media Attitudes Questionnaire

In regard to attrition rates, 7 participants did not attend the post-test session (n = 98; 47 experimental and 51 control) and an additional 6 participants did not attend the follow-up session, resulting in a final sample size of 92 participants, 43 in the experimental group and 49 in the control group.

Sample Size Calculation

In Posavac et al.'s (2001) study, results revealed an effect size (ES) of 1.07 for the media literacy intervention. This was a group effect not accounting for internalization. In Yamamiya et al.'s (2005) study, the ES was 1.69 for the media literacy intervention, for individuals scoring high on internalization, and .69 for the media literacy intervention, for participants scoring low on internalization. Based on these results, we took the average of the effect sizes and our sample size calculation was conducted with an estimated effect size of 1.0. The sample size calculation was conducted with SAS software, version 9.1. The calculation was based on mixed repeated measures ANOVA, with a two-tailed alpha of .05. To test the primary hypotheses of group (intervention vs. control) by internalization (high vs. low) by time (baseline, post, follow-up), we needed 32 subjects in each group (16 high and 16 low) based on a beta of .20. This analysis also indicates that with a sample size of 32 per group (intervention vs. control) the beta is greater than .10 to detect between group differences. To account for 25% attrition, we recruited over 80 participants and randomly assigned them to each group (control and intervention).

Procedure

Ethics approval was obtained from The Carleton University's Research Ethics Committee. Subjects were recruited by using the psychology department bulletin board website (Recruitment Flyer, Appendix A). Here, participants were informed of the

purpose of the study and reimbursement amount so they could decide whether they wanted to participate. The website provided time slots whereby participants could sign up, and a time was organized to meet for the first session of the experiment. At baseline, participants entered the laboratory at Carleton University and completed an informed consent form, which provided the participants with sufficient information (e.g., purpose of the study) so that they could determine whether they still wished to participate (Appendix B). They were told their participation is entirely voluntary, and students were informed that they could withdraw from the study at any time, or not answer any questions that make them feel uncomfortable. A male experimenter presented the study as three separate studies. Students were told in this first session that: “The purpose of this study is for consumer research on young female’s evaluations of new educational programs (i.e., media literacy versus control audiotaped messages) and certain products (i.e., women’s clothing). In addition, as part of a pilot study, participants were asked to fill out questionnaires about the self for use in a future study.” Subjects were informed that they will have to fill out questionnaires about the self at three time periods (i.e., baseline, post, follow-up) and that some questionnaires will be the same whereas some will be different.

As part of the pilot testing study, participants then filled out a demographics questionnaire, Eating Disorder Diagnostic Scale (EDDS), Eating Disorders Inventory-Body Dissatisfaction Scale (EDI-BD), Revised Restraint Scale (RRS), Comparison to Models Survey, Sociocultural Attitudes Toward Appearance Questionnaire (SATAQ-3), The Media Attitudes Questionnaire (MAQ), Media Habits Questionnaire, Rosenberg Self-Esteem Scale, and The Positive and Negative Affect Schedule (PANAS). Subjects

also filled out some bogus questionnaires that were embedded with the aforementioned measures. The reason for including bogus questionnaires is to reduce the likelihood of participants identifying the true nature of the study. These questionnaires included The Christian Religious Internalization Scale (CRIS; Ryan, Rigby, & King, 1993), Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003), and The Fagerstrom Test for Nicotine Dependence (FTND; Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991). While participants filled out the questionnaires the experimenter scored the Eating Disorder Diagnostic Scale (EDDS) to screen for past or present eating disorders. The participants who met the criteria for an eating disorder were excluded from the study and provided with a written debriefing form informing them of the purpose of the study (Appendix C). Moreover, contact information was provided so students could contact the relevant sources if they had questions about the study or wished to speak with a psychologist or counseling services. In addition, we provided them with contact numbers for both the Hopewell Eating Disorder Support Centre and The Regional Centre for the Treatment of Eating Disorders. A written debriefing was also provided to the students included in the study (Appendix D). Eligible participants were then randomly assigned to one of two conditions: Control Information/Model Images (N = 53) or Media Literacy/Model Images (N = 52). Therefore, the first session was for the purposes of collecting baseline data, screening for eating disorders, and adapting to the lab environment.

The second session took place approximately 1 week after baseline and included participants entering the laboratory in small groups of no more than four, to reduce the likelihood of influences of close physical proximity or overt reactions to the test

materials. Subjects then were asked to listen (i.e., 7 minute audiotape) to and evaluate a new educational program (i.e., media literacy or control information). Participants were informed that the male narrator on the audiotapes is a clinical psychologist and an expert on the topic. The control message included information concerning parenting skills and child behaviour management, presented as important not only for educating current or future parent practices but also for anyone having contact with children.

The media literacy intervention component included two sections. First, there was information on “Artificial Beauty,” which argues that media images of females are inappropriate standards because their unrealistic appearance is created by several artificial techniques, including make-up and air-brushing. Second, participants listened to a “Genetic Realities” component, which argues that genetics exert a strong influence on body weight/shape and that the majority of females in the general population are biologically predisposed to be heavier than females portrayed in the media. They then completed a bogus evaluation form regarding the content and level of interest of the information on the audiotapes (Appendix E). At this point a manipulation check took place whereby subjects were asked to answer four questions about the content of the audiotapes in order to determine whether they understood and processed the information presented in the audiotape (Appendix F).

Next, under the guise of a different consumer research study (i.e., evaluating women’s clothing), model images (9 photographs) were presented to participants in both conditions. The experimenter gave the subjects a bogus evaluation questionnaire with two questions: (1) Please rate how much you like the clothing in this picture? This was rated by using a Likert scale ranging from 1 (not at all) to 5 (very much), (2) Please rate

whether the model's clothing would be flattering to your own figure? This was rated by using a Likert scale ranging from 1 (not at all) to 5 (very much). Following this, participants were asked to fill out the same questionnaires as they did at baseline. As part of the pilot study on questionnaires about the self, subjects also filled out some bogus questionnaires that differed from baseline testing and were embedded with the outcome measures in the battery. The bogus questionnaires included the Big Five Inventory (John & Srivastava, 1999), Positive Emotionality Measure (PEM; Tellegen, 1982), and BIS/BAS scale (Carver & White, 1994). Following the questionnaires, participants self-reported their weight (kg) and height (metres) in order to determine their Body Mass Index ($BMI = kg/m^2$). Following this session participants were provided with a written debriefing (Appendix G).

The third session took place approximately one month (4 weeks) following Time 2. As part of the pilot study on questionnaires about the self, during this session participants were asked to fill out all of the original questionnaires. Additional bogus questionnaires embedded with the original ones included the Attachment Style Questionnaire (ASQ; Feeney, Noller, & Hanrahan, 1994), The Gratitude Questionnaire (GQ-6; McCullough, Emmons, & Tsang, 2002), and The Satisfaction with Life Scale (Diener, Emmons, Larson, & Griffin, 1985). Following the questionnaires, participants' height and weight were measured by a standardized weight and height scale in order to calculate BMI. Participants stood backwards on the scale and only subjects who wanted to know their weight and height were provided this information. After each participant finished the questionnaires and their height and weight had been measured, the experimenter asked the participants what they thought the experiment was investigating.

The experimenter then thanked them for participating in the advertising study. A written debriefing outlining the purpose of the study was provided to the subjects (Appendix H). To reduce any negative effects that the model images may have had on subjects, control participants were given the media literacy intervention. Moreover, contact information was provided so students could contact the relevant sources if they had questions with regard to the content of the questionnaires, ethical issues, or counseling services. None of the participants contacted us for additional information.

Sessions were not counterbalanced because of potential carry over effects from the intervention, thus all subjects proceeded with the same order: baseline, post, and follow-up.

Measures

Media Images. Fifteen pictures of female Caucasian fashion model's depicting the "ideal" female body were selected from various magazines (i.e., In Style, Marie Claire, Elle, Vogue). Selection was based on the following criteria: (1) photograph portrays only one woman, (2) models full body is exposed (i.e., head to foot), (3) models body is not obscured by baggy clothing, (4) females appear at least 17 years of age. In order to choose pictures that best represent the feminine ideal, a content analysis was conducted by asking 10 females to independently rate each of the 15 pictures. Independent raters were asked to answer three questions: (1) In your opinion how attractive is the female in this picture? This was rated using a Likert scale ranging from 1 (not at all) to 10 (very attractive), (2) Would you consider this female to be thin? This was rated using a Likert scale ranging from 1 (not at all) to 10 (very thin), (3) Is this female representative of the thin ideal standard of beauty as portrayed by the media? This was rated using a Likert

scale ranging from 1 (not at all) to 10 (very much). Because research indicates that between one and nine pictures produce the greatest experimental effect (Groesz et al., 2002), the nine pictures with the highest scores collapsed across three criteria were included in the study. Overall, collapsed across the three questions (attractiveness, thinness, ideal as portrayed by the media) the nine pictures yielded an average score of 8 out of 10. Therefore, in both conditions participants were exposed to 9 pictures of female fashion models. The pictures were in a booklet format and participants were exposed to each picture for 20 seconds, followed by a 20 second exposure to a blank page (i.e., the response interval). A stop-watch was used by the experimenter to inform the participants of the exposure times, and to respond to the two questions that follow each image; namely; how they like the clothing and whether they think it would look flattering using Likert scales.

Audiotape. Both control and intervention conditions included messages presented on a 7-minute audiotape (Yamamiya et al., 2005). The control message included information concerning parenting skills and child behaviour management, described above. The intervention audiotape included information about “Artificial Beauty” and “Genetic Realities,” described above. The messages in both conditions are from the same transcripts used in Yamamiya et al.’s (2005) study (Appendix I).

Questionnaires

Demographics Questionnaire. This questionnaire was used to determine the participants’ gender, age, ethnicity, academic year and employment status (Appendix J).

Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000). This is a self-report questionnaire designed to determine if participants meet DSM-IV criteria for

anorexia nervosa, bulimia nervosa, and binge eating disorder over the previous 4 weeks (Appendix K). This questionnaire has good convergent validity, criterion validity (.83), test-retest reliability (.87), and internal consistency (.89) (Stice et al., 2000). Internal consistency for the EDDS in this study was .28.

Eating Disorders Inventory-2-Body Dissatisfaction Scale (EDI-2-BD; Garner, 1991). This 9-item questionnaire was used to assess body dissatisfaction (Appendix L). The original instructions were modified to ensure responses reflect participants' current feelings about their bodies. Therefore, participants were instructed to "indicate how accurate each item is about you right now, at the present time." The alpha for the modified EDI-BD is .83 (Irving & Berel, 2001). Participants in the present study were asked to indicate their extent of agreement with statements (e.g., "I think that my stomach is too big") using a Likert scale that ranges from *Always* (A) to *Never* (N); higher scores indicate greater body dissatisfaction. The internal consistency of the original EDI-BD in non-patient female samples is .91 to .93 (Garner, 1991). Internal consistency for the EDI-BD in this study was .88.

Body mass index. Participants' weight (in kilograms) and height (in inches) was measured using both self-reports and standardized scales in the laboratory at post and follow-up sessions. Height information was converted into metres and used to calculate Body Mass Index ($BMI = kg/m^2$).

Dietary restraint. Dietary restraint, the conscious restriction of food and calories with the intention of weight loss, was measured using the Revised Restraint Scale (RRS; Polivy, Herman, & Howard, 1988) (Appendix M). According to Gorman and Allison (1995), the reliability (Cronbach's Alpha) varies between 0.78 and 0.83 for normal

weight college women. Internal consistency for the dietary restraint scale in this study was .81.

Comparison to Models Survey (Strowman, 1996). This small survey containing 8 items relates to how an individual compares oneself to same sex models in magazines (Appendix N). It consists of a 5-point Likert scale ranging from 1 (never) to 5 (always). It has an alpha of 0.86 for females (Strowman, 1996). Internal consistency for the measure in this study was .78.

Sociocultural Attitudes Toward Appearance Questionnaire-3 (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). This questionnaire was used to assess internalization of sociocultural standards of physical appearance based on the corresponding Internalization-General subscale (Appendix O). This subscale assesses the extent to which one idealizes (“I would like to look like...”) and compares oneself (“I compare my appearance...”) to movie stars, television, and magazine models. Using median splits participants were divided into high and low on internalization (Low ranged from 9-26; High ranged from 27-45). Thompson, et al., (2004) reported high internal consistency for the Internalization-General subscale in two studies (.96, .92). This scale also showed excellent construct validity, predictive validity, and discriminant validity. Internal consistency of the SATAQ-3 in this study was .95.

The Media Attitudes Questionnaire (MAQ; Irving, DuPen, & Berel, 1998). This questionnaire was used to assess media scepticism. The MAQ consists of 22 media related statements (Appendix P). Participants rated the extent to which they agreed with each statement using Likert scales ranging from *completely disagree* (1) to *completely agree* (5), with lower ratings indicating greater levels of media scepticism. The MAQ has

6 subscales, including perceived realism of media images (three items), perceived similarity to models portrayed in the media (three items), desirability of looking like models portrayed in the media (four items), identification with models portrayed in the media (five items), positive expectancies associated with being thin (five items), intentions to engage in dieting behaviour (two items). Previous research indicates that the internal consistency for the MAQ is .88; internal consistency for the realism, similarity, desirability, identification, positive expectancies, and intentions to diet subscales was .56, .77, .62, .88, .84, and .70, respectively (Irving & Berel, 2001). Internal consistency for the MAQ in this study was .87; internal consistency for the realism, similarity, desirability, identification, positive expectancies, and intentions to diet subscales in this study were .50, .70, .59, .87, .88, and .90, respectively.

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). This questionnaire was used to assess mood. The PANAS consists of two scales: The positive affect scale (PANAS-PA) and the negative affect scale (PANAS-NA) (Appendix Q). State-dependent instructions were used to assess changes in affect immediately following the interventions (Watson, et al., 1988). Internal consistency for the state dependent protocol is .83 for the PANAS-PA and .88 for the PANAS-NA (Irving & Berel, 2001). Internal consistency for the PANAS-PA and PANAS-NA in this study were .61 and .66, respectively.

Rosenberg Self-Esteem Scale (Rosenberg, 1965). This 10-item questionnaire was used to assess self-esteem (Appendix R). Participants responded to the 10 attitude statements by marking the anchors 1=Strongly Agree and 4=Strongly Disagree. The possible range of scores is 10-40, with 10 indicating higher self-esteem. This measure has

a test-retest reliability of .85 (Demo, 1985). Internal consistency of the measure in this study was .85.

Media Habits Questionnaire. This questionnaire was created by the authors and assessed the type and frequency of reading popular culture magazines (e.g., Vogue, In Style, Seventeen) as well as type and frequency of watching television shows portraying the thin ideal (e.g., soap operas, music videos) (Appendix S). Participants responded to two open-ended questions asking how often they read the following magazines: Seventeen, Vogue, In Style, Maxim, Glamour, Fitness and Health, Marie Claire, Cosmopolitan and how often they viewed the following television programs: Soap Operas, Music Videos.

Design

The present study incorporates an experimental mixed design with both between group factors and within subjects factors. The between-subjects independent variables include Group, comprised of the media literacy intervention or control group, and Internalization (high vs low). The within-subjects independent variable was Time (baseline, post-test, follow-up). The primary dependent variable is body dissatisfaction. Exploratory dependent variables include BMI, dietary restraint, media knowledge and scepticism, mood, media habits, and self-esteem.

Data Screening Procedures

Data screening and analysis was conducted with the Statistical Package for the Social Sciences (SPSS, Version 13). Procedures for screening data described by Tabachnick and Fidell (1989; 2001) were employed prior to analyzing the data. There was a small amount of missing data that appeared to be randomly distributed throughout

the data set, thus missing data were deleted by the default option of the Statistical Package for the Social Sciences (SPSS) program.

Bivariate outliers were examined using boxplots and frequency distributions. It was found that there were a few univariate outliers over the three time periods within three dependent measures, including the comparison to models survey (one case at post-test and follow-up), the positive affect scale (two cases at baseline and post-test), and the media attitudes questionnaire realism subscale (one case at follow-up). Therefore, since cases with standardized scores greater than 3.29 standard deviations above and below the mean are potential outliers, any scores exceeding this value were incorporated into the distribution by placing them at scores equivalent to 3.29 standard deviations (Tabachnik & Fidell, 2001).

Multivariate outliers were examined using boxplots of the standardized residuals (repeated measures ANOVA and MANOVA) for the various dependent measures. One multivariate outlier was identified. This outlier was included in the analysis since it was close to the cut-off at 3.29 standard deviations above the mean and due to the consistently high scores on body dissatisfaction across all three-time periods (i.e., 18, 22, 26).

Multicollinearity was investigated by examining the correlations between repeated measures scores. Correlations exceeding .9 were considered to reflect multicollinearity. Table 3 displays the correlations between variables for each group of dependent variables at baseline. All bivariate correlations were below .9, indicating no problem with multicollinearity (Tabachnik & Fidell, 2001). The assumption of sphericity was tested through Mauchley's test of sphericity. The assumption was violated for repeated measures ANOVAs for both primary and secondary analyses as well as for

Table 3

Correlations among variables at baseline

	2	3	4	5	6	7	8	9	10
1.Body Dissatisfaction	.292**	.296**	.578**	.121	-.112	.541**	-.519**	-.004	.304**
2.Internalization		.593**	.066	-.040	-.038	.284**	-.235**	.217	.690**
3.Social Comparison			.073	.120	.065	.280**	-.343**	.258*	.532
4.BMI				.055	-.049	.308**	-.116	-.097	.056
5.P-PANAS					-.603**	.010	-.057	.216	.049
6.N-PANAS						-.063	.269**	.301**	-.016
7.Dietary Restraint							-.392**	.039	.385**
8.Self-esteem								.033	-.298**
9.Media Habits									.330**
10.MAQ									

Note: BMI = Body Mass Index; P-PANAS = Positive Affect; N-PANAS = Negative Affect; MAQ = Media Knowledge and Skepticism;

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

individual repeated measures tests of BMI, self-esteem, and media habits. Therefore, for these tests we will be reporting the Greenhouse-Geisser correction values. Univariate homogeneity of variance was tested through Levene's Test of Equality of Error Variances with alpha set at .001. Homogeneity of variance was met for all univariate tests. Multivariate homogeneity of variance was tested through Levene's Test of Equality of Error Variances with alpha set at .001. Homogeneity of variance was met for all multivariate tests.

With the use of histograms we observed that the main outcome variable body dissatisfaction was positively skewed. To improve the skewness, a square root transformation was employed as recommended by Tabachnik & Fidell (2001). Due to the minimal difference in statistical results (e.g., correlational and repeated measures analyses) between transformed variables and non-transformed variables, we have decided to report the results in the form of non-transformed variables because the units of measurement of non-transformed variables are more meaningful.

Analytical Strategy

Preliminary Analysis. We conducted independent t-tests between the control and intervention groups on all baseline measures in order to determine whether there were differences between the two groups. Any significant differences between the groups on any variables resulted in including these variables as covariates in subsequent analyses. Since the use of covariates (i.e., BMI and behavioural intentions subscale of the MAQ) in subsequent analyses had no effect on statistical results it was decided that the results be reported without the use of covariates. In addition, we examined the alpha levels of all

questionnaires to see whether the internal consistency of these measures was similar to previous research (see Questionnaires section above).

Primary Analysis. A three-way repeated measures ANOVA was used to assess the extent to which the level of internalization moderates the effects of the intervention on body dissatisfaction (dependent variable), with Group (intervention vs. control), and Internalization (high vs low) as the between subjects factors, and time (baseline, post, follow-up) as the within subjects factor. Median splits were used to assign participants into high and low categories on Internalization (Thompson et al., 2004). Statistically significant effects ($p < .05$) were further examined with *post hoc* pairwise comparisons using paired t-tests.

Secondary Analysis. A three-way repeated measures ANOVA was used to assess the extent to which Social Comparison moderates the effects of the intervention on body dissatisfaction. Median splits were used to assign participants into high and low categories on Social Comparison. Statistically significant effects ($p < .05$) were further examined with *post hoc* pairwise comparisons using paired t-tests.

Exploratory Analysis. Change scores were computed between baseline and post-test and post-test and follow-up time periods. Pearson correlation coefficients were used to explore whether changes in body dissatisfaction were related to changes in Social Comparison and internalization between the intervention and control groups and collapsed across the full sample.

We also investigated group differences in changes in BMI, mood, self-esteem, dietary restraint, and media habits in high versus low internalizers using three-way repeated measures Analysis of Variance (ANOVA) on each variable. The between

subjects factors included Group (intervention vs. control), and Internalization (high vs low), and the within subjects factor included time (baseline, post, follow-up). In addition, similar ANOVAs were conducted with social comparison (high vs low) as a between subjects factor instead of internalization. Statistically significant effects ($p < .05$) were further examined with *post hoc* pairwise comparisons using paired t-tests. Instead of using a MANOVA, multiple ANOVAs were employed because the research is exploratory in nature and the outcome variables are conceptually independent (Huberty & Morris, 1989). There is also an increased chance of retaining the null hypothesis when MANOVA is used (Tabachnik & Fidell, 2001) and if the null hypothesis was not rejected, it would have been unclear whether there were no real differences between the groups or if there was not enough statistical power to detect a significant difference (Type II error). Given the purpose of exploratory hypotheses is to generate new hypotheses, we did not want to be overly stringent. In addition, because our proposed hypotheses pertain to within subjects effects, we will not be reporting the between subjects effects of group for internalization and social comparison for any of the 3-way analysis of variance tests.

A three-way repeated measures MANOVA was used to investigate group differences in high versus low internalizers in media scepticism. A MANOVA was chosen as the analytical technique because media scepticism was measured on six subscales of the MAQ that were conceptually similar. The variables used as dependent measures in the MANOVA included the six subscales of the media attitudes questionnaire (MAQ): Realism, Similarity, Desirability, Identification, Positive Expectancies, and Behavioural Intentions. The between subjects factors included Group (intervention vs. control), and Internalization (high vs low), and the within subjects factor

included time (baseline, post, follow-up). A similar MANOVA was conducted with social comparison (high vs low) as a between subjects factor instead of Internalization. Statistically significant between and within group effects ($p < .05$) using the Wilk's Lambda criterion were followed by univariate tests of simple main effects and *post hoc* comparisons using paired t-tests. All tests used alpha set at .05, two-tailed.

Manipulation Check. We asked participants to answer correctly four multiple choice questions relating to the content of the audiotapes in both the intervention and control conditions (Appendix F). Overall, 17 participants answered at least one out of the four questions incorrectly. Of those 17 participants, 10 were in the experimental condition (21% of experimental group) and 7 were in the control condition (14% of control group). One participant in the control condition answered three out of four questions incorrectly. We conducted all analyses (ANOVA, MANOVA) excluding the 17 participants that answered at least one out of the four questions incorrectly; however, due to no difference in statistical results between including the participants and excluding them, we have decided to report the results including the 17 participants.

Results

Preliminary Results

We conducted preliminary analysis on the participants in both conditions and found no significant differences between the experimental and control group in terms of body dissatisfaction, internalization, social comparison, self-esteem, dietary restraint, negative and positive affect, media habits, and five out of six subscales on the media attitudes questionnaire at the time in which they completed pretest. However, at pretest we did find that there was a significant difference between the experimental ($M = 22.30$, $SD = 3.86$) and control group ($M = 20.55$, $SD = 2.92$) on body mass index, $t(101) = 2.616$, $p = .010$ (two-tailed), and a significant difference between the experimental ($M = 7.02$, $SD = 2.98$) and control group ($M = 5.69$, $SD = 2.90$) on media attitudes behavioral intentions subscale, $t(103) = 2.335$, $p = .021$

Primary Results

A three-way repeated measures ANOVA was used to assess the extent to which the level of internalization moderates the effects of the intervention on body dissatisfaction. The ANOVA revealed that the main effect of time, $F(2, 86) = .852$, $p = .430$, time x group, $F(2, 86) = 1.244$, $p = .293$, and time x group x internalization, $F(2, 86) = .390$, $p = .678$, were not statistically significant. However, there was a statistically significant time x internalization effect, $F(2, 86) = 12.670$, $p < .01$.

Post hoc comparisons using paired t-tests revealed that there were no significant differences across all three time periods (baseline, post-test, follow-up) for the low internalizers ($p > .05$). The high internalizers had a significant increase in their body dissatisfaction levels from baseline ($M = 8.23$, $SD = 6.67$) to post-test ($M = 9.72$, $SD =$

6.93), $t(52) = -3.191, p = .002$. However, this was followed by a significant decrease in body dissatisfaction levels from post-test ($M = 9.59, SD = 6.94$) to follow-up ($M = 8.23, SD = 6.60$), $t(51) = 3.894, p = .000$. There were no significant differences for the high internalizers between baseline and follow-up time periods on body dissatisfaction ($p > .05$). Table 4 displays the body dissatisfaction means and standard deviations of participants in each group with high and low internalization levels at pretest, posttest, and follow-up time periods.

Secondary Results

A three-way repeated measures ANOVA was used to assess the extent to which Social Comparison moderates the effects of the intervention on body dissatisfaction. The ANOVA revealed that the main effect of time, $F(2, 86) = 1.666, p = .195$, time x group, $F(2, 86) = .793, p = .456$, and time x group x social comparison, $F(2, 86) = .734, p = .483$, were not statistically significant. However, there was a statistically significant time x social comparison effect, $F(2, 86) = 7.456, p < .01$.

Post hoc comparisons using paired t-tests revealed that there were no significant differences across all three time periods (baseline, post-test, follow-up) for the low social comparers ($p > .05$). Individuals high on social comparison had a significant increase in their body dissatisfaction levels from baseline ($M = 8.48, SD = 6.90$) to post-test ($M = 9.90, SD = 7.29$), $t(49) = -2.778, p = .008$. However, this was followed by a significant decrease in body dissatisfaction levels from post-test ($M = 9.78, SD = 7.31$) to follow-up ($M = 8.61, SD = 6.86$), $t(48) = 3.121, p = .003$. There were no significant differences for the high social comparers between baseline and follow-up time periods on body dissatisfaction ($p > .05$). Table 5 displays the body dissatisfaction means and standard

Table 4

The EDI-BD means and standard deviations of participants with high and low internalization levels

Variable	High Internalization/ Experimental Group	Low Internalization/ Experimental Group	High Internalization/ Control Group	Low Internalization/ Control Group
EDI-BD				
Baseline	9.12 (6.59)	5.60 (5.35)	7.23 (6.17)	4.96 (4.78)
Post-test	10.61 (7.33)	5.50 (5.72)	8.72 (6.45)	3.69 (5.31)
Follow-up	9.66 (6.93)	6.64 (6.39)	6.87 (6.09)	4.04 (5.87)

Note: EDI-BD = Body Dissatisfaction

Table 5

The EDI-BD means and standard deviations of participants with high and low social comparison levels

Variable	High Social Comp/ Experimental Group	Low Social Comp/ Experimental Group	High Social Comp/ Control Group	Low Social Comp/ Control Group
EDI-BD				
Baseline	9.54 (7.08)	6.00 (5.01)	7.62 (6.17)	4.21 (4.14)
Post-test	11.48 (7.72)	5.74 (5.24)	8.56 (7.76)	3.46 (4.71)
Follow-up	10.83 (7.26)	5.95 (5.24)	6.88 (6.07)	3.78 (5.80)

Note: EDI-BD = Body Dissatisfaction

deviations of participants in each group with high and low social comparison levels at pretest, posttest, and follow-up time periods.

Exploratory Analysis

Correlations of change scores. The Pearson correlation matrix for the full sample and the control group revealed no significant correlations between changes in body dissatisfaction and social comparison and internalization at any time intervals. However, the correlation matrix for the experimental group revealed a significant correlation between changes in body dissatisfaction and internalization (baseline and post-test scores). As expected, decreases in internalization were associated with decreases in body dissatisfaction (See table 7).

In addition, the correlation matrices for the full sample, control group, and experimental group revealed a significant positive association between changes in social comparison and internalization measures (baseline and post-test scores). For values of change score correlations for full sample, control group, and experimental group, refer to Tables 6, 7, and 8.

ANOVA with internalization as a moderating independent variable. Table 9 displays the means and standard deviations for participants in each group with high and low internalization levels across all exploratory dependent measures at pretest, posttest, and follow-up time periods.

The 3-way ANOVA with BMI as the dependent variable revealed a statistically significant main effect of time, $F(2, 83) = 56.206, p = .000$. The time x group, $F(2, 83) = .127, p = .881$, time x internalization, $F(2, 83) = 2.595, p = .081$, and time x group x internalization, $F(2, 83) = .963, p = .386$, were not statistically significant.

Table 6

Correlations (change scores) among body dissatisfaction, internalization, and social comparison variables at baseline-posttest and post-test-follow-up for full sample

Baseline-Post-test			Post-test-Follow-up		
	2	3		2	3
1.Body Dissatisfaction	.100	.116	1.Body Dissatisfaction	.147	-.026
2.Internalization		.349**	2.Internalization		.022
3.Social Comparison			3.Social Comparison		

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

Table 7

Correlations (change scores) among body dissatisfaction, internalization, and social comparison variables at baseline-posttest and post-test-follow-up for experimental group

Baseline-Post-test			Post-test-Follow-up		
	2	3		2	3
1.Body Dissatisfaction	.322*	.214	1.Body Dissatisfaction	.150	-.296
2.Internalization		.307*	2.Internalization		-.025
3.Social Comparison			3.Social Comparison		

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

Table 8

Correlations (change scores) among body dissatisfaction, internalization, and social comparison variables at baseline-posttest and post-test-follow-up for control group

Baseline-Post-test			Post-test-Follow-up		
	2	3		2	3
1.Body Dissatisfaction	-.176	.031	1.Body Dissatisfaction	.138	.177
2.Internalization		.391**	2.Internalization		.029
3.Social Comparison			3.Social Comparison		

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

Table 9

The exploratory variables means and standard deviations of participants with high and low internalization levels

Variable	High Internalization/ Experimental Group	Low Internalization/ Experimental Group	High Internalization/ Control Group	Low Internalization/ Control Group
BMI				
Baseline	22.55 (4.08)	21.91 (3.55)	20.72 (2.77)	20.38 (3.10)
Post-test	22.34 (4.28)	22.37 (3.65)	20.63 (2.68)	20.46 (2.97)
Follow-up	23.87 (5.04)	24.52 (3.33)	22.04 (2.68)	23.08 (3.84)
Self-Esteem				
Baseline	20.59 (5.10)	22.40 (4.38)	20.04 (3.98)	21.74 (4.72)
Post-test	19.90 (6.42)	24.06 (4.08)	19.04 (3.42)	20.81 (5.22)
Follow-up	20.83 (6.09)	23.64 (4.45)	20.04 (3.75)	21.00 (5.52)
Dietary Restraint				
Baseline	22.19 (5.02)	22.25 (6.09)	23.92 (4.74)	19.70 (6.03)
Post-test	23.03 (5.59)	20.61 (5.67)	23.20 (4.84)	19.58 (6.14)
Follow-up	22.86 (5.61)	21.14 (6.25)	22.50 (5.38)	19.32 (5.80)

Variable	High Internalization/ Experimental Group	Low Internalization/ Experimental Group	High Internalization/ Control Group	Low Internalization/ Control Group
Negative Affect				
Baseline	24.69 (4.78) ^{A,B}	23.80 (4.74)	23.58 (4.46)	25.33 (3.46) ^B
Post-test	22.97 (4.64)	25.00 (5.93)	22.48 (4.55)	23.65 (4.77)
Follow-up	23.07 (5.61)	25.43 (6.54)	22.50 (4.52)	23.04 (4.37)
Positive Affect				
Baseline	19.22 (3.70)	18.85 (3.99)	18.61 (2.58)	19.63 (3.49)
Post-test	18.00 (4.86)	19.33 (3.56)	19.04 (2.98)	20.00 (4.88)
Follow-up	17.69 (3.55)	20.21 (4.28)	18.67 (3.20)	18.80 (4.62)
Media Habits				
Baseline	7.35 (8.65)	5.53 (4.49)	9.95 (5.74)	7.56 (6.60)
Post-test	4.90 (4.02)	3.00 (2.47)	5.32 (4.37)	4.81 (5.37)
Follow-up	11.34 (9.27)	7.71 (4.89)	9.08 (6.61)	10.72 (17.03)

^A Baseline vs Post-test, $p < .05$; ^B Baseline vs Follow-up, $p < .05$

Variable	High Internalization/ Experimental Group	Low Internalization/ Experimental Group	High Internalization/ Control Group	Low Internalization/ Control Group
MAQ (Realism)				
Baseline	7.50 (2.69)	6.00 (2.45)	7.23 (2.18)	6.22 (2.19)
Post-test	5.97 (2.58)	5.06 (2.04)	7.28 (1.93)	6.19 (2.08)
Follow-up	6.21 (2.30)	4.93 (4.86)	6.83 (2.18)	6.16 (2.01)
MAQ (Similarity)				
Baseline	8.50 (3.64)	7.50 (2.78)	8.69 (2.94)	7.67 (2.62)
Post-test	8.07 (3.41)	5.44 (2.48)	9.48 (2.53)	7.88 (3.29)
Follow-up	7.52 (3.17)	6.43 (3.39)	9.04 (3.04)	8.40 (3.04)
MAQ (Desirability)				
Baseline	13.37 (2.87)	11.40 (2.66)	13.50 (2.27)	12.15 (2.32)
Post-test	12.86 (2.92)	11.28 (2.82)	13.80 (1.83)	12.04 (2.52)
Follow-up	12.62 (3.10)	11.21 (2.36)	13.25 (2.21)	12.12 (2.89)

Note: MAQ = Media Attitudes Questionnaire

Variable	High Internalization/ Experimental Group	Low Internalization/ Experimental Group	High Internalization/ Control Group	Low Internalization/ Control Group
MAQ (Identification)				
Baseline	14.28 (5.16)	9.55 (3.17)	16.11 (4.88)	10.30 (3.71)
Post-test	14.21 (4.56)	9.00 (3.38)	15.72 (4.55)	10.42 (4.37)
Follow-up	14.14 (4.82)	10.50 (4.24)	15.58 (4.06)	10.28 (4.04)
MAQ (Expectancies)				
Baseline	14.28 (4.83)	11.80 (5.54)	13.69 (4.81)	10.15 (5.28)
Post-test	13.10 (5.14)	9.61 (4.09)	14.16 (4.49)	11.46 (5.63)
Follow-up	13.17 (4.98)	9.79 (5.39)	13.71 (6.11)	11.68 (5.60)
MAQ (Behavioral Intentions)				
Baseline	7.25 (2.86)	6.65 (3.20)	6.65 (2.58)	4.74 (2.93)
Post-test	6.93 (2.95)	6.00 (2.99)	6.36 (2.86)	4.54 (2.93)
Follow-up	6.86 (2.97)	6.21 (3.12)	6.83 (2.71)	4.36 (2.68)

Note: MAQ = Media Attitudes Questionnaire

Post hoc comparisons using paired t-tests revealed no significant differences in BMI from baseline to post-test. However, there was a significant increase in BMI from post-test ($M = 21.46$, $SD = 3.56$) to follow-up ($M = 23.38$, $SD = 3.99$), $t(87) = -10.619$, $p = .000$, and BMI at follow-up ($M = 23.34$, $SD = 3.96$) was also significantly higher than at baseline ($M = 21.45$, $SD = 3.62$), $t(89) = -10.204$, $p = .000$.¹

The 3-way ANOVA with negative affect as the dependent variable revealed that the main effect of time, $F(2, 87) = 1.780$, $p = .175$, time x group, $F(2, 87) = 1.669$, $p = .194$, and time x internalization, $F(2, 87) = 1.347$, $p = .265$, were not statistically significant. However, there was a significant time x group x internalization effect, $F(2, 87) = 2.973$, $p = .056$. *Post hoc* comparisons revealed no significant differences over time for the low internalizers in the experimental group. However, the paired t-tests revealed a significant decrease in negative affect for the low internalizers in the control group between baseline ($M = 25.32$, $SD = 3.60$) and follow-up ($M = 23.04$, $SD = 4.37$) time periods, $t(24) = 2.337$, $p = .028$. There was a significant decrease in negative affect from baseline ($M = 24.72$, $SD = 4.88$) to post-test ($M = 22.97$, $SD = 4.64$) for high internalizers in the experimental group, $t(28) = 2.770$, $p = .010$, and a significant decrease from baseline ($M = 24.72$, $SD = 4.88$) to follow-up ($M = 23.07$, $SD = 5.61$), $t(28) = 2.257$, $p = .032$. There were no significant differences for the high internalizers in the control group over time.

The 3-way ANOVA with dietary restraint as the dependent variable revealed that the main effect of time, $F(2, 87) = .663$, $p = .518$, time x internalization, $F(2, 87) = .841$, $p = .435$, and time x group x internalization, $F(2, 87) = 1.544$, $p = .219$, were not

¹ Body Mass Index was measured differently at baseline and posttest (self-report) compared to follow-up (actual).

statistically significant. However, there was a significant time x group interaction effect, $F(2, 87) = 3.133, p = .049$.

Post hoc comparisons revealed no significant differences for the intervention group. The only significant difference for the control group was that they significantly decreased in their dietary restraint scores between baseline ($M = 21.86, SD = 5.71$) and follow-up ($M = 20.88, SD = 5.77$) time periods, $t(48) = 2.875, p = .006$.

The 3-way ANOVA on media habits as the dependent variable revealed a significant main effect of time, $F(2, 64) = 16.778, p = .000$. There were no statistically significant findings for time x group, $F(2, 64) = 1.810, p = .172$, time x internalization, $F(2, 64) = .958, p = .389$, and time x group x internalization, $F(2, 64) = .930, p = .400$.

Post hoc comparisons revealed a significant increase in media habits from baseline ($M = 3.99, SD = 3.49$) to post-test ($M = 4.82, SD = 4.57$), $t(73) = -1.953, p = .055$. However, there was a significant decrease from post-test ($M = 4.62, SD = 4.29$) to follow-up ($M = 2.51, SD = 2.73$), $t(91) = 5.811, p = .000$, and a decrease from baseline ($M = 3.89, SD = 3.47$) to follow-up ($M = 2.50, SD = 2.63$), $t(68) = 4.218, p = .000$. This decrease in media habits indicates, that collapsed across groups there was less consumption of media habits over time.

The 3-way ANOVA with positive affect as the dependent variable revealed that the main effect of time, $F(2, 87) = .468, p = .628$, time x group, $F(2, 87) = .614, p = .544$, time x internalization, $F(2, 87) = .613, p = .544$, and time x group x internalization, $F(2, 87) = 2.356, p = .101$, were not statistically significant. In addition, the 3-way ANOVA with self-esteem as the dependent variable revealed that the main effect of time, $F(2, 87) = .886, p = .416$, time x group, $F(2, 87) = 1.324, p = .271$, time x

internalization, $F(2, 87) = 1.328, p = .270$, and time x group x internalization, $F(2, 87) = 1.045, p = .356$, were not statistically significant. Therefore, no follow-up *post hoc* analyses were conducted.

ANOVA with social comparison as a moderating independent variable. Table 10 displays the means and standard deviations for participants in each group with high and low social comparison levels across all exploratory dependent measures at pretest, posttest, and follow-up time periods.

The 3-way ANOVA with BMI as the dependent variable revealed a statistically significant main effect of time, $F(2, 83) = 54.359, p = .000$. The time x Group, $F(2, 83) = .345, p = .709$, time x social comparison, $F(2, 83) = .715, p = .492$, and time x Group x social comparison, $F(2, 83) = .220, p = .803$, were not statistically significant. *Post hoc* comparison results are identical to those conducted with internalization as a between subjects factor (see above). There were no significant differences in BMI from baseline to post-test. However, there was a significant increase in BMI from post-test to follow-up and a significant increase in BMI from baseline to follow-up.

The ANOVA with dietary restraint as the dependent variable revealed that the main effect of time, $F(2, 87) = .627, p = .537$, and time x social comparison, $F(2, 87) = 1.403, p = .251$, were not statistically significant. However, there was a significant time x group interaction effect, $F(2, 87) = 3.948, p = .023$, and a significant time x group x social comparison interaction effect, $F(2, 87) = 3.165, p = .047$. *Post hoc* comparisons for the time x group x social comparison interaction revealed no significant differences for the intervention group on either high or low on social comparison. However, individuals low on social comparison in the control group had a significant decrease in

Table 10

The exploratory variables means and standard deviations of participants with high and low social comparison levels

Variable	High Soc. Comp./ Experimental Group	Low Soc. Comp./ Experimental Group	High Soc. Comp./ Control Group	Low Soc. Comp./ Control Group
BMI				
Baseline	23.09 (4.99)	21.77 (2.21)	20.77 (2.66)	20.49 (3.46)
Post-test	23.03 (4.92)	21.59 (2.49)	20.82 (2.58)	20.39 (3.17)
Follow-up	24.87 (5.25)	23.47 (3.26)	22.56 (3.01)	22.65 (3.82)
Self-Esteem				
Baseline	20.33 (5.39)	22.21 (4.20)	20.08 (4.08)	21.30 (4.71)
Post-test	19.29 (6.57)	23.58 (4.44)	19.19 (3.70)	20.78 (5.13)
Follow-up	20.21 (5.96)	23.68 (4.87)	20.38 (3.83)	20.70 (5.63)
Dietary Restraint				
Baseline	23.12 (4.65)	20.00 (5.21)	23.93 (5.08) ^{A,C}	19.65 (5.62)
Post-test	23.92 (5.22)	20.26 (5.60)	22.48 (5.52)	20.13 (6.05) ^B
Follow-up	23.92 (5.50)	20.26 (5.67)	22.42 (5.35)	19.13 (5.83)

^A Baseline vs Post-test, $p < .05$; ^B Post-test vs Follow-up, $p < .05$; ^C Baseline vs Follow-up, $p < .05$

Variable	High Soc. Comp./ Experimental Group	Low Soc. Comp./ Experimental Group	High Soc. Comp./ Control Group	Low Soc. Comp./ Control Group
Negative Affect				
Baseline	25.38 (4.82)	23.26 (4.65)	24.81 (4.22)	24.17 (4.18)
Post-test	24.08 (4.88)	23.53 (5.98)	23.11 (5.10)	23.13 (4.41)
Follow-up	24.67 (6.55)	22.79 (5.08)	22.77 (5.13)	22.78 (3.53)
Positive Affect				
Baseline	19.83 (4.81)	18.26 (2.47)	19.46 (3.37)	18.96 (2.96)
Post-test	19.25 (5.34)	17.68 (3.11)	19.38 (3.43)	19.78 (4.85)
Follow-up	18.92 (4.69)	18.00 (2.75)	18.53 (3.43)	18.96 (4.53)
Media Habits				
Baseline	4.39 (4.51)	2.04 (1.60)	4.58 (2.74)	3.94 (3.40)
Post-test	4.86 (3.71)	2.31 (1.89)	4.78 (4.56)	6.75 (6.20)
Follow-up	2.86 (2.20)	1.52 (1.07)	1.85 (1.80)	3.52 (4.16)

Variable	High Soc. Comp./ Experimental Group	Low Soc. Comp./ Experimental Group	High Soc. Comp./ Control Group	Low Soc. Comp./ Control Group
MAQ (Realism)				
Baseline	7.96 (2.49)	5.67 (2.52)	7.31 (2.53)	6.22 (1.83)
Post-test	6.33 (2.60)	4.50 (1.47)	7.23 (2.16)	6.13 (1.82)
Follow-up	6.46 (2.36)	4.83 (1.76)	6.69 (2.28)	6.26 (1.91)
MAQ (Similarity)				
Baseline	8.46 (3.16)	7.17 (3.45)	7.92 (3.33)	8.39 (2.39)
Post-test	7.88 (3.29)	5.78 (2.98)	8.77 (3.13)	8.52 (3.09)
Follow-up	8.00 (3.18)	5.83 (2.94)	8.85 (3.04)	8.57 (3.07)
MAQ (Desirability)				
Baseline	13.33 (2.60)	11.44 (3.09)	13.11 (2.50)	12.22 (2.27)
Post-test	13.37 (2.67)	11.28 (3.18)	13.23 (2.37)	12.39 (2.33)
Follow-up	13.29 (2.60)	10.89 (2.74)	13.19 (2.42)	12.09 (2.76)

Note: MAQ = Media Attitudes Questionnaire

Variable	High Soc. Comp./ Experimental Group	Low Soc. Comp./ Experimental Group	High Soc. Comp./ Control Group	Low Soc. Comp./ Control Group
MAQ (Identification)				
Baseline	14.25 (4.99)	9.94 (3.15)	15.04 (5.77)	10.91 (3.68)
Post-test	14.92 (4.51)	9.39 (3.05)	15.81 (4.59)	9.96 (4.16)
Follow-up	15.21 (4.53)	9.89 (3.61)	15.00 (4.51)	10.48 (4.03)
MAQ (Expectancies)				
Baseline	14.71 (5.16)	11.44 (4.91)	13.61 (5.14)	10.13 (5.15)
Post-test	13.92 (5.05)	9.22 (4.08)	13.88 (4.88)	11.65 (5.42)
Follow-up	14.75 (4.71)	8.72 (4.05)	13.77 (6.16)	11.43 (5.42)
MAQ (Behavioral Intentions)				
Baseline	7.83 (2.66)	5.94 (3.19)	6.42 (2.97)	4.87 (2.77)
Post-test	7.67 (2.66)	5.44 (2.79)	6.04 (3.04)	4.78 (2.89)
Follow-up	7.29 (2.63)	6.05 (3.26)	6.58 (2.86)	4.43 (2.66)

Note: MAQ = Media Attitudes Questionnaire

dietary restraint from post-test ($M = 20.13$, $SD = 6.05$) to follow-up ($M = 19.13$, $SD = 5.83$), $t(22) = 2.547$, $p = .018$. Individuals high on social comparison in the control group had a significant decrease in dietary restraint from baseline ($M = 23.93$, $SD = 5.08$) to post-test ($M = 22.48$, $SD = 5.52$), $t(26) = 3.400$, $p = .002$, and a significant decrease from baseline ($M = 23.81$, $SD = 5.14$) to follow-up ($M = 22.42$, $SD = 5.35$), $t(25) = 2.560$, $p = .017$.

The 3-way ANOVA with media habits as the dependent variable revealed a significant main effect of time, $F(2, 64) = 17.681$, $p = .000$, and time x social comparison, $F(2, 64) = 3.249$, $p = .045$. There were no statistically significant findings for time x group, $F(2, 64) = 2.127$, $p = .128$, and time x group x social comparison, $F(2, 64) = 1.338$, $p = .270$.

Post hoc comparisons for the main effect of time revealed identical results to those conducted with internalization as a between subjects factor. There was a significant increase in media habits from baseline ($M = 3.99$, $SD = 3.49$) to post-test ($M = 4.82$, $SD = 4.57$), $t(73) = -1.953$, $p = .055$. There was a decrease from post-test ($M = 4.62$, $SD = 4.29$) to follow-up ($M = 2.51$, $SD = 2.73$), $t(91) = 5.811$, $p = .000$, and a decrease from baseline ($M = 3.89$, $SD = 3.47$) to follow-up ($M = 2.50$, $SD = 2.63$), $t(68) = 4.218$, $p = .000$.

Post hoc comparisons for the time x social comparison effect revealed that participants low on social comparison significantly increased in media habits from baseline ($M = 3.23$, $SD = 2.90$) to post-test ($M = 4.79$, $SD = 5.25$), $t(32) = -2.639$, $p = .013$. However, there was a significant decrease from post-test ($M = 4.40$, $SD = 4.55$) to follow-up ($M = 2.35$, $SD = 2.83$). In contrast, participants high on social comparison

significantly decreased from post-test ($M = 4.80$, $SD = 4.10$) to follow-up ($M = 2.64$, $SD = 2.67$), $t(49) = 3.888$, $p = .000$, and decreased from baseline ($M = 4.47$, $SD = 3.77$) to follow-up ($M = 2.41$, $SD = 2.07$), $t(39) = 4.164$, $p = .000$.

The 3-way ANOVA with negative affect as the dependent variable revealed a significant main effect of time, $F(2, 87) = 3.081$, $p = .051$. There were no statistically significant findings for time x group, $F(2, 87) = .710$, $p = .494$, time x social comparison, $F(2, 87) = .739$, $p = .480$, and time x group x internalization, $F(2, 87) = .336$, $p = .715$.

Post hoc comparisons revealed a significant decrease in negative affect from baseline ($M = 24.54$, $SD = 4.40$) to post-test ($M = 23.40$, $SD = 4.91$), $t(97) = 2.540$, $p = .013$. There were no significant differences between post-test and follow-up, but a significant decrease from baseline ($M = 24.48$, $SD = 4.56$) to follow-up ($M = 23.27$, $SD = 5.19$), $t(91) = 2.569$, $p = .012$.

The 3-way ANOVA with positive affect as the dependent variable revealed that the main effect of time $F(2, 87) = .924$, $p = .401$, time x group, $F(2, 87) = .802$, $p = .452$, time x internalization, $F(2, 87) = .475$, $p = .624$, and time x group x internalization, $F(2, 87) = .160$, $p = .853$, were not statistically significant. In addition, the 3-way ANOVA with self-esteem as the dependent variable revealed that the main effect of time $F(2, 87) = 1.280$, $p = .283$, time x group, $F(2, 87) = 1.007$, $p = .369$, time x social comparison, $F(2, 87) = 2.979$, $p = .056$, and time x group x social comparison, $F(2, 87) = 1.623$, $p = .203$, were not statistically significant. Therefore, no follow-up *post hoc* analyses were conducted.

MANOVA with internalization as a moderator. A three-way repeated measures MANOVA was used to investigate group differences in media scepticism. The variables

used as dependent measures in the MANOVA included the six subscales of the media attitudes questionnaire (MAQ): Realism, Similarity, Desirability, Identification, Expectancies, and Behavioural Intentions. The between subjects factors included Group (intervention vs. control), and Internalization (high vs low), and the within subjects factor included time (baseline, post, follow-up).

The multivariate between subjects main effect for group, $F(6, 82) = 1.871, p = .096$, and group x internalization, $F(6, 82) = .548, p = .770$, were not statistically significant. However, the between subjects effect for internalization on variables reflecting media scepticism was significant using the Wilk's Lambda criterion, $F(6, 82) = 5.654, p = .000$. The significant univariate F tests examining differences in internalization are as follows: realism, $F(1, 87) = 7.374, p = .008$; similarity, $F(1, 87) = 5.700, p = .019$; desirability, $F(1, 87) = 8.236, p = .005$; identification, $F(1, 87) = 33.590, p = .000$; expectations, $F(1, 87) = 8.798, p = .004$; behavioural intentions, $F(1, 87) = 5.897, p = .017$. *Post hoc* comparisons revealed significantly greater scores on all subscales of media scepticism among the high internalizers in comparison to the low internalizers. This result is expected seeing that higher scores reflect lower media scepticism.

The multivariate within subjects main effect for time, $F(12, 76) = 1.498, p = .143$, time x internalization, $F(12, 76) = 1.282, p = .247$, and time x group x internalization, $F(12, 76) = .770, p = .679$, was not statistically significant. However, the within subjects effect for time x group on variables reflecting media scepticism was significant using the Wilk's Lambda criterion, $F(12, 76) = 2.258, p = .017$. The significant univariate *F* tests (Greenhouse-Geisser) examining differences in group and

time are as follows: realism, $F(1.676, 145.795) = 4.780, p = .014$; similarity, $F(1.816, 157.993) = 6.113, p = .004$; expectations, $F(1.868, 162.481) = 7.045, p = .002$. There were no significant differences on desirability, $F(1.983, 172.543) = .120, p = .885$; identification, $F(1.879, 163.496) = .680, p = .500$; behavioural intentions, $F(1.727, 150.224) = .135, p = .844$.

Post hoc comparisons using paired t-tests revealed no significant differences on the realism subscale for the control group. There was a significant decrease on the realism subscale for the intervention group between baseline ($M = 6.87, SD = 2.79$) and post-test ($M = 5.62, SD = 2.41$), $t(46) = 2.603, p = .012$. There was no significant difference between post-test and follow-up; however, there was a significant difference between baseline ($M = 7.09, SD = 2.80$) and follow-up ($M = 5.79, SD = 2.23$) time periods, $t(42) = 3.200, p = .003$.

Post hoc tests also revealed there were no significant differences on the similarity and expectancies subscales for the control group. However, there was a significant decrease on the similarity subscale for the intervention group between baseline ($M = 8.00, SD = 3.32$) and post-test ($M = 7.06, SD = 3.32$), $t(46) = 2.794, p = .008$. There was no significant difference between post-test and follow-up; however, there was a significant difference between baseline ($M = 8.00, SD = 3.33$) and follow-up ($M = 7.16, SD = 3.24$) time periods, $t(42) = 2.068, p = .045$. In addition, there was a significant decrease on the expectancies subscale for the intervention group between baseline ($M = 13.11, SD = 5.21$) and post-test ($M = 11.78, SD = 5.02$), $t(46) = 2.837, p = .007$. There was no significant difference between post-test and follow-up; however, there was a

significant difference between baseline ($M = 13.14$, $SD = 5.31$) and follow-up ($M = 12.07$, $SD = 5.30$) time periods, $t(42) = 2.132$, $p = .039$.

MANOVA with social comparison as a moderator. The results of the second MANOVA with social comparison as a moderator revealed the same results, both between and within subjects, as those in the first MANOVA analysis conducted with internalization as a moderator. Please refer to Table 11 to view the means and standard deviations of all six MAQ subscales at each time period between the experimental and control groups.

Participants Evaluation of Intervention Audiotape

Participants in the experimental group were asked to evaluate the content of the intervention audiotape (Appendix E). The following are a list of comments participants made in the open-ended section of the evaluation regarding their opinions about the intervention audiotape: approximately 43% of the participants found the information useful, interesting, and informative; 25% had no comment; 16% found the information repetitive; 8% thought the intervention would be more effective if additional features were included (e.g., visual effects); 8% found that they already had previous knowledge of the information.

Follow-up question on Media Habits questionnaire

At follow-up we asked participants in the experimental group whether they challenged and scrutinized the realism of pictures they viewed during the four weeks between post-test and follow-up with the information provided in the intervention audiotape (Appendix S). We assessed this on a likert scale ranging from 1 (not at all) to 5 (very much). On average participants in the experimental group scored 3.19 out of 5. This

Table 11

Means and standard deviations of exploratory MANOVA on media scepticism variables with social comparison as a moderator

Variable	Experimental Group	Control Group
Realism		
Baseline	6.87 (2.79) ^{A,B}	6.80 (2.27)
Post-test	5.62 (2.41)	6.71 (2.06)
Follow-up	5.79 (2.23)	6.49 (2.10)
Similarity		
Baseline	8.00 (3.32) ^{A,C}	8.14 (2.91)
Post-test	7.06 (3.32)	8.65 (3.08)
Follow-up	7.16 (3.24)	8.71 (3.03)
Desirability		
Baseline	12.52 (2.94)	12.69 (2.42)
Post-test	12.48 (3.05)	12.84 (2.37)
Follow-up	12.26 (2.89)	12.67 (2.62)

A Baseline vs Post-test, $p < .01$; B Baseline vs Follow-up, $p < .01$; C Baseline vs Follow-up, $p < .05$

Variable	Experimental Group	Control Group
Identification		
Baseline	12.40 (4.77)	13.10 (5.28)
Post-test	12.55 (4.77)	13.06 (5.26)
Follow-up	12.93 (4.90)	12.88 (4.82)
Positive Expectancies		
Baseline	13.11 (5.21) ^{A,B}	11.98 (5.38)
Post-test	11.78 (5.02)	12.84 (5.81)
Follow-up	12.07 (5.30)	12.67 (5.88)
Behavioural Intentions		
Baseline	7.02 (3.02)	5.69 (2.95)
Post-test	6.71 (2.91)	5.45 (3.01)
Follow-up	6.76 (2.95)	5.57 (2.94)

A Baseline vs Post-test, $p < .01$; B Baseline vs Follow-up, $p < .05$

indicates that the participants in the intervention group used the information moderately over the period of four weeks.

True Purpose of the Study

During the last session of the experiment participants in the experimental and control groups were asked what they believed the experiment was investigating. In general, the overall sample believed the experiment was investigating the following: 25% media influence and body image; 23% media and self-esteem, self-confidence, self-worth, perception of beauty, and self-perception; 18% comparison to models in the media; 10% attitudes about physical appearance; 9% how one feels about themselves; 5% education about societal portrayal of the thin ideal; 5% media and relationships with others (e.g., friends); 3% realism of models in the media; 2% dieting and eating disorders. There were no differences between control and experimental groups in their perception of the true purpose of the study, as assessed by chi-square analysis.

Discussion

Previous research has shown that brief media literacy interventions that educate individuals to critically evaluate media content in order to identify, analyze, and challenge the thin ideal portrayed by the mass media, have reduced the negative impact that ideal media images have on body image (Levine et al., 1999; Posavac et al., 2001; Yamamiya et al., 2005). However, although the present study is modeled after Posavac et al. (2001) and Yamamiya et al. (2005), both of these former media literacy intervention studies have their limitations and methodological shortcomings. Both of these studies employed posttest only designs, failed to conduct follow-up assessments to determine the longer-term effects of the intervention, did not factor in social comparison as a potential moderating variable, and did not examine several other measures (e.g., media skepticism, BMI) besides body satisfaction and internalization, in order to determine whether their intervention had broader effects. The purpose of this study was to address these limitations and methodological shortcomings to see if these findings could be replicated with a more robust experimental design.

Therefore, the present study was designed to examine whether a media literacy intervention could reduce the negative impact of media exposure to the feminine ideal on body image. This was conducted using a longitudinal design with three separate time periods, which included a one-month follow-up assessment. We also explored the extent to which the level of internalization of the feminine ideal and degree of social comparisons moderated the negative effects of exposure and response to intervention. In addition, we investigated the extent to which our media literacy intervention influenced

dieting behaviours, self-esteem, BMI, media skepticism, and media habits to determine if the media literacy has broader effects than that previously studied.

In both primary and secondary hypotheses it was predicted that in both conditions (control vs intervention), only those classified as high internalizers or high on social comparison would be significantly affected by the experimental manipulations (exposure to images and program intervention) at posttest. This meant that the media literacy intervention was hypothesized to reduce the negative media exposure effects in individuals high in internalization and social comparison only. Therefore, these participants should have exhibited decreased levels of body dissatisfaction. Second, without the media literacy intervention, control participants (high internalizers and high on social comparison only) should have been negatively affected by the thin and beautiful media images at posttest, evidenced by increased scores on body dissatisfaction. Contrary to our predictions, both primary and secondary hypotheses were not supported by the data. Body dissatisfaction scores did not change significantly for individuals in the experimental or control conditions. However, we propose several reasons as to why these hypotheses were not confirmed.

This study showed that individuals high on internalization and social comparison indices did not significantly improve in their body image (EDI-BD) at posttest or follow-up time periods following a media literacy intervention. This result is contrary to recent findings that have shown a 7-minute audiotape (Yamamiya et al., 2005) and videotape (Posavac et al., 2001) to be effective in improving body image for females scoring high on internalization. However, even though these results are inconsistent with previous findings there are a few media literacy intervention studies that have reported no effect on

body image variables (Irving et al., 1998; Irving & Berel, 2001; Kater et al., 2002; Neumark-Sztainer, 2000), and our results are consistent with this literature. Therefore, by combining the reasons for why a few previous studies have found no effect on body image, along with speculation from the authors of the current study, we propose several possible explanations for the inconsistent results. First, no participants in the current study identified the true purpose of the study (i.e., a media literacy intervention to improve body image). However, approximately 66% of the participants believed the study's purpose related to media, body image, and comparison to models. Smolak and Levine (1994, p. 51) stated that the thinness schema is "activated" by threats to maintenance of the ideal shape. Since the majority of participants realized that we were assessing how they felt about their bodies in relation to images of fashion models, the exposure to media images may have made participants self-conscious about their own weight. The participants' insight into the purpose of the study may have led to their self-conscious reaction to the threatening media images, which may explain why the media literacy program was not successful at improving female body image (Irving et al, 1998). The authors of the present study tried their best to conceal the studies purpose by presenting the experiment as three separate studies and including bogus questionnaires in the survey packages; however, it is unknown whether participants' body image would have improved if the concealing strategy were more effective.

Second, it was speculated that the participants in the experimental group did not pay attention to the information in the audiotape, which would provide an explanation as to why the intervention had no positive effect on body image following exposure to media images. To test whether this was true we conducted the repeated measures analysis

excluding the 17 participants that answered at least one out of the four questions in the manipulation check incorrectly. We found that the results without the 17 participants were statistically identical to those when the 17 participants were included in the analysis. Therefore, we ruled out this possibility. In actuality, approximately 43% of participants in the experimental group found the information in the audiotape useful, interesting, and informative.

Third, Yamamiya et al., (2005) sampled only Caucasian females in their study, arguing that white women were studied because the model images only depicted white females, who may be less relevant social comparison standards for other ethnic groups. This proposes that individuals from other ethnicities may not identify with the Caucasian models and therefore, not be affected by the experimental manipulations. With this possibility in mind, we decided to test whether sampling from various ethnic groups and not solely Caucasians would provide an explanation as to why our intervention had no positive effect on body image for the experimental group and why the control group participants did not have increases in body dissatisfaction following exposure to model images. In order to test this assumption we conducted the repeated measures analysis with only Caucasian females (24 experimental and 31 control participants). Results indicated that regardless of whether the analyses were conducted with only Caucasians or with all ethnicities, the results remained the same. Although contrary to the argument posed by Yamamiya et al., (2005), our results coincide with previous studies that have indicated exposure to Caucasian fashion model images have had detrimental effects on females moods and body image regardless of the participants race and ethnicity (Cameron & Ferraro, 2004; Pinhas et al., 1999). Simply because Caucasian model images

are used as a social comparison standard, this does not imply that the social comparison process does not work among other ethnic groups besides Caucasians. On the contrary, social comparison theory states that whenever possible, we will compare ourselves with similar others and that this similarity could be in either the dimension under evaluation (e.g., physical attractiveness) or surrounding dimensions (e.g., gender, age, ethnicity). This means that race is not the only determining factor on whether females compare themselves to fashion models. Moreover, studies show that there are also occasions when we will compare ourselves to dissimilar others (Martin & Kennedy, 1993). In summary, the idea that individuals from other ethnicities may not identify with white female model images and therefore, will not be affected by the experimental manipulations does not appear to be supported.

Fourth, a potential reason why the intervention did not affect body image could be that body dissatisfaction was not a great concern initially for participants in the current study, thus leaving little room for improvement. This explanation is similar to that offered by Kater et al., (2002) after there was no change in body dissatisfaction scores following the implementation of a school-based program to prevent body image concerns in early adolescents.

Past research indicates that women with body dissatisfaction scores (EDI-BD) of 6 to 27, but not 0 to 5, experience more weight concern following exposure to pictures of fashion models, compared with females who viewed neutral images (Posavac et al., 1998). In the current study, the average body dissatisfaction scores for the high internalizers in the experimental and control groups were 9.12 and 7.23, respectively. The average body dissatisfaction scores for individuals high on social comparison in the

experimental and control groups were 9.54 and 7.62, respectively. It should be noted that these mean scores are based on a scale that ranges from 0 to 27. Thus, although these scores are higher than the cut-off of six as noted by Posavac et al., (1998), the body dissatisfaction scores of the participants in both conditions appear to be initially low considering their categorization of high on internalization and social comparison indices. By observing these values it appears that body dissatisfaction was not a great concern for participants in the current study, which may explain why the intervention failed to improve body image. In order to improve the body image of individuals who are low to moderately dissatisfied, more than a brief 7-minute intervention may be needed. Conversely, it is entirely possible that no intervention would reduce mild body dissatisfaction since it is a normative discontent among college females and there may not be sufficient room for improvement (Rodin et al., 1984).

In both Posavac et al., (2001) and Yamamiya et al., (2005) the participants appeared to have moderate to high body dissatisfaction scores following the implementation of the intervention (i.e., no pretest measurement). A limitation of both of these studies is that they did not screen for potential eating disorders prior to the study's onset. This may have allowed several participants to have been included in their study with an eating disorder, which by observing the preliminary results of the current study one can see that eating disordered individuals are significantly more body dissatisfied compared to their non-disordered counterparts. Thus, the intervention in the two previous studies may have been more effective because the individuals had more room to improve in their body image. Seeing that studies have shown that individuals with eating disorders and high levels of body dissatisfaction overestimate their body size and experience

decreases in body satisfaction following exposure to images of fashion models, the participants in the previous studies may have found the information in the intervention audiotape more relevant than those in the current study (Cameron & Ferraro, 2004; Pinhas et al., 1998; Waller et al., 1992). In general, the results of the previous studies suggest that less body dissatisfied and non-eating disordered populations may not be responsive to brief media literacy intervention.

Lastly, and arguably the most likely reason the intervention did not have an effect on body image is a methodological shortcoming of the previous two studies. Both Posavac et al., (2001) and Yamamiya et al., (2005) chose posttest only designs for their study. Participants were not tested prior to the study onset for their levels of body dissatisfaction. The experimental and control groups body dissatisfaction levels were only measured following either the intervention or exposure to model images. Posavac et al., (2001) did not indicate how they allocated subjects into groups; however, Yamamiya et al., (2005) stated that they employed random assignment. It is argued that randomization will average out between the treatments whatever systematic effects may be present, or hidden, so that comparisons between treatments measure only the pure treatment effects (Neter, Kutner, Nachtsheim, & Wasserman, 1996). Thus, randomization tends to remove the influence of additional factors not under the direct control of the experimenter and thereby prevents the presence of selection bias. However, according to Neter et al., (1996) occasionally, randomization may provide a randomization sequence that has apparent dangers of systematic effects, and this danger is more pronounced in small samples typical of laboratory studies. Therefore, it is possible that in the two previous studies there were significant differences between the control and experimental

groups on body dissatisfaction at the study onset. Participants in the experimental group may have been significantly less body dissatisfied compared to the control group. This would indicate that previous findings may not have been due to the experimental manipulations, but due to sample characteristics.

In order to address this methodological shortcoming, the current study conducted a pretest measure of body dissatisfaction levels, and determined through independent t-tests that there were no significant differences between the experimental and control groups at baseline following randomization. Thus, we controlled and tested for any potential systematic effects and precluded the presence of any selection bias. It is argued by the authors of the current study that through the use of a more robust design, the present study's findings are an accurate depiction of how a 7-minute brief intervention may not be effective in improving body image in adolescent females with mild body dissatisfaction (which may not be representative of all college females). By adolescence, thinness is equated with attractiveness, therefore females are already evaluating their bodies in comparison to media images (Irving et al., 1998). Thus, it may be difficult to modify attitudes and beliefs toward media and the self that have overtime, become ingrained as a result of this comparison process. After analyzing the reasons mentioned above, the authors do not find it hard to believe that a brief 7-minute intervention failed to change females ingrained beliefs, which have, over their lifespan been influenced by the media, family, and peers (Irving et al., 1998; Thompson & Smolak, 2001).

According to the "Message Interpretation Process" model developed by Austin, Roberts, and Nass (1990), individuals interpret media messages by a process that operates via both logical decision-making and emotional processing. As will be discussed in the

following section on exploratory results, participants in the experimental group demonstrated improvements in a few media scepticism variables such as perceived realism of media images (i.e., logical decision making); however, failed to demonstrate improvement in other media scepticism variables (e.g., desirability to look like models), suggesting that the intervention was more effective at disrupting logical aspects of the Message Interpretation Process rather than emotional aspects of this process (e.g., desirability). Thus, the intervention may not have affected participants' deeper level decision making processes, which may have produced subsequent changes in body image. Moreover, in order to observe changes in body image (e.g., body dissatisfaction) and behaviours (e.g., behavioural intentions to diet) longer, more comprehensive intervention program that targets both logical decision-making and emotional processing may be required. (Irving & Berel, 2001). In addition, consistent with social cognitive theory, in order to change behaviours individuals must initially change personal factors (e.g., attitudes) and self-perceptions (e.g., body image; Bandura, 1986). This may explain why we did not see changes in behavioural intentions to diet.

Inconsistent with previous studies and current hypotheses, the high internalizers in the control group did not significantly increase in body dissatisfaction following exposure to the model images, although there was a trend in the intended direction (see Table 4). However, as Groesz et al., (2002) point out in their meta-analytic review, a few studies (Martin & Kennedy, 1993; Champion & Furnham, 1999) have found little to no immediate effect of thin media images on body satisfaction, suggesting that the relationship between media images and body image may be complex and non-linear,

whereby each incremental exposure may not exacerbate body dissatisfaction but rather its effect may be more cumulative over time.

Another possibility could be that high internalizing participants in the control group did not have a negative reaction to the model images due to their initially low body dissatisfaction scores. Studies have shown that individuals with eating disorders (usually high internalizers) and high levels of body dissatisfaction overestimate their body size and experience decreases in body satisfaction following exposure to images of fashion models (Cameron & Ferraro, 2004; Pinhas et al., 1998; Waller et al., 1992). In addition, a rare finding by Posavac et al., (1998) found participants who were more satisfied or less dissatisfied with their bodies were not as negatively affected by the model images. It may be that individuals with higher levels of body dissatisfaction are more affected by the social comparison process because their perceptions of their bodies are more discrepant from the thin-ideal in comparison to individuals with lower levels of body dissatisfaction.

Lastly, the current study did not use the same model images that were employed in the previous two studies. Thus, there might be the possibility that the model images in the present study may not have elicited a negative response due to their lack of attractiveness, thinness, and inaccurate portrayal of the thin ideal. However, this assumption appears tenuous considering that 10 independent observers rated the model images 8 out of 10 across all three criteria: attractiveness, thinness, and portrayal of the thin ideal, though it is acknowledged these 10 raters may not be representative of the university sample of females obtained.

Consistent with past research is that individuals characterized as low on internalization, regardless of the condition, were not significantly affected by the

experimental manipulations. This indicates that individuals who score low on internalization, do not “cognitively buy into” cultural norms of size and appearance, and therefore, are less likely to use media images (e.g., fashion models) as upward comparison targets and to have feelings of inferiority if failing to meet cultural standards of beauty (Heinberg & Thompson, 1992).

Although the intervention did not significantly improve body image, the exploratory results indicate that the intervention had broader effects than previously studied. These include several positive outcomes for variables relating to body dissatisfaction and internalization, mood, media habits, and media knowledge and skepticism.

As our first exploratory hypothesis, we explored whether changes in body dissatisfaction are related to changes in social comparison and internalization between the intervention and control groups, collapsed across the full sample to further evaluate the degree to which social comparison and internalization moderate the effects of the intervention. As expected, Pearson correlations revealed a significant association between changes in body dissatisfaction and internalization (baseline and post-test scores) for the experimental group only. Decreases in internalization were associated with decreases in body dissatisfaction. According to the dual pathway model (Stice, Ziemba, Margolis, & Flick, 1996), repeated exposure to model images promotes internalization of the thin ideal, which in turn fosters body dissatisfaction. Internalization of the thin-ideal contributes to body dissatisfaction because of the social comparison process whereby women compare themselves to idealized images and judge themselves as not meeting social expectations. This finding is consistent with results from a study conducted by

Stice et al., (2000), who found their prevention program resulted in a reduction in internalization, which was associated with a decrease in body dissatisfaction at posttest and one-month follow-up. The study conducted by Stice and colleagues (2000) consisted of three 1-hour sessions, whereas in the current study this result was found using only a 7-minute intervention. However, this effect only lasted in the short term and was not maintained at one-month follow-up, which may be due to the brief nature of the intervention. In addition, the correlation matrices for the full sample, control group, and experimental group revealed a significant positive association between changes in social comparison and internalization measures (baseline and post-test scores). As expected, decreases in social comparison resulted in decreases in internalization, a result that further indicates the related nature of these two distinct constructs.

In our last exploratory analysis, we explored potential changes in dieting behaviours (i.e., Dietary Restraint), BMI, mood, self-esteem, media skepticism, and media habits (e.g., types of television shows and magazine purchases) between the control and intervention groups throughout the study with an emphasis on the differences between post and follow-up.

Arguably the most important exploratory result of this study was that the intervention improved participants' media knowledge and skepticism. The current intervention was effective at increasing skepticism about media images that portray a thin ideal of beauty. As expected, at baseline the between subjects results of the MANOVA revealed that participants high on both internalization and social comparison were less skeptical about thin-ideal media images. However, within-subjects analyses showed that the intervention was particularly effective at reducing participants' perception that media

images depicting fashion models are *realistic* and *similar* to participants themselves. In addition, the intervention reduced the perceived *positive expectancies* associated with being thin. These results were found only in the experimental group, as there were no changes throughout the study on any subscale of the MAQ for the control group.

Moreover, to the author's knowledge this is the first brief media literacy intervention that has been able to maintain these results, as indicated at one-month follow-up.

These results are particularly important because by lowering levels of *realism*, *similarity*, and *positive expectancies* this may represent an interruption of the initial "comparison" stage in social comparison theory. As previously mentioned, individuals first compare themselves to an idealized image (i.e., upward comparison) and then as a result of this comparison, the individual develops negative attitudes about the attribute being evaluated (e.g., physical appearance; Richins, 1991). Thus, if participants are no longer making the initial upward comparison, there may be no subsequent negative attitude about their physical appearance. In contrast, we observed no changes on three other MAQ subscales (e.g., identification, desirability, intentions to engage in dieting behaviour), which may be explained by the difficulty in altering attitudes toward media and self that have, over time, become entrenched as a result of this social comparison process (Irving & Berel, 2001). Furthermore, this may suggest that the intervention was more effective at disrupting logical aspects of the Message Interpretation Process rather than emotional aspects of this process. Thus, indicating once again that the intervention may not have affected participants' deeper level decision making processes, which may have produced changes in these other MAQ subscales and body image (Austin et al., 1990).

Results with both internalization and social comparison as between subjects factors revealed a significant increase in media habits (i.e., reading magazines and watching television programs related to thin ideal images) from baseline to posttest for both experimental and control groups. Moreover, a time x social comparison effect showed that individuals low on social comparison also increased in their media habits from baseline to posttest. The authors speculate this may be due to presenting participants with questionnaires at baseline, which contained several measures relating to comparison to models, body image, and media habits. The questionnaires may have unintentionally sparked an interest in participants, who may have then paid more attention to popular culture magazines (e.g., fashion magazines) and television programs (e.g., soap operas) during the week prior to posttest. However, we did witness a significant decrease in media habits for both experimental and control groups from posttest to follow-up (i.e., one-month). We also observed a significant decrease in media habits for individuals scoring high and low on social comparison from posttest to follow-up. This decrease in media habits at follow-up was even significantly lower than participants' initial media habit levels at baseline. It could be argued that through illustrating how unrealistic and dissimilar the images of fashion models are in comparison to the participants, the intervention was effective in discouraging participants from using thin-ideal images in the media as social comparison targets for their physical appearance, but these effects were delayed, possibly due to time required for processing of the media literacy intervention. It is unclear why the control group also decreased in their media consumption over the course of the study. It is possible that because the follow-up session took place shortly before the participants' exam period, this may account for the

reduction in reading popular culture magazines and watching music videos and soap operas on television in both experimental and control groups.

Similar to another brief (i.e., 15 minute video) media literacy study conducted by Irving and Berel (2001), the current intervention had no effect on positive affect (PANAS-PA). However, the current study is the first brief media literacy intervention to find that the intervention reduced negative affect (PANAS-NA) for individuals low on internalization (control group) and high on internalization (experimental group). This finding showed that individuals high on internalization in the experimental group experienced a reduction in negative affect from baseline to posttest, which was also maintained one-month later. Past experimental and longitudinal studies have indicated that negative affect is a predictor of bulimic pathology (Stice et al., 1996) and that it can trigger overeating among restrained eaters and binge eating individuals (Polivy, Herman, & McFarlane, 1994; Telch & Agras, 1996). Thus, these results are very important considering that negative affect is a risk factor for bulimic pathology.

The results also revealed a significant increase in body mass index (BMI) from posttest to follow-up and baseline to follow-up for participants in both experimental and control groups. This result is similar to O'Dea and Abraham (2000), who found an increase in BMI following their intervention. Seeing that the intervention reduced the perceived *positive expectancies* associated with being thin, participants may have decreased their desire for weight loss, which resulted in weight gain, albeit in the healthy range. However, because this result was found in both control and experimental conditions, this result is most likely a reflection of self-report data at baseline and posttest versus participants' actual weight measured at follow-up. Thus, participants most likely

under-reported their weight when self-reporting. We did not take the actual weight of the participants at baseline and posttest for a couple reasons. First, we wanted to reduce the likelihood that participants would guess the true purpose of the study. Second, to reduce the likelihood of participants dropping out of the study, especially if they felt self-conscious about their weight.

As mentioned previously, dietary restraint is an attempt to restrict one's food intake with the intent of decreasing or maintaining one's weight (Polivy & Herman, 1995). Although this variable was exploratory, initially the authors speculated that high-internalizing participants in the experimental group would experience reductions in dietary restraint over the course of the study, especially if they improved in their body image. In contrast, it was initially expected that high internalizing control participants would experience increases in dietary restraint over the course of the study, especially if they increased in body dissatisfaction. However, results revealed that only the control group participants significantly decreased in dietary restraint throughout the study. We also found that individuals high on social comparison decreased from baseline to posttest and baseline to follow-up, and those low on social comparison decreased from posttest to follow-up. One possible explanation for this finding comes from contemporary social comparison literature. It predicts assimilation effects in response to others perceived as better off than oneself (Mussweiler & Strack, 2000). Thus, viewing highly attractive model images may have inspirational effects, resulting in a positive shift in self-perception (Collins, 1996). Therefore, if participants felt better about themselves they may have been less likely to restrict their caloric intake (i.e., diet). However, this may be

unlikely considering the increase in body dissatisfaction scores at posttest (not significant) among the control group participants in the current study.

Lastly, exploratory results indicated that the experimental manipulations had no effect on participants' self-esteem. Considering previous research, the authors of the current study initially speculated that after exposure to thin-ideal images the control group participants (high internalizers only) would experience a decrease in self-esteem (Henderson-King & Henderson-King, 2001). In contrast, longer-term media literacy studies (5-12 weeks) have shown increases in self-esteem for participants in the intervention condition (Levine et al., 1999). However, to the author's knowledge this is the first brief media literacy intervention study to show no effect on self-esteem. These results suggest more time needs to be devoted to this area.

Limitations

There are a few limitations in the current study that should be addressed. First, the experimental intervention in this study was brief (7 minutes). When one considers the cumulative impact of years of media exposure, it is reasonable to question whether a brief intervention was sufficient to counteract such effects. It is possible that, if the intervention had been more extensive, changes would have been observed on the measure of body image. However, it is important to note that previous brief media literacy interventions have had a significant impact on body image variables (Yamamiya et al., 2005; Posavac et al., 2001).

Moreover, additional features may have improved the effectiveness of the intervention. In general, 16% of participants found the information repetitive and 8% thought the intervention would be more effective if additional features were included

(e.g., visual effects). Since we did not take a measure of social desirability, it is unclear whether the participants accurately and openly self-reported their feelings toward their body image, mood, comparison to models, and eating attitudes and behaviours.

Participants completed questionnaires in groups of four to five and were seated close together in the experimental room. The participants were observed on occasion to conceal their responses from each other; however, due to the close proximity and occasional observation, the females in this study may have not responded candidly as if they had been seated alone or farther apart. It is important to note, however, that this potential response bias is inherent in all research using self-report measures, and the group format utilized in this study matched that from previous research (Yamamiya et al., 2005).

Research also shows that social support may buffer individuals against the adverse effects of exposure to thin-ideal images (Stice et al., 2001). Thus, if measured, we may have found that social support accounted for the null findings among the experimental and control group participants. It may have also been of benefit to take multiple measures of body image to determine if different measures yield similar results. In addition, the intervention may have been effective in improving body image if the participants' levels of body dissatisfaction were initially higher. With the use of mass testing we would have been able to obtain a subgroup of non-eating disordered females with higher levels of body dissatisfaction and internalization levels. However, due to time constraints and the demand on participants to attend multiple follow-up sessions, this was not feasible in the current study.

Lastly, an inherent limitation may have been related to participant motivation. Those who decided to participate did so as part of a course requirement. Thus, they may

not have paid attention to the intervention and questionnaires as thoughtfully as they would have if they had volunteered to participate. Manipulation checks indicated most understood the gist of the media literacy messages, but participants may not have fully processed the messages to the extent necessary to induce changes in body dissatisfaction.

Future Directions

Despite these limitations, there are several strengths to the present study. We found that the 7-minute brief intervention had broader effects than those previously studied. Most importantly, this brief media literacy intervention was effective in helping females think more critically about media and encouraged them to question the credibility and validity of media messages. This is promising, as it may be the initial step in protecting females from the detrimental effects of the media. Moreover, it may interrupt the initial stage of the social comparison process, decreasing the likelihood that they will make upward comparisons, which we know have negative implications for body image. This was also the first brief intervention to maintain these results over the period of one-month.

The current study was effective in significantly decreasing the consumption of media habits (magazine, television). This result indicates that the intervention helped discourage females from using thin-ideal images in the media as social comparison targets. In addition, this was the first brief intervention to observe a significant reduction in negative affect following exposure to thin-ideal images, especially for high internalizers in the experimental condition. This finding is encouraging considering that negative affect is a risk factor for bulimic pathology (Stice et al., 1996), and high internalization is itself a risk factor.

Another strength to the current study was its robust methodological design, which may account for the difference in findings between the current study and past brief interventions. However, although body image did not improve in the present study, we did observe a positive finding that decreases in internalization were associated with decreases in body dissatisfaction, thus our intention of intervening to reduce internalization appears to be a theoretically and clinically valid approach.

After discussing the limitations and strengths of the current study there are several avenues for future studies to consider. First, the current study should be replicated with individuals who have higher body dissatisfaction levels. Second, media is only one factor in the determination of negative body image. Included in future interventions should be components that target media, family and peer influences, as the latter two have also been found to foster internalization of the thin-ideal, body dissatisfaction, and disordered eating (Stice, 1994; Thompson et al., 1999). Third, to observe changes in attitudes and behaviours related to body image it may be necessary to implement more comprehensive long-term interventions in order to effect the deeper level decision making processes of individuals (Irving & Berel, 2001). Fourth, body image health promotion research conducted at population-based levels need to be conducted to determine if they diminish unrealistic physical standards. For example, advertisement companies could employ average size models, which would be equally effective in relaying their message (e.g., modeling clothes). This would reduce the adverse effects on body image, especially for those individuals who are high on internalization levels (Groesz et al., 2002; Ogden & Munday, 1996). Fifth, we need to implement experimental interventions with younger aged females (e.g., 8-10 years), where body image is beginning to be influenced by

media, family, and peers (Levine & Smolak, 2001). This could result in eliminating body image disturbance before it fully develops. Sixth, we know that females at greatest risk for experiencing negative body image following exposure to ideal images include those who have higher levels of internalization of cultural standards (Heinberg & Thompson, 1992). Thus, we need to focus more attention on interventions to reduce internalization of the thin-ideal and social comparison because they both foster body dissatisfaction (Stice et al., 2001), and our data support this target for intervention.

In general, there is a serious public health issue surrounding eating problems and body dissatisfaction. Body dissatisfaction and eating pathology are associated with numerous physical and psychological difficulties (Irving et al., 1998). Media literacy interventions provide only one strategy for preventing negative body image and promoting health and resiliency in females, and strategies that incorporate multiple components are likely needed to maximize the efficacy of intervention.

References

- Altobe, M., & Thompson, J.K. (1992). Size estimation versus figural ratings of body image disturbance: Relation to body dissatisfaction and eating dysfunction. *International Journal of Eating Disorders, 11*, 397–402.
- American Psychiatric Association . Diagnostic and statistical manual of mental disorders, fourth edition. Washington, D.C.: American Psychiatric Association, 1994.
- Andersen, A. E., & DiDomenico L. (1992). Diet vs. shape content of popular male and female magazines: A dose response relationship to the incidence of eating disorders? *International Journal of Eating Disorders, 11*, 283-287.
- Austin, E. W., & Johnson, K. K. (1997). Effects of general and alcohol-specific media literacy training on children's decision making about alcohol. *Journal of Health Communications, 2*, 17-42.
- Bordo, S. (1993). *Unbearable weight: feminism, western culture, and the body*. Berkley: University of California Press.
- Borzekowski, D. L. G., Robinson, T. N., & Killen, J. D. (2000). Does the camera add 10 pounds? Media use, perceived importance of appearance, and weight concerns among teenage girls. *Journal of Adolescent Health, 26*, 36-41.
- Botta, R. (1999). Television images and adolescent girls' body image disturbance. *Journal of Communication, Spring*, 22-41.
- Brown, K.W. and Ryan, R.M. (2003). The benefits of being present: The role of mindfulness in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822-848.

- Cameron, E. M., & Ferraro, F. R. (2004). Body satisfaction in college women after brief exposure to magazine images. *Perceptual and Motor Skills, 98*, 1093-1099.
- Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioural activation, and affective responses to impending reward and punishment. The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*, 319-333.
- Cash, T. F., & Pruzinsky, T. (2002). *Body image: a handbook of theory, research, and clinical practice*. New York: The Guilford Press.
- Cash, T. F., Cash, D. W., & Butters, J. (1983). "Mirror mirror on the wall...?": contrast effects and self evaluations of physical attractiveness. *Personality and Social Psychology Bulletin, 9*, 351-358.
- Cattarin, J. A., & Thompson, J. K. (1994). A three-year longitudinal study of body image, eating disturbance, and general psychological functioning in adolescent females. *Eating Disorders: The Journal of Treatment and Prevention, 2*, 114-125.
- Cattarin, J. A., Thompson, J. K., Thomas, C., & Williams, R. (2000). Body image, mood, and televised images of attractiveness: the role of social comparison. *Journal of Social and Clinical Psychology, 19*, 220-239.
- Champion, H., & Furnham, A. (1999). The effect of the media on body satisfaction in adolescent girls. *European Eating Disorders Review, 7*, 213-228.
- Cohane, G. H., & Pope, H. G., Jr. (2001). Body image in boys: a review of the literature. *International Journal of Eating Disorders, 29*, 373-9.
- Cororve, M. B., & Gleaves, D. H. (2001). Body dysmorphic disorder: a review of conceptualizations, assessment, and treatment strategies. *Clinical Psychology Review, 21*, 949-970.

- Davis, E., & Furnham, A. (1986a). Body satisfaction in adolescent girls. *British Journal of Medical Psychology*, *59*, 279-287.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*, 71-75.
- Dittmar, H., Lloyd, B., Dugan, S., Halliwell, E., Jacobs, N., & Cramer, H. (2000). The “body beautiful”: English adolescents’ images of ideal bodies. *Sex Roles*, *42*, 887-915.
- Fallon, E. A., & Hausenblas, H. A. (2005). Media images of the “ideal” female body: can acute exercise moderate their psychological impact? *Body Image*, *2*, 62-73.
- Feeney, J. A., Noller, P., & Hanrahan, M. (1994). Assessing adult attachment. In M. B. Sperling & W. H. Berman (Eds.), *Attachment in adults: clinical and developmental perspectives* (pp. 128-152). New York, NY: Guildford Press.
- Feingold, A., & Mazzella, R. (1998). Gender differences in body image are increasing. *Psychological Science*, *9*, 190-195.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*, 117-140.
- Frederickson, B., & Roberts, T. (1997). Objectification theory: towards understanding women’s lived experience and mental health risks. *Psychology of Women Quarterly*, *21*, 173-206.

- Gardner, R., Sorter, R., & Friedman, B. (1997). Developmental changes in children's body images. *Journal of Social Behavior and Personality, 12*, 1019-1036.
- Garner, D. M. (1991). *Eating disorder inventory-2*. Odessa, FL: Psychological Assessment Resources, Inc.
- Garner, D. M. (1997). The Body Image Survey. *Psychology Today*; (January/February), 32-84.
- Garner, D. M., Garfinkel, P. E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. *Psychological Reports, 47*, 483-491.
- Greenwood, D. N., & Pietromonaco, P. R. (2004). The interplay among attachment orientation, idealized media images of women, and body dissatisfaction: a social psychological analysis. In L. J. Shrum (Ed.), *The psychology of entertainment media: Blurring the lines between entertainment and persuasion*. (pp. 291-308). Mahwah, NJ, US: Lawrence Erlbaum Associates, Publishers.
- Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: a meta-analytic review. *International Journal of Eating Disorders, 31*, 1-16.
- Hamilton, K., & Waller, G. (1993). Media influences on body size estimation in anorexia and bulimia: an experimental study. *British Journal of Psychiatry, 162*, 837-840.
- Hargreaves, D., & Tiggemann, M. (2003). Longer-term implications of responsiveness to 'thin-idea' television: support for a cumulative hypothesis of body image disturbance? *European Eating Disorders Review, 11*, 465-477.

- Hargreaves, D., & Tiggemann, M. (2003). Female “thin ideal” media images and boys’ attitudes toward girls. *Sex Roles, 49*, 539-544.
- Harrison, K. (1997). Does interpersonal attraction to thin media personalities promote eating disorders? *Journal of Broadcasting and Electronic Media, 41*, 478-500.
- Harrison, K., & Cantor, J. (1997). The relationship between media consumption and eating disorders. *Journal of Communication, 47*, 40-67.
- Hausenblas, H. A., & Fallon, E. A. (2002). Relationship among body image, exercise behavior, and exercise dependence symptoms. *International Journal of Eating Disorders, 32*, 179 – 185.
- Hausenblas, H. A., Janelle, C. M., Gardiner, R. E., & Focht, B. C. (2004). Effects of exposure to thin media images: evidence of self-enhancement among restrained eaters. *Personality and Social Psychology Bulletin, 28*, 1687-1699.
- Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K. O. (1991). The fagerstrom test for nicotine dependence: a revision of the fagerstrom tolerance questionnaire. *British Journal of Addiction, 86*, 1119-1127.
- Heinberg, L. J., Guarda, A. S., & Haug, N. A. (2001). Sociocultural attitudes predict partial hospitalization weight gain. Poster presented at the annual meeting of the Eating Disorders Research Society (December), Albuquerque, NM.

- Heinberg, L. J., & Thompson, J. K. (1992). Social comparison: gender, target importance ratings, and relation to body image disturbance. *Journal of Social Behavior and Personality, 7*, 335-344.
- Heinberg, L. J., Thompson, J. K., & Stormer, S. (1995). Development and validation of the sociocultural attitudes toward appearance questionnaire. *International Journal of Eating Disorders, 17*, 81-89.
- Henderson-King, D., Henderson-King, E., & Hoffmann, L. (2001). Media images and women's self-evaluations: social context and importance of attractiveness as moderators. *Personality and Social Psychology Bulletin, 27*, 1407-1416.
- Henderson-King, E., & Henderson-King, D. (1997). Media effects on women's body esteem: social and individual difference factors. *Journal of Applied Social Psychology, 27*, 399-417.
- Irving, L. (1990). Mirror images: effects of the standard of beauty on the self-and-body-esteem of women exhibiting varying levels of bulimic symptomatology. *Journal of Social and Clinical Psychology, 9*, 230-242.
- Irving, L. M. (2001). Media exposure and disordered eating: introduction to the special section. *Journal of Social and Clinical Psychology, 20*, 259-269.
- Irving, L. M., & Berel, S. R. (2001). Comparison of media-literacy programs to strengthen college women's resistance to media images. *Psychology of Women Quarterly, 25*, 103-111.

- Irving, L. M., DuPen, J., & Berel, S. (1998). A media literacy program for high school females. *Eating Disorders: The Journal of Treatment and Prevention*, 6, 119-131.
- Jansen, A., & de Vries, M. (2002). Pre-attentive exposure to the thin female beauty ideal does not affect women's mood, self-esteem and eating behaviour. *European Eating Disorders Review*, 10, 208-217.
- John, O. P., & Srivastava, S. (1999). The big five trait taxonomy: history, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of Personality. Theory and Research* (pp. 102-138). New York, NY: Guilford Press.
- Jung, J., & Lennon, S. J. (2003). Body image, appearance self-schema, and media images. *Family and Consumer Sciences Research Journal*, 32, 27-51.
- Kater, K. J., Rohwer, J., & Levine, M. P. (2000). An elementary school project for developing healthy body image and reducing risk factors for unhealthy and disordered eating. *Eating Disorders: The Journal of Treatment and Prevention*, 8, 3-16.
- Kater, K. J., Rohwer, J., & Londre, K. (2002). Evaluation of an upper elementary school program to prevent body image, eating, and weight concerns. *The Journal of School Health*, 72, 199-204.
- Kilbourne, J. (1994). Still killing us softly: advertising and the obsession with thinness. In M. Katzman, & P. Fallon (Eds.), *Feminist perspectives on eating disorders* (pp. 395-418). New York, NY: The Guilford Press.

- King, N., Touyz, S., & Charles, M. (2000). The effect of body dissatisfaction on women's perceptions of female celebrities. *International Journal of Eating Disorders, 27*, 341-347.
- King, R. M., Menzel, M., & Baird, D. (1997). Effects of exposure to thin models on the body size estimation of female students with and without disturbed eating. Poster session presented at 3rd London International Conference on Eating Disorders, London, UK.
- Leit, R.A., Gray, J. J., & Pope, H. G., Jr. (2002), The media's representation of the ideal male body: a cause for muscle dysmorphia? *International Journal of Eating Disorders, 31*, 334-8.
- Levine, M. P., Piran, N., & Stoddard, C. (2000). Mission more probable: media literacy, activism, and advocacy as primary prevention. In N. Piran, M. P. Levine & C. Steiner-Adair (Eds.), *Preventing eating disorders: a handbook of interventions and special challenges*. Philadelphia: Brunner/Mazel.
- Levine, M. P., & Smolak, L. (1998). The mass media and disordered eating: implications for primary prevention. In W. Vandereycken & G. Van Noordenbos (Eds.), *Prevention of Eating Disorders* (pp. 23-56). London: Athlone.

- Levine, M. P., & Smolak, L. (2001). Primary prevention of body image disturbances and disordered eating in childhood and early adolescence. In J. K. Thompson & L. Smolak (Eds.), *Body image, eating disorders, and obesity in youth: Assessment, prevention, and treatment* (pp. 237-260). Washington, DC: American Psychological Association.
- Levine, M. P., Smolak, L., & Schermer, F. (1996). Media analysis and resistance by elementary school children in the primary prevention of eating problems. *Eating Disorders, 4*, 310-322.
- Lin, L. F., & Kulik, J. A. (2002). Social comparison and women's body satisfaction. *Basic and Applied Social Psychology, 24*, 115-123.
- Major, B., Testa, M., & Bylsma, W. H. (1991). Responses to upward and downward social comparisons: the impact of esteem-relevance and perceived control. In J. Suls & T. A. Wills (Eds.), *Social comparison: contemporary theory and research* (pp. 237-260). Hillsdale, NJ: Erlbaum.
- Maltby, J., Giles, D. C., Barber, L., & McCutcheon, L. E. (2005). Intense-personal celebrity worship and body image: evidence of a link among female adolescents. *British Journal of Health Psychology, 10*, 17-32.
- Martin, M. C., & Kennedy, P. F. (1993). Advertising and social comparison: Consequences for female preadolescents and adolescents. *Psychology and Marketing, 10*, 513-530.

- McCullough, M. E., Emmons, R. A., & Tsang, J. A. (2002). The grateful disposition: a conceptual and empirical topography. *Journal of Personality and Social Psychology, 82*, 112-127.
- McVey, G. L., & Davis, R. (2002). A program to promote positive body image: a 1-year follow-up evaluation. *Journal of Early Adolescence, 22*, 96-108.
- Mills, J. S., Polivy, J., Herman, P. C., & Tiggemann, M. (2002). Viewing physique slides: affective responses of women at high and low drive for thinness. *Journal of Social and Clinical Psychology, 23*, 45-60.
- Morrison, T. G., Kalin, R., & Morrison, M. A. (2004). Body-image evaluation and body-image investment among adolescents: a test of sociocultural and social comparison theories. *Adolescence, 39*, 571-592.
- Murnen, S. K., Smolak, L., Mills, A. J., & Good, L. (2003). Thin, sexy women and strong, muscular men: grade-school children's responses to objectified images of women and men. *Sex Roles, 49*, 427-437.
- Neumark-Sztainer, D., Butler, R., & Palti, H. (1995). Eating disturbances among adolescent girls: evaluation of a school-based primary prevention program. *Journal of Nutrition Education, 27*, 24-30.
- Neumark-Sztainer, D., Sherwood, N. E., Collier, T., & Hannan, P. J. (2000). Primary prevention of disordered eating among preadolescent girls: feasibility and short-term effect of a community-based intervention. *Journal of the American Dietetic Association, 100*, 1466-1473.

- O'Dea, J. A., & Abraham, S. (2000). Improving the body image, eating attitudes, and behaviours of young male and female adolescents: a new educational approach that focuses on self-esteem. *International Journal of Eating Disorders*, 28, 43-57.
- Ogden, J., & Munday K. (1996). The effect of the media on body satisfaction: The role of gender and size. *European Eating Disorders Review*, 4, 171-82.
- Oliver, K., & Thelen, M. (1996). Children's perceptions of peer influence on eating concerns. *Behavior Therapy*, 27, 25-39.
- Pinhas, L., Toner, B. B., Ali, A., Garfinkel, P. E., & Stuckless, N. (1999). The effects of the ideal of female beauty on mood and body satisfaction. *International Journal of Eating Disorders*, 25, 223-226.
- Polivy, J., Herman, C. P., & Howard, K. (1988). The restraint scale: assessment of dieting. In M. Hersen & A. S. Bellack (Eds.), *Dictionary of Behavioral Assessment Techniques* (pp. 377-380). New York: Pergamon.
- Pope, H. G., Jr. (1999). Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorders*, 26, 65-72.
- Pope, H. G., Olivardia, R. Gruber, A., & Borowiecki, J. (1999). Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorders*, 26, 65-72.
- Posavac, H. D., Posavac, S. S., & Posavac, E. J. (1998). Exposure to media images of female attractiveness and concern with body weight among young women. *Sex roles*, 38, 187-201.

- Posavac, H. D., Posavac, S. S., & Weigel, R. G. (2001). Reducing the impact of media images on women at risk for body image disturbance: three targeted interventions. *Journal of Social and Clinical Psychology, 20*, 324-340.
- Richins, M. L. (1991). Social comparison and the idealised images of advertising. *Journal of Consumer Research, 18*, 71-83.
- Richman, R. D. (1993). Primary prevention of eating disorders: a pilot program. Unpublished master's thesis, Simon Fraser University, British Columbia, Canada.
- Raphael, F. J., & Lacey, H. J. (1992). Sociocultural aspects of eating disorders. *Annals of Medicine, 24*, 293-296.
- Rodin, J., Silberstein, L., & Striegel-Moore, R. (1984). Women and weight: A normative discontent. *Nebraska Symposium on Motivation, 32*, 267-307. University of Nebraska Press, US.
- Rosenberg, M. (1965). *Measurement of self-esteem*. In M. Rosenberg (Ed.), *Society and the adolescent self image* (pp. 297-307). New York: Princeton University Press.
- Ryan, R. M., Rigby, S., & King, K. (1993). Two types of religious internalization and their relations to religious orientations and mental health. *Journal of Personality and Social Psychology, 65*, 586-596.
- Sands, E. R., & Wardle, J. (2003). Internalization of ideal body shapes in 9-12 year old girls. *International Journal of Eating Disorders, 33*, 193-204.

- Shaw, J., & Waller, G. (1995). The media's impact on body image: implications for prevention and treatment. *Eating Disorders: The Journal of Treatment and Prevention, 3*, 115-123.
- Sherwood, N. E., & Neumark-Sztainer, D. (2001). Internalization of the sociocultural ideal: weight related attitudes and dieting behaviors among young adolescent girls. *American Journal of Health Promotion, 15*, 228-231.
- Silverstein, B., Perdue, L., Peterson, B., & Kelly, E. (1986). The role of the mass media in promoting a thin standard of attractiveness for women. *Sex roles, 14*, 519-532.
- Slade, P.D. (1994). What is body image? *Behavior Research and Therapy, 32*, 497-502.
- Smolak, L., Levine, M. P., & Schermer, F. (1998). A controlled evaluation of an elementary school primary prevention program for eating problems. *Journal of Psychosomatic Research, 44*, 339-353.
- Stice, E., & Agras, W. S. (1998). Predicting onset and cessation of bulimic behaviors during adolescence: a longitudinal grouping analyses. *Behavior Therapy, 29*, 257-276.
- Stice, E., Killen, J. D., Hayward, C., & Taylor, C. B. (1998). Age of onset for binge eating eating and purging during adolescence: a four-year survival analysis. *Journal of Abnormal Psychology, 107*, 671-675.

- Stice, E., Mazotti, L., Weibel, D., & Agras, S. W. (2000). Dissonance prevention program decreases thin-ideal internalization, body dissatisfaction, dieting, negative affect, and bulimic symptoms: a preliminary experiment. *International Journal of Eating Disorders, 27*, 206-217.
- Stice, E., Schupak-Neuberg, E., Shaw, H. E., & Stein, R. I. (1994). Relation of media exposure to eating disorder symptomatology: an examination of mediating mechanisms. *Journal of Abnormal Psychology, 103*, 836-840.
- Stice, E., & Shaw, H. E. (1994). Adverse effects of the media-portrayed thin ideal on women and linkages to bulimic symptomatology. *Journal of Social and Clinical Psychology, 13*, 288-308.
- Stice, E., Spangler, D., & Agras, S. W. (2001). Exposure to media-portrayed thin-ideal images adversely affects vulnerable girls: a longitudinal experiment. *Journal of Social and Clinical Psychology, 20*, 270-288.
- Stice, E., Telch, C. F., & Rizvi, S. L. (2000). Development and validation of the eating disorder diagnostic scale: a brief self-report measure of anorexia, bulimia, and binge-eating disorder. *Psychological Assessment, 12*, 123-131.
- Stice, E., Ziemba, C., Margolis, J., & Flick, P. (1996). The dual pathway model differentiates bulimics, subclinical bulimics, and controls: testing the continuity hypothesis. *Behavior Therapy, 27*, 531-549.

- Strowman, S. R. (1996). Comparison to Models Survey. In J. K. Thompson (Ed.), *Exacting beauty: theory, assessment, and treatment of body image disturbance*. Washington, DC: American Psychological Association.
- Tabachnick, B. G., & Fidell, L. S. (1989). *Using multivariate statistics* (2nd ed.). New York: Harper & Row.
- Taylor, C., Sharpe, T., Shisslak, C., Bryson, S., Estes, L., Gray, N., et al. (1998). Factors associated with weight concerns in adolescent girls. *International Journal of Eating Disorders, 24*, 31-42.
- Tellegen, A. (1982). Brief manual for the Multidimensional Personality Questionnaire, Unpublished manuscript, University of Minnesota, Minneapolis.
- Thompson, J. K., Corwin, S. J., & Sargent, R. G. (1997). Body size beliefs and weight concerns of fourth-grade children. *International Journal of Eating Disorders, 21*, 279-284.
- Thompson, J. K., & Heinberg, L. J. (1999). The media's influence on body image disturbance and eating disorders: we've relived them, now can we rehabilitate them? In P. A. Katz (Ed.), *Journal of Social Issues, 27*, 339-353.
- Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting Beauty: Theory, Assessment, and Treatment of Body Image Disturbance*. Washington, DC: American Psychological Association.

- Thompson, J. K., & Stice, E. (2001). Thin-ideal internalization: mounting evidence for a new risk factor for body image disturbance and eating pathology. *Current Directions in Psychological Science, 10*, 181-183.
- Thompson, J. K., van den Berg, P., Roehrig, M., Guarda, A. S., & Heinberg, L. J. (2004). The sociocultural attitudes towards appearance scale-3 (SATAQ-3): development and validation. *International Journal of Eating Disorders, 35*, 293-304.
- Tiggemann, M., & McGill, B. (2004). The role of social comparison in the effect of magazine advertisements on women's mood and body dissatisfaction. *Journal of Social and Clinical Psychology, 23*, 23-44.
- Tiggemann, M., & Pickering, A. S. (1996). Role of television in adolescent women's body dissatisfaction and drive for thinness. *International Journal of Eating Disorders, 20*, 199-203.
- Voojls, M. W., & van der Voort, T. H. A. (1993). Learning about television violence: the impact of a critical viewing curriculum on children's attitudinal judgements of crime series. *Journal of Research and Development in Education, 26*, 133-142.
- Wade, T. D., Davidson, S., & O'Dea, J. A. (2003). A preliminary controlled evaluation of a school-based media literacy program and self-esteem program for reducing eating disorder risk factors. *International Journal of Eating Disorders, 33*, 371-383.
- Waller, G., Shaw, J., Hamilton, K., Baldwin, G., Harding, T., & Summer, A. (1994). Beauty is in the eye of the beholder: media influences on the psychopathology of eating problems. *Appetite, 23*, 287.

- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063-1070.
- Wegner, B. S., Hartmann, A. M., & Geist, C. R. (2000). Effect of exposure to photographs of thin models on self-consciousness in female college students. *Psychological Reports*, *86*, 1149-1154.
- Wheeler, L., & Miyake, K. (1992). Social comparison in everyday life. *Journal of Personality and Social Psychology*, *62*, 760-773.
- Wiseman, C. V., Gray, J. J., Mosimann, J. E., & Ahrens, A. H. (1992). Cultural expectations of thinness in women: an update. *International Journal of Eating Disorders*, *11*, 85-89.
- Wilcox, K., & Laird, J. D. (2000). The impact of media images of super-slender women on women's self-esteem: identification, social comparison, and self-perception. *Journal of Research in Personality*, *34*, 278-286.
- Wood, J. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin*, *2*, 231-248.
- Yamamiya, Y., Cash, T. F., Melnyk, S. E., Posavac, H. D., & Posavac, S. S. (2005). Women's exposure to thin-and-beautiful media images: body image effects of media-ideal internalization and impact-reduction interventions. *Body Image*, *2*, 74-80.

Appendix A

Recruitment Flyer

Evaluation of Marketing Products



Experimenter Name: Andrew Lumb

Experimenter's Email Address: alumb@connect.carleton.ca

Location of Experiment: Loeb Building, room A503 on the fifth floor, Carleton University

Experiment Number:

Faculty Advisors: Dr. Gary Goldfield and Dr. Mary Gick

Brief Description

The purpose of this experiment is for consumer research on young *female's* evaluations of new educational programs and certain products. In addition, as part of a pilot study, female participants will be asked to fill out questionnaires about the self for use in a future study.

There are a maximum of three sessions in this experiment; however, only certain participants will be asked after the first session to come back to the remaining two stages of the study. All three sessions will take approximately 30-60 minutes each.

Participants will have a choice to either receive money *or* course credit for participating in the experiment. You may *not* receive both money and course credit. If participants choose to receive money, those completing the first session will receive ten dollars, those completing the second session will receive another ten dollars, and those completing the third session will receive twenty dollars. In total, participants completing all three sessions will receive forty dollars. If participants choose to receive course credit for their participation, those completing the first session will receive a 1% increase on their final grade. For those completing two of the three sessions, they will receive a 2% increase in their final grade, and participants completing all three sessions will receive a 3% increase in their final grade

You must: Keep a record of the Experimenter's name, email address, title of the experiment, location and time. It is your responsibility to know where and when the experiment is held. Sign-up sheets for this experiment are underneath. Please provide only your initials, student number, phone number (with best time to call), and your email address.

Appendix B

Informed Consent

The purpose of an informed consent is to insure that you understand the purpose of the study and the nature of your involvement. The informed consent must provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study.

What is the purpose of this experiment? and What will I be required to do?

The purpose of this study is for consumer research on young female's evaluations of new educational programs and certain products. In addition, as part of a pilot study, you will be asked to fill out questionnaires about the self for use in a future study.

There are a maximum of three sessions in this experiment; however, as stated on our recruitment advertisement, only certain participants will be asked to come back to the next two stages of the study. Therefore, at the end this session you may or may not be asked to come back for the following two phases of the experiment. However, if you are not asked back you will still receive a 1% increase on your final grade *or* ten dollars for attending this first session. For today's session and throughout the study, you will be required to fill out questionnaires inquiring about yourself (e.g., personality, health, etc.). For those participants who are asked to attend the second and third phases of the experiment, you will be asked to listen to an educational program and evaluate it for its content and value. You will also be required to look at and evaluate certain consumer products.

If participants choose to receive money, those completing the first session will receive ten dollars, those completing the second session will receive another ten dollars, and those completing the third session will receive twenty dollars. In total, participants completing all three sessions will receive forty dollars. If you choose to receive course credit for your participation, those completing the first session will receive a 1% increase on their final grade. For those completing two of the three sessions, they will receive a 2% increase in their final grade, and participants completing all three sessions will receive a 3% increase in their final grade.

Are there any possible risks and/or feelings of discomfort that I might experience during the experiment? There are no known potential physical risks in this study. Some people may find some of the material and questions sensitive and personal. If you don't feel comfortable answering certain questions it is your right to leave them blank.

Do I have the right to withdraw from the experiment at any time and omit specific questions, without penalty? You have the right to withdraw from the study at any time, and you may omit specific questions. You will not be penalized for incompleteness of the experiment and you will still receive either money *or* the necessary percentage increase

on your final grade. However, because this study involves multiple sessions over different days, participants will only receive credit *or* money for the time completed.

How long is the experiment? and Where will it take place? The entire experiment will take place at three different time periods. Today the experiment will take approximately 30-60 minutes. Some of you will be asked to come back in *one week* for the second phase, which will take approximately 30-60 minutes. The final phase will take approximately 30-60 minutes and will take place *four weeks* after the second phase. The entire experiment will occur in A503 Loeb Building of Carleton University on the fifth floor.

Will my responses be anonymous or confidential? The data collected in this experiment are strictly confidential. We will ask you for your phone number and email address to contact you for further sessions of the experiment. All data are coded such that your name is not associated with the data. In addition, the coded data are made available only to the researchers associated with this project.

Who can I get in contact with if I have questions about the experiment?

The following people are involved in this research project and may be contacted at any time: Dr. Gary Goldfield (Faculty Sponsor, Children's Hospital of Eastern Ontario, email: ggoldfield@cheo.on.ca, phone: 737-7600, Ext. 3288) Dr. Mary Gick (Faculty Sponsor, Chair, Dept. of Psychology, email: mgick@ccs.carleton.ca, phone: 520-2648) or Andrew Lumb (Principal Investigator, Email: alumb@connect.carleton.ca, phone: 520-2600, Ext. 3781). Should you have any ethical or other concerns about this study then please contact Dr. Janet Mantler, Chair, Carleton University Ethics Committee for Psychological Research, email: janet_mantler@carleton.ca, phone: 520-2600, ext. 4173) or Dr. Tim Pychyl, Chair, Graduate Studies, email: tim_pychyl@carleton.ca, phone: 520-2600, ext. 1403.

I have read the above form and understand the conditions of my participation. My participation in this study is voluntary, and if for any reason, at any time, I wish to leave the experiment I may do so without having to give an explanation and with no penalty whatsoever. Furthermore, I am also aware that the data gathered in this study are confidential and anonymous with respect to my personal identity. My signature indicates that I agree to participate in the study.

Participant's Name: _____ Participant's Signature:

Researcher Name: _____ Researcher Signature:

Date _____

Appendix C

Baseline Debriefing (Excluded Participants)

Thank you for completing the first phase of the experiment and for completing questionnaires about the self for use in a future study. As noted in the recruitment advertisement and in the Informed Consent form, only certain participants will be asked to come back to the next stages of the experiment.

This concludes your participation in our study and we thank you once again for your involvement.

If any of the questionnaires or individual items made you feel *like you would like to talk to someone*, please feel free to contact Carleton University Health and Counselling Services, located in the Carleton Technology and Training Centre (across from the parking garage), 520-6674; or the Hopewell Eating Disorder Support Centre of Ottawa: 241-3428; or The Regional Centre for the Treatment of Eating Disorders: 737-8042.

If you have any remaining concerns, questions, or comments about the experiment please feel free to email Andrew Lumb at alumb@connect.carleton.ca or talk to Dr. Gary Goldfield (Faculty Sponsor, Children's Hospital of Eastern Ontario, email: ggoldfield@cheo.on.ca, phone: 737-7600, Ext. 3288) or Dr. Mary Gick (Faculty Sponsor, Chair, Department of Psychology, email: mgick@ccs.carleton.ca, phone: 520-2648). If you have any ethical concerns you can also discuss them with Dr. J. Mantler, Chair, Carleton University Ethics Committee for Psychological Research, email: janet_mantler@carleton.ca, phone: 520-2600 x 4173) or Dr. Tim Pychyl, Chair, Graduate Studies, email: tim_pychyl@carleton.ca, phone: 520-2600, ext. 1403.

Appendix D

Baseline Debriefing (Included Participants)

Thank you for completing the first phase of the experiment and for completing questionnaires about the self for use in a future study. As noted in the recruitment advertisement and in the Informed Consent form, only certain participants will be asked to come back to the next stages of the experiment.

We would like for you to come back and participate in the last two phases of our experiment. At this time, we would like to book an appointment with you to come back in *one week* for our second experimental session.

Appointment:

Date: _____ **Time:** _____

Place: A503 Loeb Building of Carleton University on the fifth floor.

Could you please provide us with your phone number and email address so that we may contact you a few days before the next phase of the experiment as a reminder.

Phone Number: _____ Email Address: _____

If any of the questionnaires or individual items made you feel *like you would like to talk to someone*, please feel free to contact Carleton University Health and Counselling Services, located in the Carleton Technology and Training Centre (across from the parking garage), 520-6674; or the Hopewell Eating Disorder Support Centre of Ottawa: 241-3428; or The Regional Centre for the Treatment of Eating Disorders: 737-8042.

If you have any remaining concerns, questions, or comments about the experiment please feel free to email Andrew Lumb at alumb@connect.carleton.ca or talk to Dr. Gary Goldfield (Faculty Sponsor, Children's Hospital of Eastern Ontario, email: ggoldfield@cheo.on.ca, phone: 737-7600, Ext. 3288) or Dr. Mary Gick (Faculty Sponsor, Chair, Department of Psychology, email: mgick@ccs.carleton.ca, phone: 520-2648). If you have any ethical concerns you can also discuss them with Dr. J. Mantler, Chair, Carleton University Ethics Committee for Psychological Research, email: janet_mantler@carleton.ca, phone: 520-2600 x 4173) or Dr. Tim Pychyl, Chair, Graduate Studies, email: tim_pychyl@carleton.ca, phone: 520-2600, ext. 1403.

Appendix F

Consumer Program Content Evaluation (Manipulation Check)

Parent Training Program

- 1) What was the topic of the program you just listened to?
 - a) How to teach parents to get their children to follow directions
 - b) How to teach parents to make dinner
 - c) How to teach parents to get along
 - d) I don't know

- 2) Which is more effective in getting children to follow-directions?
 - a) Negative attention
 - b) Positive attention
 - c) No attention

- 3) Focusing on the positives in a child's behaviour.....
 - a) Improves children's behaviour
 - b) Reduces parents' stress levels
 - c) Improves children's self-esteem
 - d) All of the above

- 4) The program talked about one way of disciplining a child without giving negative attention?
 - a) Yelling at the child
 - b) Spanking the child
 - c) Time-out technique
 - d) You should not discipline your child

Media Literacy Program

- 1) What was the topic of the program you just listened to?
 - a) Facts about movie stars
 - b) Facts about fashion-model images of women
 - c) Facts about men's health
 - d) None of the above

2) What kinds of women are selected to appear in magazines like Glamour, Vogue, or Cosmopolitan?

- a) Normal weight
- b) Overweight
- c) Extremely Underweight
- d) None of the above

3) What is NOT a technique used to make the model images flawless?

- a) Make-up
- b) Cardboard attached to the crown of the scalp
- c) Smiling
- d) Using clothespins on the back and thighs of the models

4) When looking at magazine pictures of female models in the future, you should?

- a) Turn the page and don't look
- b) Challenge and scrutinize the pictures with the information provided by audiotape
- c) Cry
- d) All of the above

Appendix G

Post-Test Debriefing

Thank you for completing the second phase of the experiment and for completing questionnaires about the self for use in a future study, as well as evaluating new educational programs and certain products.

We would like for you to come back and participate in the last phase of our experiment. At this time, we would like to book an appointment with you to come back in *four weeks* for our third experimental session.

Appointment:

Date: _____ **Time:** _____

Place: A503 Loeb Building of Carleton University on the fifth floor.

Could you please provide us with your phone number and email address so that we may contact you a few days before the next phase of the experiment as a reminder.

Phone Number: _____ Email Address: _____

If any of the materials including the education program, consumer products, or questionnaires made you feel *like you would like to talk to someone*, please feel free to contact Carleton University Health and Counselling Services, located in the Carleton Technology and Training Centre (across from the parking garage), 520-6674; or the Hopewell Eating Disorder Support Centre of Ottawa: 241-3428; or The Regional Centre for the Treatment of Eating Disorders: 737-8042.

If you have any remaining concerns, questions, or comments about the experiment please feel free to email Andrew Lumb at alumb@connect.carleton.ca or talk to Dr. Gary Goldfield (Faculty Sponsor, Children's Hospital of Eastern Ontario, email: ggoldfield@cheo.on.ca, phone: 737-7600, Ext. 3288) or Dr. Mary Gick (Faculty Sponsor, Chair, Department of Psychology, email: mgick@ccs.carleton.ca, phone: 520-2648). If you have any ethical concerns you can also discuss them with Dr. J. Mantler, Chair, Carleton University Ethics Committee for Psychological Research, email: janet_mantler@carleton.ca, phone: 520-2600 x 4173) or Dr. Tim Pychyl, Chair, Graduate Studies, email: tim_pychyl@carleton.ca, phone: 520-2600, ext. 1403.

Appendix H

Follow-up Debriefing

Was there deception involved in this study?

Yes. We told you at the beginning of the experiment that the purpose of this study was for “*consumer research on young female’s evaluations of new educational programs and certain products. In addition, as part of a pilot study, you will be asked to fill out questionnaires about the self for use in a future study.*” However, at the beginning of the experiment we randomly assigned participants to either a control condition or intervention condition. Some participants received a neutral “educational program” (i.e., parenting skills) and some received an intervention program (i.e., media literacy). We then exposed both groups to pictures of slender ideal models. In general, we were trying to see how these female images affected your body image following either a control intervention or media literacy intervention. The questionnaires you filled out were for the purpose of retrieving information about your body image, mood, media habits, media knowledge, internalization and social comparison levels, dietary behaviours, and Body Mass Index (BMI) and not for use in a future study. This deception was necessary so that you would not be aware of the real purpose of our study. In addition, if you were aware of the real purpose it may have prevented you from giving us unbiased responses.

According to APA (American Psychological Association) guidelines it is required that when deception is used, researchers must explicitly offer participants the opportunity to withdraw their data from the study. Therefore, you have the right to withdraw your data from our study if you wish. You will not be penalized if you decide to withdraw your data at this time and you will still receive the necessary percentage increase on your final grade. However, please remember the data collected in this experiment are strictly confidential. All data are coded such that your name is not associated with the data. In addition, the coded data are made available only to the researchers associated with this project.

What was the purpose of the present study?

Research indicates that exposure to the media ideal female (model pictures) has negative effects on body image, amongst other constructs (i.e., mood, self-esteem), as well as positive associations with eating disorder related symptoms. The purpose of this study is threefold. The first purpose is to see if a media literacy intervention (7-minute audiotape) can reduce the negative impact of media exposure (to the feminine ideal) on body image. The second purpose of this study is to see if there are different results for participants who internalize the feminine ideal (measured by the SATAQ questionnaire) and who socially compare themselves to these images (measured by the Comparison to Models Survey). The third purpose of the study is to see whether the effects of the media literacy intervention are maintained at one-month follow-up and the extent to which our media literacy intervention influences dieting behaviours, Body Mass Index (BMI), media skepticism, and media habits.

Why is this important for scientists or the general public?

The findings from this study are expected to contribute to prevention research that aims to improve female body image, which in turn may help reduce the occurrence of eating disorders. These results are also important for the general public for two reasons. First, it can educate the public on the impact and influence media has on one's body image. Second, it may indicate that there are brief and cost effective interventions that may improve body image, which may possibly prevent subsequent eating pathology.

What are our hypotheses and predictions?

Our first prediction is that in both conditions, only those classified as High Internalizers will be significantly affected by the experimental manipulation. This means that without the media literacy intervention, control participants (high internalizers only) will be negatively affected by the thin and beautiful media images. Those who are susceptible to this manipulation will have increased levels of body dissatisfaction.

Our second prediction is that the media literacy intervention will reduce the negative media exposure effects (high internalizers only). These participants will have decreased levels of body dissatisfaction. As our third hypothesis, we will explore whether the effects of the intervention are maintained at one-month follow-up.

Finally, as an exploratory hypothesis, we will observe for potential changes in dieting behaviours (i.e., Dietary Restraint), BMI, media skepticism, mood, self esteem and media habits (e.g., types of television shows and magazine purchases) between the control and intervention groups throughout the study with an emphasis on the differences between post (Time 2) and follow-up (Time 3).

Is there anything I can do if I found this experiment to be emotionally upsetting or if I am worried about my health?

Yes. Please feel free to contact the Carleton University Health and Counseling Services at 520-6674; or the Distress Centre of Ottawa and Region at 238-3311; or the Hopewell Eating Disorder Support Centre of Ottawa: 241-3428; or The Regional Centre for the Treatment of Eating Disorders: 737-8042.

Where can I learn more?

You may want to look at the following article about media literacy and body image: Yamamiya, Y., Cash, T. F., Melnyk, S. E., Posavac, H. D., & Posavac, S. S.(2005). Women's exposure to thin-and-beautiful media images: body image effects of media-ideal internalization and impact-reduction interventions.

What if I have questions later?

If you have any remaining concerns, questions, or comments about the experiment please feel free to email Andrew Lumb at alumb@connect.carleton.ca or talk to Dr. Gary Goldfield (Faculty Sponsor, Children's Hospital of Eastern Ontario, email: ggoldfield@cheo.on.ca, phone: 737-7600, Ext. 3288) or Dr. Mary Gick (Faculty Sponsor, Chair, Department of Psychology, email: mgick@ccs.carleton.ca, phone: 520-2648). If you have any ethical concerns you can also discuss them with Dr. J. Mantler, Chair,

Carleton University Ethics Committee for Psychological Research, email:
janet_mantler@carleton.ca, phone: 520-2600 x 4173) or Dr. Tim Pychyl, Chair, Graduate
Studies, email: tim_pychyl@carleton.ca, phone: 520-2600, ext. 1403.

Appendix I

Control and Intervention Audiotape Scripts

Parenting Skills Transcript

Hello, I am Dr. Eric Thompson, a professor and psychologist at Old Dominion University. Today I would like to talk with you about a method of parenting that has received much scientific support. I am sure many of you are not parents, but I believe this information will be helpful to you if you have any contact with children. This includes people who have young nieces and nephews, those of you who work with children at your jobs, and even those of you who occasionally baby-sit. If none of these categories describes you, I urge you to pay attention because if you ever do come into close contact with children, this information may be helpful to you.

Many parents today have a difficult time getting their children to follow directions. Parents often become frustrated when they are required to ask their children several times to put away their coats or to stop fighting with a sibling. This often leads to a power struggle where the parent and child argue back and forth. Specifically, the parent tries to get the child to obey while the child persistently refuses. Power struggles with children are a no-win situation, and are extremely frustrating for the parent. In addition, power struggles do not teach the child to respect rules, or their parents, for that matter. What happens is that the child ends up learning a very dysfunctional way of dealing with his or her parents.

There is an approach to dealing with children that is likely to result in the child obeying the parent. If the child obeys the parent, the parent will not have to reprimand and discipline as much. This makes for a happier home because the parent is less frustrated and the child does not receive as much punishment. This approach to child rearing is based on the fact that children love attention.

Most children thrive on attention from their parents and teachers. Sometimes any kind of attention will do, even negative attention. Negative attention occurs when a child receives attention for not obeying. For example, school teachers spend a lot of time reprimanding class clowns. The teacher might stop the class periodically to tell the bad student to pay attention or to stay in his or her seat. The class clown often ends up getting more attention than all the other kids combined. Even though the attention is negative, it is still attention and kids crave attention. Meanwhile the children that are obeying are not receiving much attention from the teacher. When you stop and think about it, that does not seem quite fair. The good kids get overlooked while the disobedient children get all the teacher's attention.

Negative attention is also given at home by parents. Some familiar examples of negative attention in a home setting are, "Stop arguing with me," "Leave your brother alone," or "You are not paying attention to me." The point to remember is that in negative attention the child receives attention, usually in the form of yelling, for not obeying.

Positive attention, on the other hand, occurs when a child receives attention for obeying and being good. Some examples are "Thank you for cleaning up your toys," or "I really like the way you are listening to me," or "Thank you for not arguing with me."

These examples probably sound less familiar or may be even awkward to you. This is because people are not used to focusing on children's good behaviors. We are more likely to be alert to bad behaviors because they bother us and we want them to stop. Good behaviors, on the other hand, often go unnoticed.

Scientific studies have suggested that focusing on what children are doing correctly, as opposed to what they are doing wrong, is effective in getting children to follow directions. This means that paying attention and praising a child when they DO follow directions and withholding attention when the child disobeys is an effective way of getting children to obey. What occurs is that the child realizes that he or she can receive attention by behaving. The child also realizes that he or she will NOT receive attention when he or she disobeys. Therefore, the child is more motivated to behave because he or she will be acknowledged for it with praise. The child soon realizes that the more he or she obeys, the more attention he or she gets.

A good way to remember to focus on the child's positive behaviors is to have a point system. A point system involves systematically rewarding a child with points each time he or she obeys. These points can then be exchanged for small rewards or privileges. Some examples of small rewards include candy, money, or small toy. Some examples of special privileges include being able to stay up fifteen minutes past bedtime or being able to rent a favorite movie. Besides helping parents to remember to pay attention to their kid's good behaviors, point systems help children stay motivated to behave and obey their parents. The key point is that the more parents praise their children's good behaviors, the more likely children are to do good behaviors. When this occurs, everyone wins.

Focusing on the positives not only tends to improve children's behavior and reduce parents' stress level, this approach also appears to help improve children's self-esteem. Children thrive on attention. When a child consistently receives praise for being good, he or she may come to see him- or herself as a good kid, which improves self-esteem. On the other hand, when children continually receive negative attention they may internalize all the yelling and disciplining and come to see themselves as bad kids. If a child sees him- or herself as a bad kid, he or she is more likely to keep on behaving badly.

In review, this approach to child rearing actually reverses the way parents normally give attention to their children. Parents learn to give tons of attention and praise to their children when they are being good and obeying. On the other hand, parents are to withhold attention when their children are not minding them. Of course, this is not to say that parents should not discipline their children. However, instead of disciplining children with negative attention by yelling at them or acting mad at them, this approach instructs parents to discipline their children in a matter-of-fact fashion. In other words, parents try to maintain a neutral demeanor while disciplining. By not showing emotion, the parent is not giving out any attention. This is boring to the child, and the child likely will not want to experience this very often.

One way of disciplining a child without giving negative attention is the time-out technique. This technique involves having the child go to a time-out spot. A time-out spot is any space that is away from others and contains nothing fun to play with. Some common time-out places are the bathroom or laundry room. Sometimes a child's bedroom can be used as a time-out place. However, if there are toys in the room it would

not be a good time-out place. The child goes to a time-out place for a certain amount of time. If it is a very young child say three years old, one or two minutes will probably do. If the child is older, five minutes would be appropriate. As a general rule, you never want to go over five minutes. This may not seem like very much time, but to a child, a few minutes often seem like eternity. This is because the time-out space does not have anything to occupy his or her time. This technique allows parents to discipline their child without expressing negative attention.

This may sound easy, but in actuality it is rather difficult. It is hard to remain neutral and calm when a child is desperately trying to push your buttons. It is also very hard to pay attention to a child for being good. It is not that parents do not care or do not want to pay attention to a child when he or she is behaving, it is just that good behavior does not grab our attention because it is not disruptive. With practice anyone can learn this approach to child rearing.

Usually when parents first try this approach they have a hard time sticking to the new rules of giving attention and praise to their children when they are good and not giving any attention when they are bad. Fortunately, once children start to behave better, parents become more motivated to keep going with this new approach to child rearing.

If you are a parent looking for some guidance in raising your children, perhaps you will give this approach a try. Oftentimes change in the child's behavior can be seen almost instantly. The benefits of focusing on the child's good behaviors are that the child will be more likely to behave in the future, it will improve the child's self-esteem, and it will do wonders to reduce the parents' stress.

I hope that the information I have given you today will benefit you in your life, now and in the future.

Media Literacy Transcript

Hello, I am Dr. Eric Thompson, a professor and psychologist at Old Dominion University. I have spent most of my professional career conducting research and counseling on the topic of body image. Body image refers to how we feel about our physical appearance. Today I want to talk candidly and give you the facts about the fashion-model images of women that appear everywhere in our media.

As you've surely noticed, these models' skin seems perfect; it's evenly toned and free of blemishes. Models' bodies seem perfect; they do not have fat, bulges, or problem areas. These models seem to have perfect faces to go with their perfect bodies. Women often wonder, "Why can't I look like that?" If you fall into this category, you are not alone. Most women in our country feel bad about their physical appearance. They either feel they are overweight, or they hate certain parts of their bodies such as their thighs, hips, or stomachs. In any case, most women in Canada wish that they were thinner and more physically attractive.

Let me start by giving you a quick test. In your mind, picture the typical fashion model that you've seen in ads and magazines. When is the last time you saw someone who looked like this on campus, in a class, or walking down the street? Chances are you are drawing a blank because this image of perfected beauty is NOT realistic. Put simply, it's fake. Let me explain what I mean.

Only women who are extremely underweight are selected to appear in magazines like *Glamour*, *Vogue*, or *Cosmopolitan*. Models are worked on by professional make up artists and hairstylists for many hours. Expert make up artists use their skills to create defined cheekbones and exotic eyes and to hide blemishes. Yes, like everybody, models have blemishes, dark circles under their eyes, and unevenly toned skin. Models are often covered in make up from head to toe. That is the way they get evenly toned skin that is perfectly white or bronze, depending on the color of the make up. Each piece of the model's hair is individually styled by a professional to make it perfect. Sometimes hairstylists use pieces of cardboard attached to the crown of the scalp to force hair to stay in place.

Lighting effects are used to accentuate the model's assets and downplay her flaws. Then, literally hundreds of pictures are taken, but only the best picture is selected to print in a magazine. The selected picture is then air brushed, which is a technique that erases any remaining flaws in the picture such as wrinkles, blotches, and even bulges. The end result is a picture of perfected beauty that no woman really looks like, not even the model who posed for the picture. This explains why you never see someone like this walking down the street. This look of perfected beauty comes after hours of work. In fact, if you were to see this fashion model walking down the street today, you probably would not think that she was a professional model because in real life her body and face are NOT perfect. What IS perfect are the techniques that produce a perfect, but unrealistic image.

In addition to these deceiving techniques that help create unrealistic images of female beauty, models are usually placed in strategic positions that accentuate their positive characteristics and hide their flaws. For example, when modeling swimsuits, models rarely, if ever, reveal their thighs from the front because the front of the thigh is an area that naturally tends to be flabby. Instead, models will often pose lightly to the side often with one leg concealing the flabby part of the other leg. If you just look closely, you will see other poses that are planned to hide problem areas.

There are other deceiving techniques to make models' bodies appear perfect. Usually models' stomachs are stretched out because the model is sucking in her stomach very hard. Swimsuit models' stomachs are often flattened by taping her stomach flat underneath the swimsuit. Another technique to prevent bulges is attaching clothespins to the back of models' thighs to pull back excess skin. These are also used in the hips and lower back. These techniques give the appearance that the model has a perfectly toned body, free from problem areas.

So the truth I'm telling you is that these media images of beauty are a lie. The flawless image of women portrayed by the media is NOT real! This image of female beauty does not exist in the real world- it is entirely artificial. A major problem occurs when the media present women with these images of flawless beauty. Women are bombarded with unrealistic images of female beauty on television, in magazines, and on highway billboards. These images are everywhere! Is it any wonder most women are dissatisfied with their bodies and desperately wish they could lose some weight?

Another reason that images of female attractiveness in the media are unrealistic is that being as thin and as beautiful as the "made up models" is no possible for the majority of women. The media have selected one particular body type for women – thinness, they and present thin models everywhere, over and over again. In the media, thinness is

presented as if it were the norm. Furthermore, women are led to believe that they should strive to be thin. Is it any wonder that our society is currently obsessed with thinness? Women are often left feeling like they need to be thin and have perfectly sculpted facial and body features in order to be attractive.

Although the media make it seem as though all women are thin by showing only thin fashion models, this is far from the truth. Only women who are extremely below normal weight are selected to appear in magazines like *Glamour*, *Vogue*, or *Cosmopolitan*. How many women do you know that are as thin as models in fashion magazines? Chances are the majority of your friends are not THAT thin. In fact, it has often been said that the only women that are as thin as models are the fashion models themselves. In fact, prominent scientists who have studied these models have referred to them as “genetic freaks.”

Research has shown that the image of thinness presented in the media is not realistic for the vast majority of women. This is because body weight is largely the result of genetic factors. In the same way that the color of your hair and eyes is the result of your genetics, your body weight is also predetermined by such hereditary factors. This is why there are so many different body types among women. Some women are naturally thinner while other women are naturally heavier. Because women have different genetics they have different appropriate weights. While it is true that extreme over- or under-exercising and over- or under-eating can also affect weight, the primary determinant of one’s weight is genetics. If you eat normally and get some exercise, your body will naturally assume a weight that is right for your body.

As long as you are eating a normal, healthy diet and getting regular exercise, what you weigh is what you are meant to weigh. It’s crazy to think that all women should or could have the same body type. The media, however, bombard women with thin fashion models on television, in magazines, and on highway billboards. These images of abnormally thin models are everywhere! Is it any wonder most women are dissatisfied with their own bodies and desperately wish they could lose some weight? The problem is that the media claim that thinness is in, but most women’s bodies are not meant to be as thin as fashion models. For most women, being extremely thin is unnatural, as unnatural as shorter people to become tall or tall people to become shorter.

If being thin requires you starve yourself and exercise excessively, then being THAT thin is not an appropriate weight for you. Furthermore, when a woman tries to keep her body at a weight that is unnatural for her, she is likely to suffer greatly. For example, desperate dieters are likely to become moody and feel depressed.

I urge you to recognize that the images you see in the media are fake, extreme, and unrealistic. Not even the fashion models themselves look so perfect in their real lives. The majority of women are much heavier than the models who are either thin because of their rare genetics or artificially thin because of extreme and unhealthy dieting and exercising. Being extremely thin is unnatural for most women. Don’t let the media fool you. Women have been accepting this message far too long. Can you imagine thin women who are not especially attractive? I’m sure you can. Can you imagine women with normal sized bodies who look terrific? I’ll bet you can. Can you imagine that who you are as a person is more important than whether you look like an unreal fashion model?

So remember to scrutinize pictures. Challenge how truthful these pictures are with the information that I have shared with you today. I hope that the information I have given you today will benefit you in your life, now and in the future.

Appendix J

Demographics

General Information

Gender: (please check one) Female [] Male []

Age: _____

Are you a full-time [] or part-time [] student? (please check one)

What year of University are you in? (circle one) 1st 2nd 3rd 4th

What is your first language? _____

What is the ethnic/racial group that you most identify with? (e.g., Caucasian, French Canadian, African Canadian): _____

Are you currently employed:

full-time [] part-time [] not at all []

Appendix K

EDDS

Please carefully complete all questions.

Over the past 3 months...

	Not at all	Slightly			Moderately		
Extremely							
1. Have you felt fat?	0	1	2	3	4	5	6
2. Have you had a definite fear that you might gain weight or become fat?	0	1	2	3	4	5	6
3. Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
4. Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6

5. During the past 6 months have there been times when you felt you have eaten what other people would regard as an unusually large amount of food (e.g., a quart of ice cream) given the circumstances? YES NO

6. During the times when you ate an unusually large amount of food, did you experience a loss of control (feel you couldn't stop eating or control what or how much you were eating)? YES NO

7. How many DAYS per week on average over the past 6 MONTHS have you eaten an unusually large amount of food and experienced a loss of control?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

During these episodes of overeating and loss of control did you....

9. Eat much more rapidly than normal? YES NO

10. Eat until you felt uncomfortably full? YES NO

11. Eat large amounts of food when you didn't feel physically hungry? YES NO

12. Eat alone because you were embarrassed by how much you were eating? YES NO

13. Feel disgusted with yourself, depressed, or very guilty after overeating? YES NO

14. Feel very upset about your uncontrollable overeating or resulting weight gain? YES NO

15. How many times per week on average over the past 3 months have you made yourself vomit to prevent weight gain or counteract the effects of eating?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

16. How many times per week on average over the past 3 months have you used laxatives or diuretics to prevent weight gain or counteract the effects of eating?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

17. How many times per week on average over the past 3 months have you fasted (skipped at least 2 meals in a row) to prevent weight gain or counteract the effects of eating?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

18. How many times per week on average over the past 3 months have you engaged in excessive exercise specifically to counteract the effects of overeating episodes?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

19. How much do you weigh? If uncertain, please give your best estimate. ____lb.

20. How tall are you? ____Ft ____in.

21. Over the past 3 months, how many menstrual periods have you missed? 1 2 3 4 na

22. Have you been taking birth control pills during the past 3 months? YES NO

Appendix L

EDI-BD

Instructions: For each item below, indicate how accurate each item is about you *right now, at the present time* by placing a check mark (✓) in the box under the column that applies best to you.

	Always	Usually	Often	Sometimes	Rarely	Never
1. I think that my stomach is too big.						
2. I think that my thighs are too large.						
3. I think that my stomach is just the right size.						
4. I feel satisfied with the shape of my body.						
5. I like the shape of my buttocks.						
6. I think that my hips are too big.						
7. I think that my thighs are just the right size.						
8. I think my buttocks are too large.						
9. I think that my hips are just the right size.						

Appendix M

RRS

This is a scale that measures a variety of attitudes and feelings about your eating patterns and body weight. There are no right or wrong answers so try to be completely honest in your answers. **RESULTS ARE COMPLETELY CONFIDENTIAL.** Reach each question carefully and **circle** the answer that applies best to you. Thank you.

1. How often are you dieting?

Never Rarely Sometimes Often Always

2. What is the maximum amount of weight (in pounds) that you have ever lost within one month?

0-4 5-9 10-14 15-19 20+

3. What is your maximum weight gain within a week?

0-4 5-9 10-14 15-19 20+

4. In a typical week, how much does your weight fluctuate (in pounds)?

0-1 1.1-2 2.1-3 3.1-5 5+

5. Would a weight fluctuation of 5 pounds affect the way you live your life?

Not at all Slightly Moderately Very Much

6. Do you eat sensibly in front of others and splurge alone?

Never Rarely Often Always

7. Do you give too much time and thought to food?

Never Rarely Often Always

8. Do you have feelings of guilt after overeating?

Never Rarely Often Always

9. How conscious are you of what you are eating?

Not at all Slightly Moderately Very Much

10. How many pounds over your desired weight were you at your maximum weight?

0-1 1-5 6-10 11-20 21+

Appendix N

Comparison to Models Survey

Instructions: Please use this scale to answer the items below.

Never	Once in a while	About half of the time	Most of the time	Always
1	2	3	4	5

When you see models of your own sex in magazines, how often do you compare yourself to them?

1. In general?	1	2	3	4	5
2. In terms of career success?	1	2	3	4	5
3. In terms of eating habits?	1	2	3	4	5
4. In terms of exercise habits?	1	2	3	4	5
5. In terms of happiness?	1	2	3	4	5
6. In terms of intelligence?	1	2	3	4	5
7. In terms of physical appearance?	1	2	3	4	5
8. In terms of popularity?	1	2	3	4	5

Appendix O

SATAQ-3 (Internalization-General subscale)

Each item of this questionnaire is a statement that a person may either agree with or disagree with. For each item, indicate how much you agree or disagree with what the item says. Please respond to all the items.

1. I would like my body to look like the people who are on TV.

1 2 3 4 5

Definitely Disagree

Definitely Agree

2. I compare my body to the bodies of TV and movie stars.

1 2 3 4 5

Definitely Disagree

Definitely Agree

3. I would like my body to look like the models who appear in magazines.

1 2 3 4 5

Definitely Disagree

Definitely Agree

4. I compare my appearance to the appearance of TV and movie stars.

1 2 3 4 5

Definitely Disagree

Definitely Agree

5. I would like my body to look like the people who are in the movies.

1 2 3 4 5

Definitely Disagree

Definitely Agree

6. I compare my body to the bodies of people who appear in magazines.

1 2 3 4 5

Definitely Disagree

Definitely Agree

7. I wish I looked like the models in music videos.

1 2 3 4 5

Definitely Disagree

Definitely Agree

8. I compare my appearance to the appearance of people in magazines.

1 2 3 4 5

Definitely Disagree

Definitely Agree

9. I try to look like the people who are on TV.

1 2 3 4 5

Definitely Disagree

Definitely Agree

Appendix P

MAQ

Completely Disagree	Somewhat Disagree	Neither agree nor Disagree	Somewhat Agree	Completely Agree
1	2	3	4	5

Instructions: Please indicate the extent to which you agree/disagree with the following statements:

1. Typically women look like models in ads: _____
2. Typically women are as thin as the models in ads: _____
3. The models in advertisements are real people: _____
4. I could look like the models in ads: _____
5. I could be as thin as the models in ads: _____
6. Most women could be as thin as the models in ads by exercising and/or dieting: _____
7. Models in ads are intelligent: _____
8. Models in ads are beautiful: _____
9. Models in ads have perfect bodies: _____
10. Models in ads have lots of fun: _____
11. I would like to live my life like the models in ads: _____
12. I would like to be like the models in ads: _____
13. I would like to be one of the models I see in ads: _____
14. I would like to have a body like the models in ads: _____
15. I would like to look like the models in ads: _____
16. Being thin makes you happier: _____
17. Being thin makes you have more fun: _____
18. Being thin helps you make more friends: _____
19. Being thin makes you more popular: _____
20. Being thin makes you more attractive: _____
21. I plan to go on a diet to lose weight in the next 6 months: _____
22. I want to lose some weight in the next 6 months: _____

Appendix Q

PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way **right now**, at this moment. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

_____	Attentive	_____	Excited
_____	Strong	_____	Hostile
_____	Irritable	_____	Proud
_____	Inspired	_____	Jittery
_____	Afraid	_____	Ashamed
_____	Alert	_____	Scared
_____	Upset	_____	Enthusiastic
_____	Active	_____	Distressed
_____	Guilty	_____	Determined
_____	Nervous	_____	Interested

Appendix R

Rosenberg Self-Esteem Scale

Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

1. On the whole, I am satisfied with myself.	SA	A	D	SD
2. At times, I think I am no good at all.	SA	A	D	SD
3. I feel that I have a number of good qualities.	SA	A	D	SD
4. I am able to do things as well as most other people.	SA	A	D	SD
5. I feel I do not have much to be proud of.	SA	A	D	SD
6. I certainly feel useless at times.	SA	A	D	SD
7. I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8. I wish I could have more respect for myself.	SA	A	D	SD
9. All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10. I take a positive attitude toward myself.	SA	A	D	SD

Appendix S

Media Habits Questionnaire

- 1) How often in the last **2 weeks** have you read the following magazines: Seventeen, Vogue, In Style, Maxim, Glamour, Fitness and Health, Marie Claire, Cosmopolitan (e.g., once, five times, etc.)?

- 2) How often in the last **2 weeks** have you watched the following television programs: Soap Operas (e.g., Days of our Lives, General Hospital) and Music Videos (e.g., Much Music, MTV) (e.g., once, five times, etc.)?

- 3) (This third question will only be asked at follow-up for the media literacy intervention group participants) When looking at magazine pictures of female models how often in the last **4 weeks** did you challenge and scrutinize the realism of the pictures with the information provided by the audiotape you listened to during the last phase of the experiment?

1

2

3

4

5

Not at all

Very Much