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THE EFFECTS OF A MEDIA LITERACY INTERVENTION ON WOMEN'S BODY DISSATISFACTION: WATCHING AND EXERCISING TO A FITNESS VIDEO

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THE EFFECTS OF A MEDIA LITERACY INTERVENTION ON WOMEN'S BODY
DISSATISFACTION: WATCHING AND EXERCISING TO A FITNESS VIDEO

(Spine title: A Media Literacy Intervention for Body Dissatisfaction)

(Thesis format: Monograph)

by

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Graduate Program in Health and Rehabilitation Sciences

A thesis submitted in partial fulfillment
of the requirements for the degree
of Master of Science

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Abstract

This study sought to compare the effects of a media literacy intervention to an attention control on women's body dissatisfaction after watching and exercising to a fitness video. Using a crossover design, 83 infrequent exercisers (M age = 24.54) with moderate to higher body dissatisfaction, including a sub-sample of women with higher body dissatisfaction ($n=22$; M age = 26.73), randomly received a media literacy intervention or attention control materials. Participants then watched and exercised to the video. The Appearance Evaluation and Body Areas Satisfaction subscales were administered at baseline, after watching, and after exercising to the video. Contrary to hypotheses, body dissatisfaction decreases in both samples after watching and exercising, regardless of group assignment. Overall, exposure to the fitness video resulted in increases in body satisfaction. These findings are discussed within a self-enhancement framework, and addresses potential differences between watching versus exercising to a fitness video on body dissatisfaction.

Keywords: body image, body dissatisfaction, adolescents, women, media, sociocultural theory, social comparison theory, exercise video, media literacy, self-enhancement theory

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CHAPTER 1 LITERATURE REVIEW

Introduction

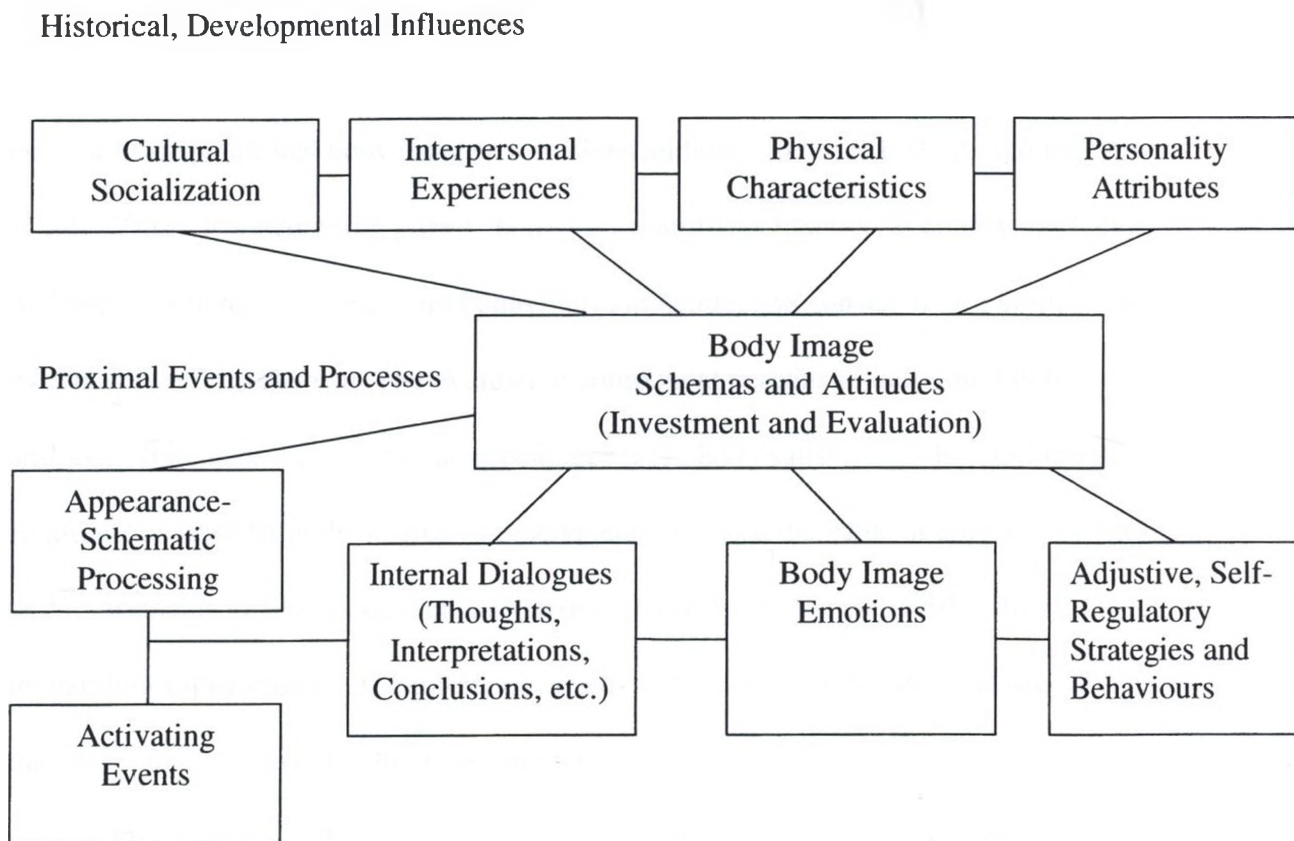
Western culture promotes and upholds the ideals of physical beauty (Bane & McAuley, 1998; Cattarin, Thompson, Thomas, & Williams, 2000; Groesz, Levine, & Murnen, 2002; Halliwell & Dittmar, 2004; Heinberg & Thompson, 1995; Lew, Mann, Myers, Taylor, & Bower, 2007; Martin Ginis, Prapavessis, & Haase, 2008; Posavac, Posavac, & Weigel, 2001; Tiggemann & McGill, 2004; Tiggemann & Slater, 2004). For women, this ideal consists of a slender, toned physique, which has evolved into a cultural symbol of competency (Sternhell, 1985). Furthermore, thin women have been assigned socially desirable attributes, including physical fitness, attractiveness, success, intelligence, and self-control (Bane & McAuley, 1998). Conversely, characteristics attributed to overweight women are generally less favourable, and include laziness, sloppiness, and a lack of self-control (Bane & McAuley, 1998). With such perceptions of thinness in Western society, it is no surprise that many women desire to modify their physique to obtain the sought-after “thin ideal” (Bane & McAuley, 1998). Genetics, however, inhibit most women from emulating that ideal body type, even with exercise and proper nutrition (Bane & McAuley, 1998; Posavac et al., 2001). Even though the standards of beauty have shifted to a more slender size, women similar in age to the ideal models in the United States have in fact become heavier (Heinberg & Thompson, 1995). The discrepancy between the ideal self and the perceived self is considered to be the foundation of body image dissatisfaction (Silbersten, Streigel-Moore, Timko, & Rodin, 1988).

This literature review will broadly conceptualize body image and body dissatisfaction using a cognitive-behavioural model that outlines influential factors of body image and the negative effects of body dissatisfaction. The relationship between media and body dissatisfaction will be reviewed, with social comparison theory being discussed as a possible underlying mechanism. The effects of exercise on body dissatisfaction will also be reviewed, with an emphasis on exercise videos in particular. Lastly, media literacy will be examined as a potential intervention technique to positively influence body dissatisfaction.

A Conceptual Model of Body Image

Body image is a multidimensional construct that is comprised of perceptual, cognitive, affective, and behavioural components (Bane & McAuley, 1998), which can have a profound influence on quality of life (Pruzinsky & Cash, 2002). Body image has been defined as individual unique perceptions of the body (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), or a “view from the inside” (Cash, 1990, p. 51). Present body image research is rooted in cognitive-behavioural theories. This integrative cognitive-behavioural perspective does not highlight or support one single theory, but rather is a culmination of empirical evidence and several established ideas (Cash, 2002). Figure 1 represents Cash’s schematic representation of a cognitive-behavioural model of body image development and experiences.

Figure 1. A cognitive behavioural model of body image development and experiences.



Upon examination of this theoretical framework, the proposed antecedents of body image consist of historical factors. Historical factors pertain to past events, attributes, and experiences that affect or predispose how individuals come to think, feel, and act in regard to their body. These historical factors include cultural socialization, interpersonal experiences, physical characteristics, and personality attributes (Cash, 2002). Proximal factors are proposed as situational factors (i.e., current life events) that are described as precipitating and perpetuating influences on one's body image experiences. They consist of internal dialogues, body image emotions, and self-regulatory

actions. In order to reflect the complexity and reciprocity between these factors and body image, it is important to note that the model does not imply directional relationships.

Historical factors inform fundamental attitudinal and schema components that consist of dispositional body image evaluations and one's relative body image investment (Cash, 2002). Referring to Figure 1, body image attitudes function as contextual factors that are cognitive, emotional, and behavioural in nature, and consist of two components: evaluation and investment. The evaluative component pertains to individual beliefs about, and assessments of one's physical appearance (e.g., body satisfaction-dissatisfaction). Evaluations arise from the degree of discrepancy between the value of appearance ideals and appraisal of one's physical characteristics (Cash & Szymanski, 1995). Body image investment (appearance schematicity), pertains to the cognitive-behavioural significance that individuals attribute to their appearance.

Investment is a higher-order attitudinal body image construct whereby individuals create appearance schemas or cognitive generalizations about the self. In turn, these schemas guide the processing and organization of self-related information (Cash, Melnyk & Hrabosky, 2004). Proximal factors, wherein particular contextual cues or circumstances arise, trigger appearance-schematic processing and self-evaluations. Invested-orientated individuals, or those who place much value, thought, and effort to maintain or improve their appearance, process appearance-relevant information in a different manner than do individuals who are not invested-orientated. Furthermore, body image investment reflects the extent to which appearance is important to one's identity (Cash, 2002).

Body Dissatisfaction

The body image literature has employed the terms body image disturbance and body dissatisfaction to describe the discrepancy that exists between the current and ideal self. Importantly, it is asserted that body image disturbance is best conceptualized as a continuum model where the extent of an individual's disturbance can range from none to severe, or more commonly, fall somewhere in between and thus experience moderate discontent (Thompson et al., 1999). Body image disturbance has been defined as a perceptual, behavioural, cognitive, and affective distortion related to body weight and shape (Posavac et al., 2001). The perceptual component generally encompasses overestimations of one's size. The behavioural component of body image disturbance involves the avoidance of particular circumstances involving exposing one's physique (e.g., swimming). Cognitive aspects of body image disturbance entail unrealistic expectations for one's appearance (e.g., the desire to look like a fashion model). Hence, body image disturbance pertains to the multifaceted construct of body image (Thompson et al., 1999).

The term *body dissatisfaction*, an aspect of disturbance, assesses individuals' levels of satisfaction on the body image continuum (Thompson et al., 1999). Researchers posit body dissatisfaction to be the most essential global measure of discontent, as it encapsulates the core of an individual's self-evaluation (Thompson et al., 1999). Notably, dissatisfaction may be related to cognitive, behavioural and perceptual features of body image disturbance (Thompson et al., 1999). Given that body image disturbance is comprised of several factors, correlational and factor analytic studies have indicated that these factors indeed overlap to a large degree. Consequently, body image disturbance is referred to as body dissatisfaction (Thompson, Altabe, Johnson, & Stormer, 1994; Williamson, Barker,

Bertman, & Gleaves, 1995). While some researchers utilize the term body image disturbance, and others use body dissatisfaction, the term body dissatisfaction will be employed throughout this literature review and thesis.

Body Dissatisfaction – Who, Why, and What?

Although body dissatisfaction is experienced in both genders, females are especially susceptible to the negative effects of societal expectations (Crawford & Eklund, 1994; Mendelson, Mendelson, & Andrews, 2000). Throughout history, women have been the recipients of specific standards, prescriptions, and proscriptions concerning their shape, body size and physical appearance in order to achieve social acceptability (Parker, 2000). These standards are instilled from an early age, where body image affects thoughts, emotions, and behaviours in all aspects of daily life (Pruzinsky & Cash, 2002). The unrealistic ideal of thinness is related to elevated status, social and personal acceptance, beauty, youthfulness, sexual attractiveness, success, and personal power to control one's appearance (Parker, 2000) so it is therefore not surprising to learn that many young girls and women wish to achieve this ideal.

Body dissatisfaction has been reported by young women to such an extent that a number of researchers believe this issue has reached epidemic proportions, so much so that it is an experience deemed ordinary by females (Bane & McAuley, 1998; Posavac et al., 2001), and is considered a normative discontent (Lafrance, Zivian, & Myers, 2000). Increasing prevalence rates of body dissatisfaction over the last several decades renders this issue critical. Specifically, in 1973, 25% of women were dissatisfied with their appearance (Bersheid, Walster, & Bohrnstedt, 1973), compared to 38% in 1986 (Cash, Winstead, & Janda, 1986), 48% in 1995 (Cash & Henry, 1995), and 59% of female

adolescents in 1999 (Field et al., 1999). Efforts to improve and buffer the effects body dissatisfaction has on women remain imperative (Cash, Morrow, & Hrabosky, 2004).

Not surprisingly, a disturbing proportion of adolescents in North America also possess a distorted perception of their body size. Typically, adolescent girls have been found to consider themselves overweight, when in actuality, this is true for only a small proportion of individuals (Champion & Furnham, 1999). With this being a common perception, so is the desire to lose weight to obtain a smaller and slimmer figure, more so among older adolescents (i.e., 16 years of age compared to 12 years of age; Champion & Furnham, 1999; Field et al., 1999).

For both adolescent and adult female populations, body dissatisfaction has been shown to have debilitating effects on mental and emotional well-being, as well as social and emotional development (Cash & Pruzinsky, 2002; Davis, 1997; Lew et al., 2007; Page & Fox, 1997; Parker, 2000; Posavac et al., 2001). Poor body image has also been correlated with negative mood and unhealthy weight loss behaviours, namely anxiety, depression, fear of negative evaluation, obsessive-compulsive tendencies, and is predictive of dieting, purging and eating disorders (Cash & Pruzinsky, 2002; Lew et al., 2007; Posavac et al., 2001). It has also been suggested that body weight and shape concerns in young women have a profound impact on their interactions with others and the world around them (Davis, 1997; Page & Fox, 1997). Specifically, the inability to attain this ideal causes some women to presume that they are unattractive and failures, thus decreasing their self-esteem. The preoccupation of obtaining the 'perfect' body is accompanied by a distorted body image, and literature has demonstrated that the pursuit

for perfection can lead to an elevated risk for premature mortality and morbidity (Parker, 2000).

Media Images and Their Effects on Body Image

While standards of the ideal thin physique can exist among family and friends, the mass media is the most powerful instrument in the transmission of this sociocultural phenomenon (Groesz et al., 2002; Halliwell & Dittmar, 2004; Lew et al., 2007; Posavac et al., 2001; Tiggemann & McGill, 2004; Tiggemann & Slater, 2004). In the several theories that have been proposed to conjecture the causes of body dissatisfaction, researchers acknowledge that societal factors are extremely influential (Fallon, 1990; Heinberg, 1996). A sociocultural theoretical model posits that current standards greatly stress the importance of thinness, thus instigating body dissatisfaction (Tiggemann & Pickering, 1996). Goodman (1995) asserts that, "... We as a nation are obsessed with thinness...it's safe to say that thinness has acquired a highly exaggerated status in assessing a woman's value. Obsession by its very definition is an expression of imbalance and disturbance" (p. 13). More so, this theoretical model emphasizes that the current societal standard for thinness in women is ubiquitous and, unfortunately, unattainable for the average woman.

Exposure to mass media and body dissatisfaction - correlation research. Several meta-analyses have been conducted to determine the relationship between degree of exposure to mass media and body dissatisfaction. Murnen, Levine, Groesz, and Smith (2007) assessed media exposure based on survey and correlation research in 30 studies. Results revealed small, yet statistically significant correlations between television exposure and thin ideal internalization, body dissatisfaction, weight and shape control,

and disordered eating. Similarly, Grabe, Ward, and Hyde (2008) analysed 12 studies assessing the relationship between television exposure and body dissatisfaction, thin-ideal internalization, and disordered eating. Results demonstrated a small to moderate positive relationship, such that exposure is related to body dissatisfaction, increased investment in appearance, and eating disorders. Overall, the compilation of literature examining the relationship between media image exposure and body dissatisfaction demonstrates that as media exposure increases, body dissatisfaction also increases.

To exemplify, Field and colleagues (1999) administered a questionnaire to assess frequency of exposure to fashion magazines and more importantly, their influence on perceptions of beauty. This sample consisted of 548 female students between ages 10 to 17 which evenly spanned across elementary, junior high, and high schools. Results demonstrated that 69% of girls indicated that viewing magazine images influenced their perception of the ideal figure, whereas 47% of participants stated that viewing these images led to their desire to lose weight. Frequency of viewing these images played an important role, with those who reported viewing fashion models in magazines twice a week were significantly more likely to engage in weight loss behaviours compared to females who did not view these images twice a week.

Overall, the correlational research on the influence mass media has on body dissatisfaction has found that simply viewing magazine articles influences an individual's ideal of the perfect physique. The girls in this aforementioned study desired to lose weight, dieted to lose weight and started an exercise program after viewing the thin ideal in mass media outlets. These trends were more apparent among the high school sample, who reported greater exposure to fashion magazines (Field et al., 1999). The impact of

the frequency of exposure to idealistic images has been supported by other research.

Among girls aged 11 to 14 who internalized the thin ideal, the frequency of exposure to idealistic images predicted body dissatisfaction (Jones, Vigfusdottir, & Lee 2004).

Laboratory experiments: Does media exposure make girls and women feel better or worse about their bodies? In a typical laboratory paradigm, the experimental groups are exposed to glamorized, idealized images in the form of print or video clips, whereas the control groups are exposed to non-idealized images or non-appearance related images in the same medium (Levine & Murnen, 2009). Groesz and colleagues (2002) analyzed 25 experimental studies to examine the effect of slender ideal images compared to exposure of non-appearance related images. Overall, studies indicated that participants exposed to idealized media images demonstrated a small yet significant increase in body dissatisfaction compared to control groups. More so, it was determined that this relationship was stronger when participants were younger than 19 years, and heavily invested in their appearance.

Brief exposure to media images has been shown to have negative influential effects on young women, demonstrating its permeation among young women (Tiggemann & McGill, 2004; Tiggemann & Slater, 2004). For instance, among 84 female undergraduate students, aged 18 to 30, Tiggemann and Slater (2004) exposed participants to a music video condition for approximately 2.5 minutes. After watching music video clips of thin, attractive, scantily dressed women, participants exhibited a significant increase in negative mood and body dissatisfaction compared to participants who viewed a non-idealistic music video (Tiggemann & Slater, 2004). The women exposed to the idealistic thin ideals felt fatter, less confident, and less physically attractive than those

exposed to non-idealistic individuals (Tiggemann & Slater, 2004). In a similar study, different types of media images were compared – body parts, full body shots, and product images (Tiggemann & McGill, 2004). One hundred and twenty four undergraduate females aged 18 to 28 were exposed to one of the three images. Compared to viewing product images (control images), it was found that images of body parts alone, instead of full body images, caused significantly more body dissatisfaction and weight anxiety. This finding demonstrated that body parts provided explicit targets compared to full body images, which contain several targets of comparison (Tiggemann & McGill, 2004). Importantly, these two studies demonstrated that media exposure, even in small dosages, can elicit a negative body satisfaction response.

To build upon the media image-body dissatisfaction relationship and illuminate *who* is more susceptible to negative affect following media exposure, dispositional appearance-related personality characteristics have been examined as potential moderators. Randomized controlled trials have revealed that participants who score high on body image distortions, sociocultural awareness, and internalization measures, and are then exposed to idealized images of thin models, experience a significant increase in depression, body dissatisfaction (Cattarin et al., 2000; Heinberg & Thompson, 1995), and anger (Cattarin et al., 2000) compared to control groups exposed to non-appearance related images lower on these dispositional characteristics. Other research has demonstrated that individuals who are more likely to compare themselves to media images and self-evaluate are more likely to experience body dissatisfaction compared to individuals who are less likely to compare themselves to media images and self-evaluate

(Shaw & Waller, 1995). Notably, this research suggests that *who* is exposed to these idealistic images impacts body dissatisfaction.

A Possible Mechanism – Social Comparison Theory

Sociocultural theory has been widely accepted to explain the normative discontent that exists for a large proportion of females in relation to their body image. However, a criticism of this theory is that it does not explain the individual differences that occur when viewing idealistic images. Many women are exposed to the thin ideal, yet when referring to the continuum of body image, women are not equally affected by these images. There have been many individual differences proposed to explain the varied responses among women, such as internalization of the ideal, self-esteem, investment, and sociocultural pressures to be thin. Social comparison theory has received a great deal of attention to explain the varying levels of body dissatisfaction among women (Thompson et al., 1999).

To fully understand the social comparison theory, a look into its conceptualization is necessary. Festinger (1954) stated that individuals regularly self-evaluate to determine how they fare on various attributes. The tendency to accumulate information and formulate opinions about oneself is described as very much innate. In situations where uncertainty about a particular attribute is apparent, the individual will resolve the uncertainty by examining that attribute with objective sources of information. If such objective sources are not available, individuals will compare with others as their source of information. This process of self-evaluation by comparing to others in the social environment is the foundation of social comparison theory.

This theory has generated prolific research, where some suggest that social comparison may be the first, rather than second means to gather information about oneself (Marsh & Parker, 1984; Ruble, 1983). This implies that even with objective sources available for comparison (e.g., charts on healthy weights), individuals may compare their standing to others in their social environment (e.g., peers and family members). Notably, the target for comparison is not random. On the contrary, research has shown that individuals choose who they compare to, and are likely to compare to similar others rather than non-similar others (e.g., a teenager comparing herself to peers versus an adult; Miller, Turnbull, & McFarland, 1988).

Not only does the individual select their comparison target based on similarities, a comparison is based on the target's relative standing in relation to their own on a specific attribute. Overall, there are individuals who are inferior or superior to oneself on any given attribute of interest. A downward comparison occurs when the target is deemed inferior on the attribute of interest, and an upward comparison occurs when the target is deemed superior (Kruglanski & Mayseless, 1990; Wood, 1989). It is suggested that individuals usually compare upwards to better themselves, for example, for motivation or inspiration purposes. However, such comparisons could backfire, if it leads an individual to focus on their own incapability, and possibly threaten their self-esteem (Wood, 1989). More so, research has specified that comparisons with superior others are often related to increases in emotional distress and decreases in self-esteem (Major, Testa, & Bylsma, 1991). This finding does not hold when the comparison is dissimilar. In contrast, downward comparisons are possibly a means to self-enhance (Wood, 1989). When one compares themselves to another who is considered inferior, this could lead to positive

feelings about oneself. Research has demonstrated that downward comparisons occur among individuals when they perceive others to be a threat (Pyszczynski, Greenberg, & LaPrelle, 1985).

In body image research, social comparison theory asserts that individual variations in the inclination to compare oneself with others explain the differences found in body dissatisfaction literature. Research has supported this assertion by consistently demonstrating positive relations between social comparison, body dissatisfaction and eating disturbances (Stormer & Thompson, 1996) as well as negative relations between social comparison and self-esteem (Thompson, Heinberg, & Tantleff, 1991).

Empirical Evidence – Media Images and Social Comparison Theory

Importantly, laboratory research has examined social comparison as the underlying mechanism between media images and poor body dissatisfaction. Experimental studies have compared appearance and non-appearance conditions along with comparison, appearance, distraction, or neutral instructional sets in order to measure the extent of comparison by participants (Cattarin et al., 2000; Tiggemann & McGill, 2004; Tiggemann & Slater, 2004). The appearance condition images served as the experimental intervention, where idealized images of thin, slender models were shown in the form of video clips, magazine ads, and music videos. The non-appearance condition images served as the control condition, where societal ideals were not captured, displaying normal-sized women or product images that did not display models of any sort. Comparison, appearance, distraction, or neutral instructional sets were provided in order to measure the extent of comparison made in an experimental or control condition. Comparison instructions required participants to compare themselves to those in the

images, and similarly, appearance instructions required participants to focus their attention on the model's appearance. Distraction or control instructions asked participants to pay attention to non-appearance items such as product images, and neutral instructions asked participants to view the images as if watching them at home (Cattarin et al., 2000; Tiggemann & McGill, 2004; Tiggemann & Slater, 2004).

Studies of this nature have aimed to manipulate the social comparison process in order to empirically establish the extent to which social comparison occurs upon exposure to media images. Research has found that comparison instructions led to increases in comparison compared to other instructional sets (Cattarin et al., 2000; Tiggemann & McGill, 2004). More so, it was found that increasing comparison occurred in the non-appearance condition under the comparison instructional set (Tiggemann & Slater, 2004). Not surprisingly, another study found that participants in the appearance condition along with comparison instructions reported greater appearance dissatisfaction (Cattarin et al., 2000). Neutral and distraction instructions produced equal amounts of comparison, indicating that comparison was successfully manipulated, however, distraction was not. Additionally, in regards to the conditions, this study showed that regardless of what instructions were given, the non-appearance group exhibited a significant decrease in appearance dissatisfaction.

Importantly, while comparison instructions generated greater comparison compared to other instructions, the effect of the appearance condition was much greater at influencing social comparison (Cattarin et al., 2000; Tiggemann & Slater, 2004) and appearance dissatisfaction (Cattarin et al., 2000) than the instructions themselves. Additionally, studies have established that the relationship between media images and

body dissatisfaction was mediated or partially mediated by the level of comparison (Tiggemann & McGill, 2004; Tiggemann & Slater, 2004). Overall, these interventions concluded that the effects of the appearance and non-appearance images were more successful at provoking comparison and influencing body dissatisfaction than the instructions provided. However, Tiggemann and McGill (2004) asserted that the comparison and appearance focus instructions, together with the slender physique images, influenced the amount of actual comparison in which these women engaged. Notably, this body of literature has validated social comparison as a contributor to body dissatisfaction upon viewing idealistic images, and importantly demonstrated mediation.

Exercise Videos and their Impact on Body Dissatisfaction

Weight loss behaviours, such as exercising, are very common amongst women (Crawford & Eklund, 1994; Field et al., 1999; Hausenblas & Fallon, 2006). Women who are dissatisfied with their physique exercise primarily for weight loss or maintenance reasons, and rarely for health or fitness purposes (Crawford & Eklund, 1994). A dilemma these women often face is that exercising in public settings (e.g., fitness clubs) may expose their physique, making them feel uncomfortable (Hausenblas, Brewer, & Van Raalte, 2004). The fitness industry has recognized the need for other exercise modes that could be made available to those who wish to avoid exercising in public.

Over the past 20 years, exercise videos have been promoted as motivational exercise tools (Fleming & Martin Ginis, 2004). Typically, the exercise video instructor is dressed in revealing attire displaying a thin, fit, and toned figure (Markula, 1995). While exercise videos may initially motivate consumers to achieve this figure by using the video, the presentation of idealistic instructors seems to have minimal psychological

gains (Fleming & Martin Ginis, 2004). Exercise video instructors have been described as physically dissimilar by female exercisers (Markula, 1995), and intimidating by women (Maguire & Mansfield, 1998).

Few studies have been conducted examining exercise videos and body dissatisfaction, with only one study to date investigating participants exercising to a video (Martin Ginis et al., 2008), and two examining passively viewing an exercise video (Crawford & Eklund, 1994; Fleming & Martin Ginis 2004). Commonly, self-presentational efficacy (SPE) and social physique anxiety (SPA) have been examined in exercise video contexts and exercise settings, as these constructs tend to be influential factors on body dissatisfaction in public settings (Hausenblas et al., 2004). Self-presentation is a process whereby people aim to control and monitor how others perceive and evaluate them, where SPE is the belief that one can portray or carry out the desired image (Leary, Tchividjian, & Kraxberger, 1999). In particular, the focus on the relationship between self-presentation and exercise behaviour has been on SPA (Hausenblas et al., 2004). SPA is described as the anxiety that an individual will experience if one perceives that others will evaluate their physique (Hart, Leary, & Rejeski, 1989). Overall, research has demonstrated that an inverse relationship exists between SPA and exercise behaviour (Hausenblas & Fallon, 2002; Lantz, Hardy, & Ainsworth, 1997; Motl & Conroy, 2000). Conversely, there is partial support for the reverse relationship, where women with high levels of SPA will engage in exercise in order to improve or maintain their physical appearance (Frederick & Morrison, 1996), particularly among women with eating disorders (Haase & Prapavessis, 1998).

Currently, there are three empirical studies to date that have addressed either watching or working-out to an exercise video (Crawford & Eklund, 1994; Fleming & Martin Ginis, 2004; Martin Ginis et al., 2008). All three measured SPA and SPE, and two measured body image variables (Crawford & Eklund, 1994; Martin Ginis et al., 2008), one of which measured body satisfaction as an outcome measure (Martin Ginis et al., 2008). These three studies will be described below for the purposes of providing an overview of the literature in this research area.

In a seminal study conducted by Crawford and Eklund (1994), female participants ($n = 104$, M age = 20.8) watched two 2-minute aerobic exercise videos, where both videos were identical except for the attire worn by the instructor. Tights and thong leotards were worn in the experimental video, while shorts and t-shirts were worn in the control video. In conjunction with the researchers' hypothesis, it was found that SPA was negatively associated with the exercise environment accentuating and exposing the physique, and positively associated with environments that minimized exposure to the physique. These findings also demonstrate that self-presentational concerns with one's body influence perceptions of exercise environments, and could perhaps stop individuals from exercising in these environments (Hart et al., 1989). This manipulation has thus demonstrated that SPA is an influential factor affecting self-presentational concerns in exercise settings, and it is possible that SPA and SPE can interfere with individuals exercising in certain environments.

In an attempt to assess commercial exercise videos on women's self-presentational and task self-efficacy (the belief in one's ability to perform a particular task), Fleming and Martin Ginis (2004) put together two 4-minute videos incorporating

segments from aerobics, strength training, and hip-hop exercise videos for participants to watch. Participants' ($n = 101$, M age = 20.11) exercise status (non-exerciser vs. exerciser) was hypothesized to moderate the effects of the exercise video instructors. Specifically, it was posed that non-exercisers would be more affected by the models than exercisers due to their lack of experience. The *perfect-looking* video showed women's bodies that embodied the slender, fit, and attractive ideal, whereas the *normal-looking* video contained women with regular or normal body types. Participants providing information on their exercise status and task-self-efficacy were then stratified randomly, where approximately equal numbers of frequent exercisers and infrequent exercisers were assigned to a video condition. While participants' exercise status did not influence their SPE after watching the video, a main effect for model condition revealed that women, regardless of their exercise status, reported lower SPE after watching the perfect-looking exercise video instructor. A regression analysis revealed that SPE significantly predicted 6% of the variance in exercise intentions after watching the video. Frequent exercisers had significantly greater SPE than infrequent exercisers, yet they also exhibited significantly lower task self-efficacy and greater anxiety in physique accentuating situations. Contrary to the hypothesis, task self-efficacy did not show a significant main effect for time or an interaction between the two conditions stratified by exercise status. Therefore, these results revealed that regardless of exercise status, the perfect-looking models negatively influenced participants' SPE, which significantly predicted exercise intentions.

Martin Ginis and colleagues (2008) furthered the research of Fleming and Martin Ginis (2004) by having female participants ($n = 80$, M age = 26.4) exercise to a fitness

video. Similar to Crawford and Eklund (1994), two custom-made 30-minute exercise videos were produced, where only the instructor's attire differed. In the physique salient video the instructor wore spandex shorts and a tight-fitting top, and in the physique non-salient video, the instructor wore loose pants and a t-shirt. It was hypothesized that participants who exercised to the physique salient video would report poorer body satisfaction, SPE, and increased SPA compared to participants who exercised to the physique non-salient video. However, contrary to the hypothesis, the two videos did not show significant differences between the two groups on SPA, SPE, Body Areas Satisfaction, Appearance Evaluation, nor on exercise motivation. Regarding their non-significant findings for SPE, Martin Ginis and colleagues noted that in contrast to previous literature, exercising to a video may differ from watching and only perceiving one's ability to actually exercise to the video. However, participants who perceived greater negative discrepancies with the instructor's figure and their own experienced significantly greater SPA, and decreased Appearance Evaluation and Body Areas Satisfaction. These findings support previous literature and correspond with social comparison theory, whereby a negative perceived comparison can create adverse cognitions and emotions regarding one's body (Cattarin et al., 2000; Posavac et al., 2001; Tiggemann & McGill, 2004; Tiggemann & Slater, 2004).

The initial appeals of exercise videos are their convenience, privacy, and potential to act as motivational tools to lose weight. Unfortunately, images of the exercise video instructor have led to increased SPA and decreased SPE (Fleming & Martin Ginis 2004; Martin Ginis et al., 2008). Furthermore, body discrepancy between the exerciser and instructor has been related to body dissatisfaction in the exerciser (Martin Ginis et al.,

2008). It is possible that the very appeal of exercise videos can deter women from exercising regularly and increase feelings of distress and dissatisfaction with their figure if weight loss does not occur. Future research is therefore needed to examine interventions that have the potential to minimize body dissatisfaction effects for women exposed to exercise videos.

Media Literacy

The effects of the media on health have been a public health concern (Bergsma & Carney, 2008). Traditional strategies to reduce this effect have included: a) reduction in television viewing in children, b) regulating media content, and c) social marketing. The past 20 years have seen a development of media literacy education as a viable option to these traditional tactics. This concept is defined as “the ability to access, analyze, evaluate, and create media in a variety of forms” (Thoman & Jolls, 2006, p. 21). The purpose of media literacy education campaigns is to instil critical examination skills in consumers of the messages in order to mitigate their potential negative effects on health behaviours (Bergsma & Carney, 2008). Research in this field is in its early stages, and due to the discrepancy in rigor and results, there are some researchers that propose that there is currently little evidence to support that media literacy is a successful and pervasive strategy to negate messages in the media (Dennis, 2004). A systematic review conducted by Bergsma and Carney (2008) examined 28 studies and concluded that media literacy has the capability to be an effective strategy, however, evidence to support its usefulness exists predominately in theory and less on rigorous interventions. Nevertheless, among the protocol and design variations in the literature, research in children has demonstrated positive outcomes with increased critical understanding of

advertising (Feshbach, Feshbach, & Cohen, 1982), questioning (Austin & Johnson, 1997), and attitudes (Chambers & Alexander, 2007; Gunter, 1994).

Media Literacy and Body Dissatisfaction

In laboratory settings, there is evidence that a brief video or written material targeting body dissatisfaction can buffer against the typical negative affect that occurs after viewing thin fashion models (Levine, Piran, & Stoddard, 1999; Levine & Smolak, 2006; Levine & Smolak, 2008). The most effective interventions expose the illusionary and artificial nature of the culture of thinness in two ways: a) by demonstrating the thin ideal is incongruent with the variety of shapes and sizes among women, and b) by teaching that behaviours such as dieting are unnatural, so much so that it will unlikely lead to attaining the thin ideal.

Media Literacy, Body Dissatisfaction, and Social Comparison – A Successful Intervention

One example of an effective media literacy intervention to counter negative affect after viewing thin models was conducted by Posavac and colleagues (2001). It attempted to interfere with the social comparison process among participants who had high levels of body dissatisfaction. In the experiment, female participants ($n = 125$, age range 18-25) were exposed to one of four informational video conditions: a) Parenting (control), b) Artificial Beauty, c) Genetic Realities, or d) a Combination message of Artificial Beauty and Genetic Realities. In each video, a psychologist presented each respective argument. Following, participants viewed appearance or non-appearance images. With the Parenting message serving as a control, the Artificial Beauty message argued that media images are constructed and manipulated via computer technological techniques rendering them artificial, and are therefore inappropriate comparisons. The Genetic Realities message

argued that due to genetics, the majority of women will not look like models regardless of an exercise and diet regime, and are also inappropriate comparisons. Similar to past research, exposure to media images lead to significantly more body dissatisfaction compared to the non-appearance images (Cattarin et al., 2000; Heinberg & Thompson, 1995; Tiggemann & McGill, 2004; Tiggemann & Slater, 2004). Notably, however, exposure to any of the experimental interventions before viewing the media images resulted in significantly less weight concern compared to the control group. Additionally, the combination intervention which discussed both Artificial Beauty and Genetic Realities, tended to be more successful than the other two interventions at decreasing social comparison.

In a similar study, Yamamiya, Cash, Melnyk, Posavac and Posavac (2005) implemented the same media literacy intervention Posavac and colleagues created in 2001. Female participants ($n = 123$, $M = 21.4$, $SD = 2.86$) in this study were stratified as high or low internalizers based on their internalization scale score towards ideal images of models, as opposed to possessing high levels of body dissatisfaction. Among high internalizers, participants exposed to the media literacy intervention reported significantly greater body satisfaction scores after viewing images of models compared to the control group, who viewed non-appearance images. Participants who were categorized as low internalizers to these media images were unaffected by any of the experimental manipulations. Overall, these two studies successfully prevented adverse reactions following exposure to media images by encouraging participants to use critical thinking tactics and expose these idealized images as inappropriate targets. Importantly, in two different samples, this intervention effectively targeted women with high body

dissatisfaction and high internalization. These women, compared to the general population, are individuals with body image concerns, and may be likely to benefit from an intervention such as this one. Future research into similar types of interventions is warranted.

A Summary of the Compilation of Literature

The compilation of this literature highlights several important findings. The impact of media images portraying a thin, slender, toned physique is an ideal that can lead to body dissatisfaction among young North American females (Groesz et al., 2002; Halliwell & Dittmar, 2004; Lew et al., 2007; Posavac et al., 2001; Tiggemann & McGill, 2004; Tiggemann & Slater, 2004). Notably, studies have demonstrated that women with a body dissatisfaction disposition, or those who internalize these images, are at an increased risk of experiencing adverse effects (Cattarin et al., 2000; Heinberg & Thompson, 1995; Posavac et al., 2001). The relationship between viewing unattainable ideal images and body dissatisfaction is suggested to be mediated by social comparison, whereby individuals evaluate themselves in relation to others (Festinger, 1954). In the context of body dissatisfaction and media, women who compare in an upward manner create a discrepancy where they perceive themselves to be less attractive than the models in the media (Major et al., 1991). The success of interfering with this process was achieved by Posavac and colleagues (2001) through fostering critical thinking of these images. This technique proved more successful than interventions using instructions to deter comparison, whereby in past research, distracter instructions did not deter comparison (Cattarin et al., 2000).

Body dissatisfaction can pervade one's life in all aspects, and exercise environments are no exception. Exercise has been shown to positively influence individuals physically and psychologically, however, individuals with body dissatisfaction are likely to experience decreased SPE and greater SPA in exercise settings (Crawford & Eklund, 1994; Gammage, Hall, & Martin Ginis, 1994; Gammage, Martin Ginis, & Hall, 2004; Martin Ginis, Lindwall, & Prapavessis, 2007). Consequently, exercise behaviour may be inhibited when individuals are concerned about a possible negative evaluation in terms of their body or fitness skills (Gammage, Martin Ginis, & Hall, 2004; Hausenblas et al., 2004; Leary, 1992). Exercise videos appear to be a suitable substitute to exercising in a public environment. Unfortunately, watching exercise videos has produced similar effects of body dissatisfaction to those of media images found in magazines and video clips (Crawford & Eklund, 1994; Fleming & Martin Ginis, 2004). With only one published article to date, research on the effects of exercising to commercially available fitness videos is minimal. Examining body dissatisfaction and exercise motivation after viewing and exercising to commercial videos that are readily available to women has important practical implications.

Findings thus far indicate that individuals who possess a greater perceived discrepancy between themselves and the instructor evaluate their appearance much more poorly as compared to those who do not perceive a large discrepancy between themselves and the fitness instructor (Martin Ginis et al., 2008). Unfortunately, the vast majority of the North American female population are dissatisfied with their bodies, and tend to subscribe to the unattainable thin ideal (Cash & Pruzinsky, 2002; Levine & Murnen, 2009; Thompson et al., 1999). Future interventions attempting to reduce social

comparison, and thus reduce body dissatisfaction may benefit by using strategies similar to Posavac and colleagues' (2001) media literacy materials. Importantly, it is essential to target women who experience body dissatisfaction, as this population typically experiences increased depression, eating disorders, and decreased self-esteem (Cash & Pruzinsky, 2002; Lew et al., 2007).

Past research on exercise videos has focused on SPE and SPA as primary outcomes. In the circumstance of examining exercise videos, individuals are likely to be exercising alone. Perhaps, in relation to body dissatisfaction, this private setting does not align with assessing SPE and SPA, as these constructs examine cognitions that are based on the evaluation by, and presenting oneself to others. Thus far, there have not been any interventions targeting women with body dissatisfaction watching and exercising to a fitness video using a media literacy intervention to improve body dissatisfaction. Measuring the effectiveness of a media literacy intervention on women with body dissatisfaction while watching and exercising to a video requires future research.

CHAPTER 2 THE CURRENT STUDY

Study Goals and Objectives

Overall Study Objective

The overall objective of this study was to compare the effects of a media literacy reading material intervention to an attention control reading material after women who were moderately to highly dissatisfied with their bodies watched and exercised to a fitness video.

Primary Goals and Objectives

1. The present study aimed to capture a sample that possessed some degree of body dissatisfaction. In order to achieve this goal, a cut-off was established on two body image measures (Appearance Evaluation and Body Areas Satisfaction subscales from the Multidimensional Body-Self Relations Questionnaire; MBSRQ; Cash, 2000). The majority of past body image literature that sought a dissatisfied sample obtained baseline data from an undergraduate class and selected a top percentile (i.e., those with the highest amount of body dissatisfaction) to examine further. However, due to logistical reasons that route was not possible, and an exploratory approach was undertaken. It was decided that on both body image satisfaction measures, a cut-off score of 75% and below would be established to select individuals who possessed a moderate to high degree of body dissatisfaction. This required that participants score 26/35 or less on the Appearance Evaluation subscale and 33/45 or less on the Body Areas Satisfaction subscale, where higher scores indicate greater body satisfaction. It was thought that reporting higher results than 75% would reflect individuals who were satisfied with their bodies.

Considering this was the first time utilizing a media literacy intervention in a combined watching and exercise setting, it was unknown which individuals (e.g., those with high, medium, or low body dissatisfaction) would benefit from it. Given the exploratory nature of this experiment, it was decided that scoring 75% or less on the Appearance Evaluation and Body Areas Satisfaction subscales might be too liberal in capturing a highly dissatisfied sample. This lent itself to also examine participants who had lower than 75% on the Appearance Evaluation and Body Areas Satisfaction subscales. This was determined by analyzing participants' data who had reported 50% or less on these two body image measures. This required that participants score 17.5/35 or less on the Appearance Evaluation subscale, and 22.5/45 or less on the Body Areas Satisfaction subscale. The rationale for this stricter cut-off score was guided by the normative data for these body image scales (mean score for women was 23.5/35 and 29/45 for Appearance Evaluation and Body Areas Satisfaction subscales, respectively) collected from Cash and colleagues (2000) when validating these measures. It was thought that scoring less than the normative data at 50% or less would capture a highly dissatisfied sample.

2. Based on previous studies that either engaged participants in watching or exercising to a fitness video, this study wanted to examine both behaviours and compare their independent effects on body dissatisfaction. Although exercising to a video does also entail watching the images in the video, there is a distinct and potentially practical difference between sitting and viewing the video compared to actively following the exercises and attempting to copy the fitness instructor's exact movements. As such,

examining both watching and exercising to a fitness video and their independent effects on body dissatisfaction was deemed worthy of further research.

As stated, one objective was to compare the independent effects of watching a fitness video on body dissatisfaction versus exercising to a fitness video. To control for any potential carryover effects, such that the first behaviour the participants engaged in would influence their responses on the second behaviour, a crossover design was used. This ensured that, in addition to random group assignment (e.g. medial literacy or attention control), participants were randomly assigned to the behaviour they would engage in first.

Previous research has demonstrated that watching influenced participants' body image after only a few minutes (Tiggemann & Slater, 2004). Therefore in this study, participants were asked to watch the first five minutes of the exercise video. For the exercise portion duration, consideration that the sample was infrequent exercisers was taken into account, along with the attempts of trying to create a "work-out" experience. As such, 20 minutes of exercising to the video was deemed appropriate and sufficient to elicit potential changes in body dissatisfaction.

3. Due to the success of Posavac and colleagues' (2001) media literacy intervention, their intervention was modified to correspond with an exercise video instructor context in order to positively influence body dissatisfaction in the present study. This was measured by the two subscales Appearance Evaluation and Body Areas Satisfaction among female participants watching and working-out to an exercise video.

a) This was examined among the entire sample of participants who scored 75% or less, and then only among participants that scored 50% or less on the two subscales.

4. Alongside participants who received intervention reading materials, the fourth objective of this study is to examine body dissatisfaction among the attention control participants who do not receive a media literacy intervention among female participants watching and working-out to an exercise video.

a) This was examined among the entire sample of participants who scored 75% or less, and then only among participants that scored 50% or less on the two subscales.

Secondary Goals and Objectives

1. The role of past and future exercise motivation will be examined and compared between the intervention and control group.

a) This was examined among the entire sample of participants who scored 75% or less, and then only among participants that scored 50% or less on the two subscales.

2. Baseline psychological variables (investment, internalization and self-esteem) were assessed to determine if they moderate body satisfaction under the condition of watching or exercising to the video.

3. The relationships between the psychological (investment, internalization, and self-esteem), demographic (BMI and age), social comparison, and exercise motivation variables were examined to determine if they predict Appearance Evaluation and Body Areas Satisfaction after watching and exercising to the video.

Hypotheses

Primary Hypotheses

1. After watching the video, participants with moderate to high body dissatisfaction exposed to the media literacy intervention reading material will experience a reduction in

body dissatisfaction compared to the control group, who will experience an increase in body dissatisfaction from baseline to watching the exercise video.

a) This relationship is expected to be strengthened among participants with higher dissatisfaction who received the intervention, as their greater body dissatisfaction would allow them to be more susceptible to improvement. However, the control group is expected to demonstrate similar scores to baseline, where their high body dissatisfaction is unlikely to further increase.

2. After exercising to the video, participants exposed to the media literacy intervention will either experience a decrease, or demonstrate no change in their body dissatisfaction, compared to the control group who will experience an increase in their body dissatisfaction, or similar scores to baseline. It is thought that if participants exhibit similar scores to baseline, this could be due to their attention focused on exercising rather than body dissatisfaction, where this behaviour could act as a buffer to body image concerns.

a) This relationship is expected to be strengthened among participants with higher body dissatisfaction, where the intervention group will experience a significant decrease in body dissatisfaction compared to the control group, where the control group will experience an increase in body satisfaction.

Secondary Hypotheses

3. After the experiment, the intervention group's future exercise motivation will be significantly lower compared to the control group. This intervention will instill realistic notions regarding media images, and participants may not find exercise as motivating if

they feel that it won't guarantee the body they desire. Conversely, the control group could perceive exercising as a proactive experience regarding their body dissatisfaction.

4. The psychological variables (internalization, investment and self-esteem) will moderate the relationship between the watching and exercising behaviour and body dissatisfaction. Specifically, it was hypothesized that participants with higher internalization and investment, and lower self-esteem will moderate this relationship. It was thought that these dispositional characteristics would affect the influence of the media literacy intervention on participants, whereby those possessing these characteristics might be more receptive to such an intervention. The control group's dispositional characteristics may enhance their adverse reaction to the video.

5. The psychological variables (internalization, investment, and self-esteem), demographic (BMI and age), social comparison and exercise motivation variables will make unique and significant contributions to the prediction of Appearance Evaluation and Body Areas Satisfaction after watching and exercising to the video.

Methods

Materials

Media Literacy Intervention

Posavac and colleagues' (2001) media literacy intervention was developed in the form of a video, which filmed a psychologist making two main arguments against viewing models in the media as realistic. The first argument, *Artificial Beauty*, explained how countless hours are spent on making models in the media look beautiful. It went on to explain that after the film or photo shoot had occurred, the final product is altered via technological means (e.g., airbrushing) to create what we see in media images, rendering them artificial. The second argument made in the media literacy intervention was about *Genetic Realities*. Due to genetics, the majority of women will not look like models regardless of an exercise and diet regime, and thus the psychologist in the video argued that these models make inappropriate comparisons for the majority of women.

For the present study, Posavac and colleagues' (2001) transcripts of the video were obtained and modified into reading material. Modifying the media literacy intervention video into media literacy reading materials was done for three reasons. First, the content of the intervention was modified such that the information pertained to exercise videos instead of general media images. This modification ensured that the intervention was congruent with the study purpose of examining the impact of exercise videos on body dissatisfaction. Second, the role of healthy eating and physical activity in relation to achieving a healthy body weight were added to the original transcript material. Finally, the original media literacy intervention was altered with respect to the images provided. In the original media literacy intervention, the psychologist displayed three

unrealistic and idealistic images from magazines to support and convey his arguments in the video. For the present study, the original images were replaced with three images of exercise video instructors within the text of the print-based media literacy intervention. This reading material, written in paragraph form, was five pages and 1,359 words (see Appendix A).

Attention Control

The content of the attention control reading material was based on information presented on the London-Middlesex Public Health Unit website regarding the effect of alcohol on women. This information detailed the physiological effects in terms of long-term health risks (e.g., heavy drinking can lead to an increased risk of liver cancer and damage to brain structure), as well as tips on how to reduce alcohol intake (e.g., wait at least one hour between drinks, alternate with non-alcoholic drinks). This reading material briefly mentioned that to improve one's health, one should eat healthy, exercise more and quit smoking in two sentences. It did not mention body image or weight loss. This reading material, written in paragraph form, was five pages and 1,432 words (see Appendix B).

Attempts were made to ensure that the attention control material was similar to the media literacy material format, and that the amount of time needed to read the information presented in both groups was equal. This allowed the researcher to distinguish the specific effect of the media literacy from the non-specific effect of receiving more treatment. Differences between the materials were that the attention control material included some written content in bullet format, and there was only one

picture (displaying alcohol content in a standard beer, wine glass, fortified wine, and liquor) compared to three in the media literacy intervention material.

Exercise Video

In choosing a fitness video, the goal was to choose one that had one female instructor displaying a slim, fit and toned figure to capture the sociocultural ideals, and thus correspond with the media literacy intervention materials. The video, *10 Minute Solution™ Blast Off Belly Fat* (2007, Anchor Bay Entertainment, Inc.) portrayed these characteristics and was deemed suitable for beginner exercisers based on piloting the video on four young women who knew the study purpose. The video had five, 10 minute segments, of which two were used in the present study. The first 10 minute section consisted of exercises such as low-impact kickboxing, standing crunches with punches, military squats with a kick, balance activities with leg lifts, and light jogging in between. In this segment the instructor was wearing a sleeveless top with her stomach covered and spandex shorts, where camera shots focused on the full body and the lower body. Upon finishing, the instructor said “Great job! Way to burn off the fat!” The second 10 minutes focused on abdominal strength training, consisting of crunches, reverse curls, oblique rolls and twists, and bicycle crunches. The instructor was wearing a spandex bra and shorts, where the camera shots focused on the full body and the midsection. In both videos, it was apparent that the instructor was toned and strong, and performed difficult exercises without breaking a sweat. In addition to this, the instructor was smiling throughout and providing encouragement.

Measures

Demographics

The baseline demographics questionnaire obtained information on participants' age, ethnicity, and occupation. To obtain a measure of physical activity behaviour, the Godin Leisure Time Exercise Questionnaire (Godin & Sheppard, 1985) was administered. In addition, participants were asked if they had suffered from any physical or psychological contraindications which would, or have in the past, prevented them from exercising. Body mass index (BMI; kg/m²) was obtained in the lab by the researcher using the Health O Meter Scale by Pelstar®. See Appendix C for demographic questionnaires.

Primary Outcomes

Body dissatisfaction. Body dissatisfaction was measured using the Appearance Evaluation subscale and the Body Areas Satisfaction subscale from the MBSRQ (Cash, 2000). The Appearance Evaluation subscale examines global appearance concerns using a 5-point scale ranging from 1 (*definitely disagree*) to 5 (*definitely agree*). Seven items asked participants questions such as, “I like my looks just the way they are”, “Most people would consider me good looking”, and “I dislike my physique”. The scale was internally consistent at an acceptable level at baseline, after watching the fitness video, and after exercising to the fitness video (Cronbach's $\alpha = .80, .86, .88$ respectively; Tabachnick & Fidell, 2007).

The Body Areas Satisfaction subscale assesses the amount of satisfaction with specific body areas using a 5-point scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). Nine items asked participants questions such as, “Indicate how satisfied you

are with your lower torso (buttocks, hips, thighs, leg)", and "Indicate how satisfied you are with your upper torso (breasts, shoulders, arms)". Internal consistency was poor at baseline ($\alpha = .65$), after watching the fitness video ($\alpha = .63$), and after exercising to the fitness video ($\alpha = .67$; Nunnally, 1978). Inter-item correlation analysis revealed that items assessing face, hair, and height were not strongly related to the other items assessing body area satisfaction, and suggested that removal of these three items would improve the internal consistency of the measure. After excluding these three items the reliability coefficients were deemed acceptable ($\alpha = .72$, $\alpha = .78$, $\alpha = .81$ respectively). Results for Body Areas Satisfaction are reported with the exclusion of the three items from hereon in. See Appendix D for all primary measures.

Secondary Outcomes

Exercise motivation. Past and future exercise motivation was measured using one item each. Past exercise motivation assessed participants' motivation to exercise in the past 7 days. The statement, on a 7-point likert scale, from 1 (*very high*) to 7 (*very low*) was, "my motivation to exercise in the past week has been...". Future exercise motivation assessed participants' motivation to exercise in the next 7 days. The statement, on a 7-point likert scale, from 1 (*very high*) to 7 (*very low*) was "my motivation to exercise next week is..."

Self-esteem. Participants' self-esteem was measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). On a four-point scale ranging from 0 (*strongly agree*) to 3 (*strongly disagree*), participants answered 10 items such as "I feel I have a number of good qualities" and "I take a positive attitude towards myself". The scale was

internally consistent at an acceptable level (Cronbach's $\alpha = .79$; Tabachnick & Fidell, 2007).

Internalization. Internalization to media image ideals, which examines the acceptance of sociocultural ideals, was measured using the General Internalization subscale from the Sociocultural Attitudes Towards Appearance Questionnaire – 3 (SATAQ-3; Thompson et al., 2004). On a five-point scale ranging from 1 (*definitely disagree*) to 5 (*definitely agree*), nine items asked participants to answer questions such as “I compare my body to the bodies of people who are on TV” and “I would like my body to look like the models who appear in magazines”. The subscale was internally consistent at an acceptable level (Cronbach's $\alpha = .90$; Tabachnick & Fidell, 2007).

Body image investment. Investment towards one's appearance was measured using the Appearance Schema Inventory-Revised measure, which consists of two subscales - Self-Evaluative Salience and Motivational Salience (Cash, Melnyk, & Hrabosky, 2000). This questionnaire was designed to examine the assumptions or beliefs regarding the meaning, importance, and influence of appearance on one's life. On a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), 20 items are delineated into the two subscales. The Self-Evaluative Salience subscale includes 12 items, and the Motivational Salience subscale includes eight items, with statements such as “When I see good-looking people, I wonder how my own looks measure up” and “I try to be as physically attractive as I can be”. Individually, the Self-Evaluative Salience subscale and Motivational Salience subscales were deemed internally acceptable ($\alpha = .83$ and $.74$ respectively). See Appendix E for all secondary outcome measures.

Manipulation Check

Exercise intensity. To determine whether both groups were exercising to the video with similar intensity, participants wore Polar RS 400 heart rate monitors. Upon completion of the study, the heart rate monitors were downloaded onto the Polar RS Software® computer program using an infrared port. The average heart rate obtained during the exercise session represented participants' intensity level.

Social comparison. The exercise video was expected to trigger social comparison in participants in an upward manner. A social comparison measure assessed participants' comparison to the exercise video instructor in relation to two factors (Appendix F). The first factor, physical fitness comparison, measured potential comparisons made by participants between themselves and the video instructor on physical and fitness aspects, such as coordination and strength using five items. The second factor, physical appearance comparison, measured potential comparisons participants made between themselves and the instructor in terms of physical appearance such as thighs, physique, and appearance with six items. These 11 items were based on Martin Ginis and colleagues' perceived discrepancy item (2008), where this item asked participants *how similar* they perceived themselves to be to the instructor on their body's physical attractiveness. The present questionnaire asked *how often the participant compared* themselves to the instructor. Items for both factors were assessed using a scale from 1 (*not at all*) to 5 (*all the time*). Individually, *physical fitness comparison* had borderline internal consistency ($\alpha = .71$), and the *physical appearance comparison items* had acceptable internal consistency ($\alpha = .85$).

Participants

Based on Posavac and colleagues' study (2001), a medium effect size ($f = 0.32$) was anticipated in our study. Using the Sample Power 2 ® software conventions for medium effects sizes for a separate factorial repeated measures ANOVA, with a power of 0.81 to detect a significant interaction at $p = .05$, it was determined that 102 participants were required.

Figure 2 displays a flow-chart of the participants, procedure and design. Eighty-three women ($N = 83$) volunteered to participate in this study. Inclusion criteria included: female; currently between the ages of 18 to 50; having exercised less than three times a week at a moderate-intensity for the past three months; a high level of body dissatisfaction, as determined by scoring equal or less than 75% on the Appearance Evaluation subscale and the Body Areas Satisfaction subscale of the MBSRQ (Cash, 2000); and did not have any physical or psychological contraindications for exercising (for example, eating disorders and depression). This required participants to score 26 or less on the Appearance Evaluation and 33 or less on the Body Areas Satisfaction subscales. Individuals who did not fit these criteria were excluded from participation.

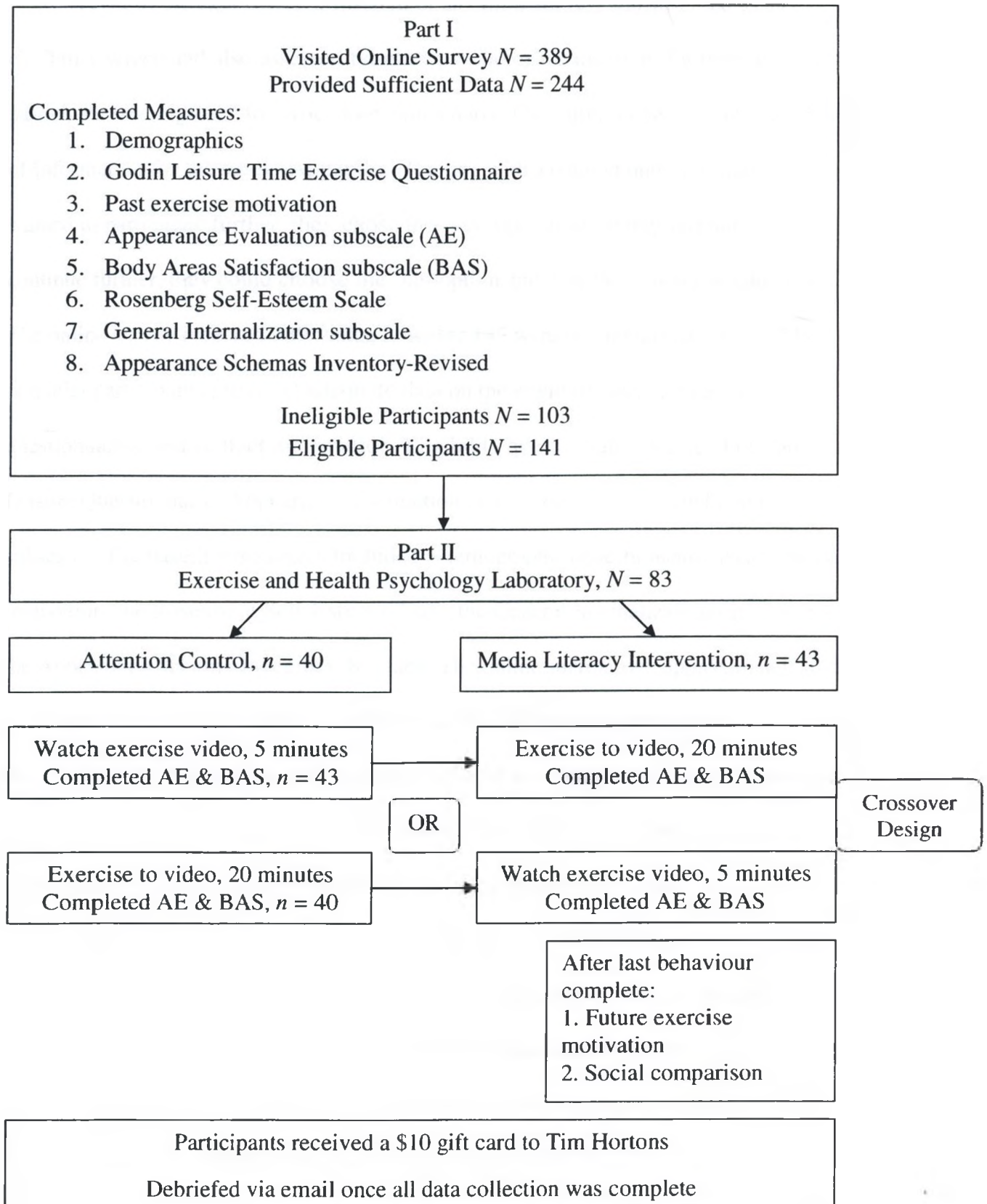
It is important to note that participants were not aware of the screening cut-off for moderate to high body dissatisfaction. The reason for this was two-fold. First, it was desired to avoid prompting any body image cognitions and emotions that might influence responses to the study measures. Second, stating that this study was examining women dissatisfied with their body could have brought about negative affect in potential participants. For these reasons, participants were only told that if they were infrequent exercisers, they would be randomly selected to participate further. Those who met the

eligibility criteria were contacted and informed that they were randomly selected to participate further, and those who did not meet the criteria, or had contraindications, were told that they were not randomly chosen. The rationale for informing participants whether they were randomly selected was to avoid the disclosure of the true nature of the study. Ethical approval for this study was granted by the University of Western Ontario Research Ethics Board (Appendix G)

Participants were recruited at the University of Western Ontario and throughout the city of London, Ontario. On campus, recruitment methods included posting flyers in numerous buildings, making announcements in various lectures across campus, and a mass email sent to all female students at the university, which proved to be the most effective means to attract participants. Off campus, recruitment methods included posting flyers at local shops, businesses, and libraries. A newspaper ad in a city paper was also placed, along with online advertisements on Kijiji (free local classified advertisement webpage) and Facebook (a free network connecting people worldwide).

Upon entry into the laboratory, participants ($N = 83$) were randomized into two groups: attention control ($n = 40$) and media literacy intervention ($n = 43$). Demographically, this was a predominately Caucasian, undergraduate, young-adult (M age = 23.54, $SD \pm 7$), normal weight sample (M BMI = 24.44, $SD \pm 5.40$). The participants with higher body dissatisfaction ($N = 22$; attention control $n = 12$; media literacy intervention, $n = 10$) were also a predominately Caucasian, undergraduate, young-adult (M age = 26.73, $SD \pm 9.4$), but were overweight on average (M BMI = 28.70, $SD \pm 6.11$).

Figure 2. A flow-chart of procedure, design, and participants.



Procedure

Part I of the experiment consisted of an online survey, which served as an eligibility screen and also assessed baseline psychological measures for those eligible to participate (see Figure 2 for procedure flow-chart). The online survey included the Letter of Information for the study (Appendix H) along with a consent option. If participants wanted to participate further, they chose the 'yes' option, and if they did not want to continue further, they could choose the 'no' option and then the browser would close. The online survey received 389 visits, however 145 were incomplete. A total of 244 potential participants provided adequate data on the eligibility questionnaires, baseline questionnaires, and contact information. Eligibility questionnaires included the Godin Leisure Questionnaire, Appearance Evaluation and the Body Areas Satisfaction subscales. The baseline measures included a demographics questionnaire, past exercise motivation, the Rosenberg Self-Esteem Scale, the General Internalization subscale and the Appearance Schema Inventory-Revised. The online survey took approximately 10 to 12 minutes to complete. Of those 244 individuals, 141 were eligible in accordance with the 75% cut-off. Participants who completed Part I were entered in a draw for two free movie passes, and contacted via email to thank them for their initial participation and to inform them whether they were randomly chosen to participate further.

Eligible participants were invited to complete Part II at the Exercise and Health Psychology Laboratory, in the Arthur and Sonia Labatt Health Sciences Building at the University of Western Ontario. Of those invited, 83 participants came to the laboratory, and were randomized to condition and then study order (behaviour) to create a crossover design. Specifically, participants were first randomized into the attention control or

intervention group, and then randomized again for the behaviour they would engage in first (watching or exercising to the fitness video). The randomized numbers table was produced by Statistics Package for the Social Sciences (SPSS) version 16.0 (SPSS Inc). This table produced a random list of zeros and ones, which were assigned to the control or intervention group respectively. This table also randomly assigned participants to either watch the video first, or exercise to the video first in the same manner. This master list was created by a research assistant. One-hour appointment blocks were arranged via email for those interested in participating in Part II.

Part II commenced when the participant came into the laboratory, and was assigned to a group and order on the master list. In a private room, the protocol was reviewed again with the participant, and the participant was informed that she would be alone in this room with the door closed the entire time of the protocol, and to open the door once she finished each part of the protocol. The participant was then left to change into her exercise clothing. Following, participants' height and weight, date of birth, and how they became aware about the study were collected. They were then provided with reading material which was either the media literacy intervention or attention control, which took approximately five minutes to read for the majority of participants. After reading their respective group's reading material, participants watched the first five minutes of the exercise video, and then exercised to it for 20 minutes, or vice versa, depending on the order they had been randomly assigned to.

For the watching portion of the exercise video, participants were provided with a chair and told to face the television, and informed that they would be watching the first five minutes of the video. Five minutes was timed on a stopwatch, and then a research

assistant would enter the room, stop the video and provide the participant with a set of questionnaires. For the exercise portion, the chair was moved out of the way, and participants were provided with an exercise mat, water, and a Polar RS 400 heart rate monitor and given instructions on how to wear it. The heart rate monitor served as a manipulation check to verify that the two groups were exercising at the same intensity. Participants were told to follow the instructor's directions, not to strain themselves if they could not complete parts of the video, to stop if they felt any pain, and to take time after to stretch and cool-down upon completing the exercise. Following, participants completed a set of questionnaires.

After the first behaviour (either watching or exercising to the video), participants completed the Appearance Evaluation and Body Areas Satisfaction subscales. After the second behaviour (either watching or exercising), they completed a set of questionnaires which included the Appearance Evaluation and Body Areas Satisfaction subscales, future exercise motivation, and social comparison to the exercise video instructor. On average, Part II took approximately 45 to 60 minutes to complete. After finishing the study, participants were given a letter providing phone numbers they could call if they experienced any adverse physical or psychological events following the study (for example, any sort of physical injury or distress after viewing the exercise video instructor). Participants were thanked for their time and given a \$10 gift card to Tim Hortons, and two ballots for a draw with the chance to win a \$100 gift card to the University Bookstore and a \$100 gift card to Future Shop. Once all data collection was complete, participants – including those who only completed Part I – were emailed debriefing letters informing them of the true nature of the study. Participants randomized

to the attention control group received a 1-page summary of the media literacy intervention.

Results

Treatment of Data

The significance level for all statistical tests was set at $p < .05$. Accompanying effect sizes (η^2) of 0.01, 0.06, and 0.14 were considered small, medium, and large respectively (Cohen, 1988). Missing data were replaced with scale mean scores when 5% or less was absent from the data set (Tabachnick & Fidell, 2007). There were two instances where more than 5% of data was missing. In the first instance, one participant did not provide data for 33% of the General Internalization subscale, and in the second instance, due to a technical error, 11 participants did not fill out the Appearance Schemas Inventory-Revised which constituted 13.3% of the missing data. In both instances, missing data were not replaced, and data analyses for these two measures excluded those participants. Outliers were checked using boxplots, and standardized z scores indicated one outlier. Upon deletion of that item and re-analyzing data, the outlier made no impact on results and hence remained unchanged in the data set, in accordance with recommendations by Tabachnick and Fidell (2007).

Presentation of the Data

Results are reported in separate sections. The first section details the results for all participants who had scored less than 75% on the Appearance Evaluation and Body Areas Satisfaction subscales ($N=83$). These individuals are classified as participants with *moderate to higher body dissatisfaction*. The second section details the results for only a sub-sample of the above participants ($N = 22$ out of the original 83) who scored less than 50% on the two subscales. These individuals are classified as participants with *higher body dissatisfaction*. Following will be a discussion specific to participants with moderate

to higher body dissatisfaction, and after a discussion specific to participants with higher body dissatisfaction.

Participants with Moderate to Higher Body Dissatisfaction

Group Equivalency at Baseline

Table 1 displays descriptive statistics for the demographic, baseline psychological, primary (Appearance Evaluation, Body Areas Satisfaction), and secondary (past exercise motivation) outcomes. Separate one-way analyses of variance (ANOVAs) were conducted to test for group equivalency for physical activity levels, demographic (age, BMI, ethnicity, and occupational status), psychological (internalization, investment, and self-esteem) and past exercise motivation, and body satisfaction (Appearance Evaluation and Body Areas Satisfaction) baseline variables. There were no differences between participants randomized to the media literacy intervention or attention control group for strenuous, $F(1, 82) = 1.24, p = .27$, moderate, $F(1, 82) = .01, p = .95$, or mild physical activity $F(1, 82) = .41, p = .52$. There were no group differences for the demographic variables of age, $F(1, 82) = .13, p = .72$, BMI, $F(1, 82) = .04, p = .85$, ethnicity, $F(1, 82) = 1.41, p = .24$, or occupational status $F(1, 82) = .30, p = .59$. Similarly, there were no significant differences between groups for the psychological variables for General Internalization subscale, $F(1, 81) = 1.93, p = .17$, investment - the Motivational Salience subscale, $F(1, 70) = .39, p = .53$, the Self-Evaluative subscale, $F(1, 70) = .04, p = .84$, and the Rosenberg Self-Esteem Scale, $F(1, 82) = .14, p = .71$, or past exercise motivation, $F(1, 82) = 1.45, p = .23$. Finally, there were no group differences for the body satisfaction variables Appearance Evaluation, $F(1, 82) = 3.10, p = .08$, or Body Areas Satisfaction, $F(1, 82) = 1.64, p = .20$.

Table 1

Descriptive Statistics for Demographic, Psychological, and Outcome Variables at Baseline for Participants with Moderate to Higher Body Dissatisfaction

Variable	Intervention Group (<i>n</i> = 43)		Control Group (<i>n</i> = 40)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
<i>Demographic</i>				
Age (years)	23.81	7.56	23.25	6.44
BMI (kg/m ²)	24.55	4.85	24.32	5.94
Ethnicity	Caucasian = 34 Other = 9		Caucasian = 27 Other = 13	
Occupation	Undergraduate = 34 Graduate = 5 Other = 4		Undergraduate = 31 Graduate = 7 Other = 2	
<i>Psychological</i>				
Internalization	3.34	0.81	3.60	0.71
Investment (ASI-R)				
Motivational Salience	3.49	0.61	3.40	0.57
Self-Evaluative Salience	3.38	0.68	3.35	0.56
Self-esteem	1.80	0.41	1.83	0.36
<i>Primary outcome</i>				
Appearance Evaluation	2.90	0.65	2.65	0.64
Body Areas Satisfaction	2.58	0.58	2.40	0.71
<i>Secondary outcome</i>				
Past exercise motivation	2.09	0.92	2.35	1.03

Manipulation Check

Exercise intensity. Mean scores for exercise intensity are presented in Table 2. A *t*-test was conducted to determine group equivalency for participants' heart rate while exercising to the video. The *t* test revealed that there were no group differences for heart rate, $F(1, 82) = .27, p = .60$.

Social comparison. Mean scores for social comparison are presented in Table 2.

The average participant reported that they were comparing ‘somewhat’ for both the physical appearance comparison subscale and the physical fitness comparison subscale.

A one-way ANOVA revealed that there were no significant differences between the two groups for the physical appearance comparison subscale, $F(1, 82) = 2.60, p = .11$, or the physical fitness comparison subscale, $F(1, 82) = 1.07, p = .30$.

Table 2

Manipulation Check between Groups for Participants with Moderate to Higher Body Dissatisfaction

Variable	Intervention ($n = 43$)		Control ($n = 40$)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Exercise Intensity (beats per minute)	117.71	16.00	117.13	15.12
Social Comparison				
Physical appearance comparison	3.17	0.88	2.87	0.86
Physical fitness comparison	3.28	0.71	3.11	0.86

Testing for Order Effects

To ascertain whether treatment order influenced scores on body satisfaction measures (e.g., whether watching the video first produced differential effects in terms of body dissatisfaction scores after exercising, or vice versa), a separate factorial (order: watching first vs. exercising first), repeated measures (body dissatisfaction: after watching vs. after exercising for each body satisfaction variable) ANOVA was conducted. If a significant interaction occurred between the body satisfaction scores and the order variable, this would suggest that the order (those randomized to watch the

exercise video first and those randomized to exercise to the video first) influenced the body satisfaction scores, thus establishing an order effect.

The ANOVA test, $F(1, 82) = .15, p = .70$, revealed that there was not a significant interaction between the order and Appearance Evaluation obtained after watching, or after exercising to the video. Similarly, there was not a significant interaction between the order and Body Areas Satisfaction obtained after watching and after exercising to the video, $F(1, 82) = .94, p = .34$. Based on these results, it was concluded that there were no order effects occurring. Therefore, it was deemed appropriate to combine participants who had been randomized to differing order, and proceed with examining the effects of the intervention on body satisfaction at two different behaviours: after watching the video, and after exercising to the video.

Treatment Group Differences in Body Dissatisfaction after Watching the Video

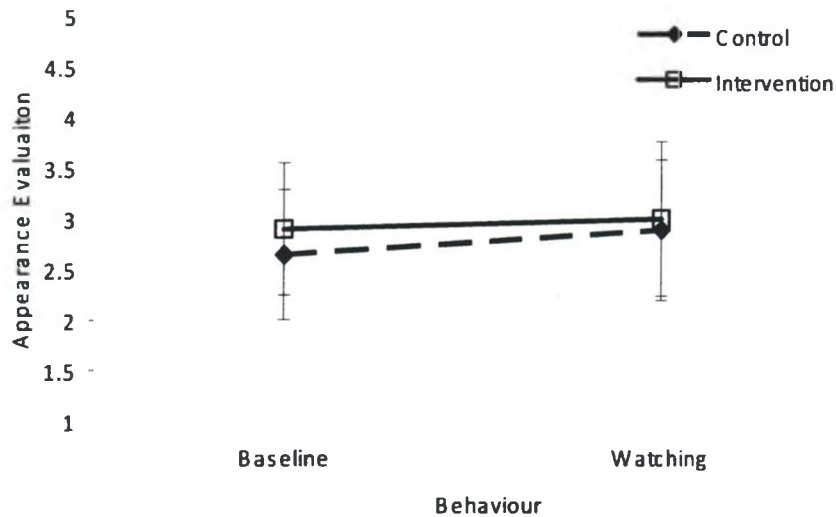
Table 3 presents descriptive statistics for the primary and secondary outcomes for the watching behaviour. To test hypothesis 1 – that the media literacy intervention materials would reduce body dissatisfaction after watching the video compared to the control materials, which would lead to increased body dissatisfaction after watching the video - a separate factorial (treatment group: media literacy intervention vs. attention control) x repeated measures (time: baseline and post-watching video) ANOVA was conducted for both Appearance Evaluation and Body Areas Satisfaction. For Appearance Evaluation, the ANOVA analysis revealed a significant main effect for time, $F(1, 82) = 18.54, p = .01, \eta^2 = .186$, however there was not a significant interaction between treatment group and time, $F(1, 82) = 2.56, p = .11, \eta^2 = .031$. This is illustrated in Figure 3.

Table 3

Descriptive Statistics for Primary and Secondary Outcomes for Participants with Moderate to Higher Body Dissatisfaction

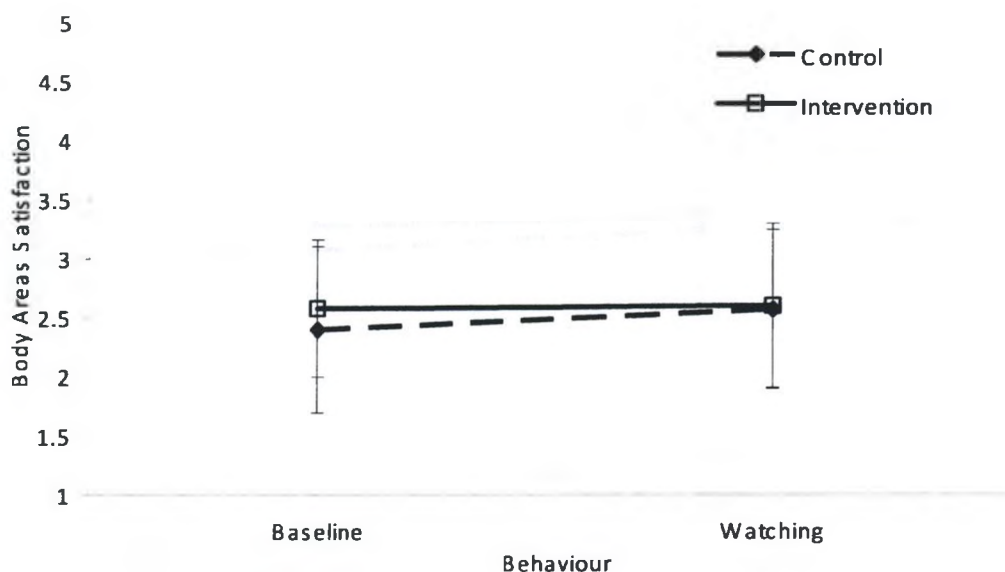
Variable	Entire Sample (<i>n</i> = 83)		Intervention (<i>n</i> = 43)		Control (<i>n</i> = 40)	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
Appearance Evaluation						
Baseline	2.77	0.65	2.90	0.65	2.65	0.64
Watching	2.95	0.72	3.00	0.76	2.89	0.69
Exercising	2.96	0.74	3.02	0.74	2.88	0.74
Body Areas Satisfaction						
Baseline	2.49	0.65	2.58	0.58	2.40	0.71
Watching	2.58	0.67	2.60	0.69	2.57	0.67
Exercising	2.60	0.70	2.66	0.66	2.53	0.73
Exercise Motivation						
Future	4.25	1.16	3.86	1.13	4.68	1.05

Figure 3. Appearance evaluation scores at baseline and after watching for treatment groups for participants with moderate to higher body dissatisfaction.



For Body Areas Satisfaction, there was a significant main effect for time, $F(1, 82) = 4.52, p = .04, \eta^2 = 0.05$, however, there was not a significant interaction between treatment and time, $F(1, 82) = 2.97, p = .09, \eta^2 = 0.04$ scores. This is illustrated in Figure 4.

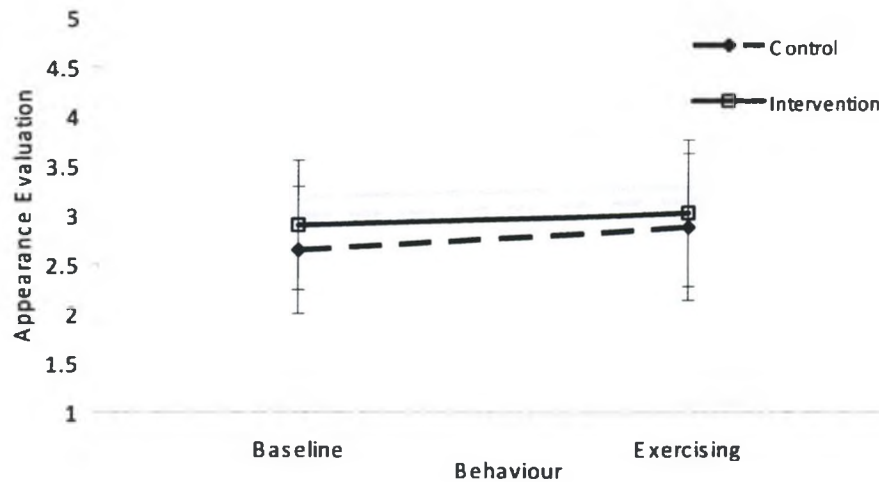
Figure 4. Body area satisfaction scores at baseline and after watching for treatment groups for participants with moderate to higher body dissatisfaction.



Treatment Group Differences in Body Dissatisfaction after Exercising to the Video

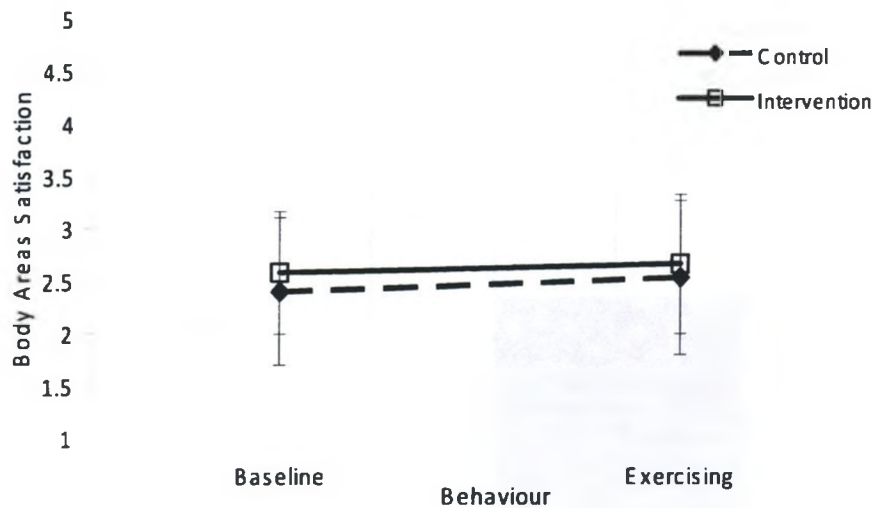
To examine hypothesis 2– that the media literacy intervention materials would decrease or maintain body dissatisfaction after exercising to the video compared to the control materials, which would increase or maintain body dissatisfaction after exercising to the video – a separate factorial (treatment group: media literacy intervention vs. attention control) x repeated (time: baseline and post-exercising to the video) measures ANOVA was conducted for both Appearance Evaluation and Body Areas Satisfaction. For Appearance Evaluation, the ANOVA analyses revealed a significant main effect for time, $F(1, 82) = 15.41, p = .00, \eta^2 = .16$, however a significant interaction did not occur between treatment and time, $F(1, 82) = 1.29, p = .26, \eta^2 = 0.02$. This is illustrated in Figure 5.

Figure 5. Appearance evaluation scores at baseline and after exercising for treatment groups for participants with moderate to higher body dissatisfaction.



For Body Areas Satisfaction, the ANOVA analyses did not reveal a significant main effect for time, although could be considered a trend at $F(1, 82) = 3.91, p = 0.05, \eta^2 = 0.05$. A significant interaction did not occur between treatment and time, $F(1, 82) = .28, p = .60, \eta^2 = .00$. This is presented in Figure 6.

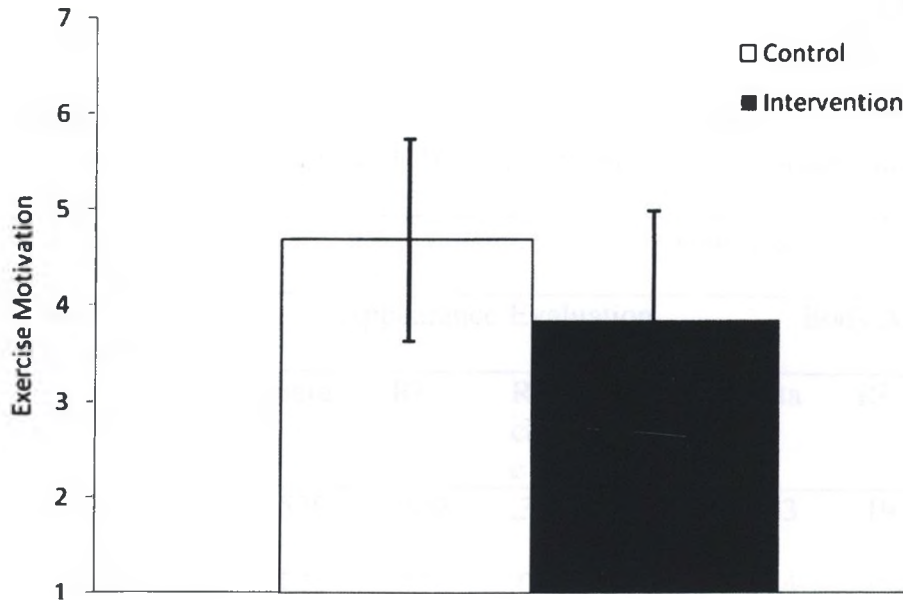
Figure 6. Body areas satisfaction scores at baseline and after exercising for the treatment groups for participants with moderate to higher body dissatisfaction.



Treatment Group Differences for Future Exercise Motivation

To examine hypothesis 3 – that the intervention group will have less future exercise motivation compared to the control group after the experiment – a one-way ANOVA was conducted. Results revealed a significant difference between groups, where individuals in the control group had significantly greater future exercise motivation scores compared to participants in the intervention group, $F(1, 82) = 11.61, p = .01$. Figure 7 displays future exercise motivation between the two groups.

Figure 7. Group differences in future exercise motivation for participants with moderate to higher body dissatisfaction.



Moderation

To examine hypothesis 4 – that the participants with higher internalization and investment, and lower self-esteem will moderate the relationship between the watching and exercising behaviour and body dissatisfaction – Kraemer, Wilson, Fairburn, and Agras' (2002) recommendations were followed. Their criteria consisted of three requirements, (a) the target measure (in this case, a baseline psychological measure) was collected pre-treatment (collected within the online survey prior to Part II, at baseline); (b) there is no correlation between treatment group and the target variable, and (c) an interaction with or without a main effect was evident. The psychological variables – self-esteem, internalization, and investment – met the first and second criteria and were subsequently computed into cross-products with the treatment variable to test for an interaction. Results demonstrated that none of these psychological variables satisfied the

third criteria. Table 4 displays the moderation results after watching, and Table 5 displays the moderation results after exercising.

Table 4

Potential Moderators for Appearance Evaluation and Body Areas Satisfaction after Watching for Participants with Moderate to Higher Body Dissatisfaction

Potential Moderator	Watching							
	Appearance Evaluation				Body Areas Satisfaction			
	Beta	R ²	R ² change	<i>p</i>	Beta	R ²	R ² change	<i>p</i>
Self-esteem (SE)	.578	.362	.362	.000	.433	.193	.193	.001
<i>SE x treatment</i>	.122	.376	.014	.185	.034	.194	.001	.741
Internalization (I)	-.306	.092	.092	.006	-.327	.109	.109	.003
<i>I x treatment</i>	.030	.093	.001	.785	-.039	.111	.002	.715
Investment (ASI-R)								
Motivational salience (MS)	.120	.022	.022	.219	-.09	.000	.000	.931
<i>MS x treatment</i>	.109	.033	.011	.379	.033	.001	.001	.791
Self-evaluative salience (SES)	-.369	.122	.122	.003	.343	.114	.114	.004
<i>SES x Treatment</i>	.087	.129	.007	.452	.027	.114	.001	.818

Table 5

Potential Moderators for Appearance Evaluation and Body Areas Satisfaction after Exercising for Participants with Moderate to Higher Body Dissatisfaction

Potential Moderator	Exercising							
	Appearance Evaluation				Body Areas Satisfaction			
	Beta	R ²	R ² change	<i>p</i>	Beta	R ²	R ² change	<i>p</i>
Self-esteem (SE)	.544	.319	.319	.001	.382	.160	.160	.001
<i>SE x treatment</i>	.113	.331	.012	.236	.094	.169	.008	.375
Internalization (I)	-.253	.062	.062	.026	-.26	.069	.069	.010
<i>I x treatment</i>	.057	.065	.003	.609	.036	.070	.001	.746
Investment (ASI-R)								
Motivational salience (MS)	.152	.036	.036	.117	-.049	.000	.000	.886
<i>MS x treatment</i>	.150	.057	.021	.223	.124	.015	.014	.324
Self-evaluative salience (SES)	-.347	.101	.101	.007	-.335	.097	.097	.008
<i>SES x Treatment</i>	.131	.118	.016	.266	.105	.107	.010	.371

Investigating Relationships between Demographic, Psychological Variables, Exercise Motivation and Social Comparison with Body Satisfaction.

To examine hypothesis 5 – that the psychological variables (internalization, investment, and self-esteem), demographic (BMI and age), social comparison and exercise motivation variables will make unique and significant contributions to the prediction of Appearance Evaluation and Body Areas Satisfaction after watching and

exercising to the video – bivariate correlation analysis was first carried out to investigate these relationships.

Table 6 presents baseline correlations among the variables. Appearance Evaluation and Body Areas Satisfaction were negatively correlated with BMI, age, internalization, Self-Evaluative Salience, and positively correlated with self-esteem. Table 7 presents correlations among the variables under the watching condition. Appearance Evaluation and Body Areas Satisfaction under the watching condition were both negatively correlated with BMI, age, internalization, Self-Evaluative Salience and physical appearance comparison, and positively correlated with self-esteem. Table 8 presents correlations among the variables under the exercising condition. After exercising to the video, the same results were found for both body satisfaction measures. Specifically, Appearance Evaluation and Body Areas Satisfaction scores under the exercising condition were negatively correlated with BMI, age, internalization, Self-Evaluative Salience and physical appearance comparison, and positively correlated with self-esteem.

Table 6

Correlations between Demographic, Psychological, Social Comparison, Exercise Motivation, Appearance Evaluation, and Body Areas Satisfaction at Baseline for Participants with Moderate to Higher Body Dissatisfaction

	1	2	3	4	5	6	7	8	9	10	11	12
1. Appearance Evaluation	-	.76**	-.50**	-.35**	-.36**	-.30**	.17	.61**	-.02	.05	.10	-.02
2. Body Areas Satisfaction		-	-.63**	-.34**	-.38**	-.31**	.14	.44**	-.12	.02	.19	.04
3. Body Mass Index			-	.37**	.03	.12	-.19	-.32**	.07	.00	-.18	-.02
4. Age				-	.02	-.10	-.24*	-.23*	-.09	.00	-.06	.06
5. Internalization					-	.67**	.43**	-.26*	.27*	.28*	-.03	.23*
6. Self Evaluation Salience						-	.51**	-.43**	.45**	.24*	.09	.23
7. Motivational Salience							-	.07	.33**	.23	.14	.21
8. Self-Esteem								-	-.18	.09	.11	-.10
9. Physical appearance comparison									-	.62**	.04	.15
10. Physical fitness comparison										-	.01	.03
11. Past exercise motivation											-	.32
12. Future exercise motivation												-

* $p < 0.05$, ** $p < 0.01$

Table 7

Correlations between Demographic, Psychological, Social Comparison, Exercise Motivation, Appearance Evaluation, and Body Areas Satisfaction after Watching for Participants with Moderate to Higher Body Dissatisfaction

	1	2	3	4	5	6	7	8	9	10	11	12
1. Appearance Evaluation	-	.78**	-.53**	-.35**	-.31**	-.35**	.16	.60**	-.23*	-.10	.06	-.01
2. Body Areas Satisfaction		-	-.58**	-.33**	-.33**	-.34**	-.02	.44**	-.39**	-.15	.14	-.03
3. Body Mass Index			-	.37**	.03	.12	-.19	-.32*	.07	.00	-.18	-.02
4. Age				-	.02	-.10	-.24*	-.23*	-.09	.01	-.06	.06
5. Internalization					-	.67**	.43**	-.26*	.27*	.28*	-.03	.23*
6. Self Evaluation Salience						-	.51**	-.43**	.45**	.24*	.09	.23
7. Motivational Salience							-	.07	.33**	.23	.14	.21
8. Self-Esteem								-	-.18	.09	.11	-.10
9. Physical appearance comparison									-	.62**	.04	.15
10. Physical fitness comparison										-	.01	.03
11. Past exercise motivation											-	.32**
12. Future exercise motivation												-

* $p < 0.05$, ** $p < 0.01$

Table 8

Correlations between Demographic, Psychological, Social Comparison, Exercise Motivation, Appearance Evaluation, and Body Areas Satisfaction after Exercising for Participants with Moderate to Higher Body Dissatisfaction

	1	2	3	4	5	6	7	8	9	10	11	12
1. Appearance Evaluation	-	.80**	-.55**	-.38**	-.25*	-.31**	.20	.57**	-.28*	-.10	.06	.03
2. Body Areas Satisfaction		-	-.56**	-.30**	-.27*	-.31**	-.02	.40**	-.37**	-.12	.12	-.02
3. Body Mass Index			-	.37**	.03	.12	-.19	-.32**	.07	.00	-.18	-.02
4. Age				-	.02	-.10	-.24*	-.23*	-.09	.00	-.06	.06
5. Internalization					-	.67**	.43**	-.26*	.27*	.28*	-.03	.23*
6. Self Evaluation Saliency						-	.51**	-.43**	.45**	.24*	.09	.23
7. Motivational Saliency							-	.07	.33**	.23	.14	.21
8. Self-Esteem								-	-.18	.09	.11	-.10
9. Physical appearance comparison									-	.62**	.04	.15
10. Physical fitness comparison										-	.00	.03
11. Past exercise motivation											-	.32**
12. Future exercise motivation												-

* $p < 0.05$, ** $p < 0.01$

Predicting Appearance Evaluation and Body Areas Satisfaction after Watching

Values for the unstandardized (B), unstandardized standard error (SE B), and standardized beta (β) coefficients for Appearance Evaluation and Body Areas Satisfaction after watching the video are presented in Table 9. In the regression analyses, BMI, age, internalization, Self-Evaluative Salience, self-esteem and physical appearance comparison variables were entered as independent variables.

Under the watching condition, these six variables accounted for 56% of the variance in Appearance Evaluation ($R^2 = .56$). BMI and self-esteem were the only variables with significant beta weights in this regression model (-.341 and .380 respectively). Similarly, these six variables accounted for 58% of the variance in Body Areas Satisfaction ($R^2 = .58$). BMI and physical appearance comparison were the only variables with significant beta weights in this regression model (-.431 and -.350 respectively).

Predicting Appearance Evaluation and Body Areas Satisfaction after Exercising

Values for the unstandardized (B), unstandardized standard error (SE B), and standardized beta (β) coefficients for Appearance Evaluation and Body Areas Satisfaction after exercising to the video are presented in Table 10. In the regression analyses, BMI, age, internalization, Self-Evaluative Salience, self-esteem and physical appearance comparison variables were entered as independent variables.

Under the exercising condition, these six variables accounted for 55% of the variance in Appearance Evaluation ($R^2 = .55$). BMI, self-esteem and physical appearance comparison were the only variables with significant beta weights in this regression model (-.337, .366, and -.210 respectively). These six variables accounted for 50% of the

variance in Body Areas Satisfaction ($R^2 = .50$). BMI and physical appearance comparison were the only significant beta weights in this regression model (-.423 and -.336 respectively).

Table 9

Regression Analysis for Variables Predicting Appearance Evaluation and Body Areas Satisfaction after Watching for Participants with Moderate to Higher Body Dissatisfaction

Variable	Appearance Evaluation		Body Areas Satisfaction			
	B	SE B	B	B	SE B	β
BMI	-.045	.012	-.341*	-.053	.011	-.431*
Age	-.011	.010	-.105	-.015	.009	-.152
Internalization	-.177	.110	-.181	-.185	.100	-.205
Self-Evaluative Salience	.031	.153	.025	.042	.138	.038
Self-Esteem	.725	.199	.380*	.237	.180	.134
Physical appearance comparison	-.118	.078	-.141	-.271	.071	-.350*

Note. $R^2 = .56$ for Appearance Evaluation, $R^2 = .58$ for Body Areas Satisfaction, * $p < .05$

Table 10

Regression Analysis for Variables Predicting Appearance Evaluation and Body Areas Satisfaction after Exercising for Participants with Moderate to Higher Body Dissatisfaction

Variable	Appearance Evaluation			Body Areas Satisfaction		
	B	SE B	B	B	SE B	β
BMI	-.046	.013	-.337*	-.054	.013	-.423*
Age	-.015	.011	-.142	-.017	.011	-.163
Internalization	-.124	.113	-.125	-.128	.112	-.137
Self-Evaluative Salience	.061	.156	.049	-.018	.156	-.015
Self-Esteem	.710	.204	.366*	.134	.203	.074
Physical appearance comparison	-.178	.08	-.210*	-.268	.080	-.336*

Note. $R^2 = .55$ for Appearance Evaluation, $R^2 = .50$ for Body Areas Satisfaction, * $p < .05$

*Participants with Higher Body Dissatisfaction**Group Equivalency at Baseline*

Table 11 displays the descriptive statistics for demographic, baseline psychological, primary (Appearance Evaluation and Body Areas Satisfaction) and secondary outcome (past exercise motivation) variables. Separate one-way ANOVAs were conducted to test for group equivalency for physical activity levels, demographic variables (age, BMI, ethnicity, and occupational status), psychological variables (internalization, investment, and self-esteem) and past exercise motivation, and body satisfaction (Appearance Evaluation and Body Areas Satisfaction) at baseline.

A one-way ANOVA revealed that there were no group differences for strenuous, $F(1, 21) = 1.02, p = .32$, moderate, $F(1, 21) = .594, p = .45$, or mild physical activity $F(1, 21) = .14, p = .71$. There were no group differences for the demographic variables of age, $F(1, 21) = 1.23, p = .27$, BMI, $F(1, 21) = .39, p = .54$, ethnicity, $F(1, 21) = .06, p = .81$ or occupational status $F(1, 21) = 1.75, p = .20$. There were no significant differences between groups for the psychological variables for the General Internalization subscale, $F(1, 20) = .01, p = .93$, Motivational Salience subscale, $F(1, 16) = .65, p = .43$, Rosenberg Self-Esteem Scale $F(1, 21) = 2.12, p = .16$, or past exercise motivation, $F(1, 21) = 0.05, p = 0.82$. However, there were group differences for the Self-Evaluative subscale, $F(1, 16) = 6.88, p = .02$, such that the intervention group was higher for this subscale than the control group. There were no group differences for the body satisfaction variables Appearance Evaluation, $F(1, 21) = .40, p = .54$, and Body Areas Satisfaction, $F(1, 21) = 1.05, p = .32$.

The Self-Evaluative Salience subscale was not entered as a covariate variable in subsequent analyses. According to Tabachnick and Fidell (2007), the variable is only entered as a covariate if it correlates with the outcome measures (body satisfaction), which it does not in this case (Appearance Evaluation $r = .05$, Body Areas Satisfaction $r = .19$).

Table 11

Descriptive Statistics for Demographic, Psychological, and Outcome Variables at Baseline for Participants with Higher Body Dissatisfaction

Variable	Intervention Group ($n = 10$)		Control Group ($n = 12$)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
<i>Demographic</i>				
Age (years)	29.20	11.15	24.67	7.54
BMI (kg/m ²)	27.79	5.18	29.45	6.91
Ethnicity	Caucasian = 7 Other = 3		Caucasian = 9 Other = 3	
Occupation	Undergraduate = 7 Graduate = 1 Other = 2		Undergraduate = 11 Other = 1	
<i>Psychological</i>				
Internalization	3.94	1.01	3.97	0.60
Investment				
Motivational Salience	3.55	0.79	3.28	0.65
Self-Evaluative Salience	4.10	0.45	3.47	0.54
Self-esteem	1.40	0.47	1.66	0.35
<i>Primary outcome</i>				
Appearance Evaluation	1.98	0.31	1.87	0.47
Body Areas Satisfaction	1.82	0.37	1.64	0.43
<i>Secondary outcome</i>				
Past exercise motivation	1.90	1.20	2.00	0.85

Manipulation Check

Exercise intensity. Mean scores of exercise intensity are presented in Table 12 A. A *t*-test was conducted to determine group equivalency for participants' heart rate while exercising to the video. The *t*-test revealed that there were no significant differences for heart rate, $F(1, 21) = .90, p = .77$.

Social comparison. Mean scores for social comparison are presented in Table 12. The average participant reported that they were comparing 'somewhat' for the physical appearance comparison subscale and the physical fitness comparison subscale.

The one-way ANOVA revealed that there were no significant differences between the two groups for the physical appearance comparison subscale, $F(1, 21) = 0.60, p = .45$ or the physical fitness comparison subscale, $F(1, 21) = 0.42, p = .52$.

Table 12

Manipulation Check between Groups for Participants with Higher Body Dissatisfaction

Variable	Intervention ($n = 10$)		Control ($n = 12$)	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Exercise Intensity	110.80	18.04	124.09	18.44
Social Comparison				
Physical appearance comparison	3.25	0.78	2.97	0.90
Physical fitness comparison	3.40	0.72	3.17	0.93

Testing for Order Effects

Results testing for any potential order effects using this sub-sample mimicked those found for the entire sample. Specifically, the ANOVA revealed that there was no

significant interaction between the order and Appearance Evaluation obtained after watching or after exercising to the video, $F(1, 21) = 1.56, p = .23$ nor was there any significant interaction between the order and Body Areas Satisfaction after watching or after exercising to the video, $F(1, 21) = 1.48, p = .24$. Based on these results, it was concluded that there were no order effects occurring, so it was deemed appropriate to combine participants who had been randomized to differing order and proceed with examining the effects of the intervention on body satisfaction at two different behaviours: after watching the video, and after exercising to the video.

Treatment Group Differences in Body Satisfaction after Watching the Video

Table 13 presents descriptive statistics for the primary (Appearance Evaluation and Body Areas Satisfaction) and secondary (future exercise motivation) outcomes for the watching behaviour. To examine hypothesis 1 – that the media literacy intervention material would decrease body dissatisfaction, where this relationship was expected to be strengthened among this higher dissatisfied sample compared to the control group which was expected to demonstrate similar scores to baseline - a separate factorial (treatment group: media literacy intervention vs. attention control) x repeated measures (time: baseline and post-watching video) ANOVA was conducted for both Appearance Evaluation and Body Areas Satisfaction.

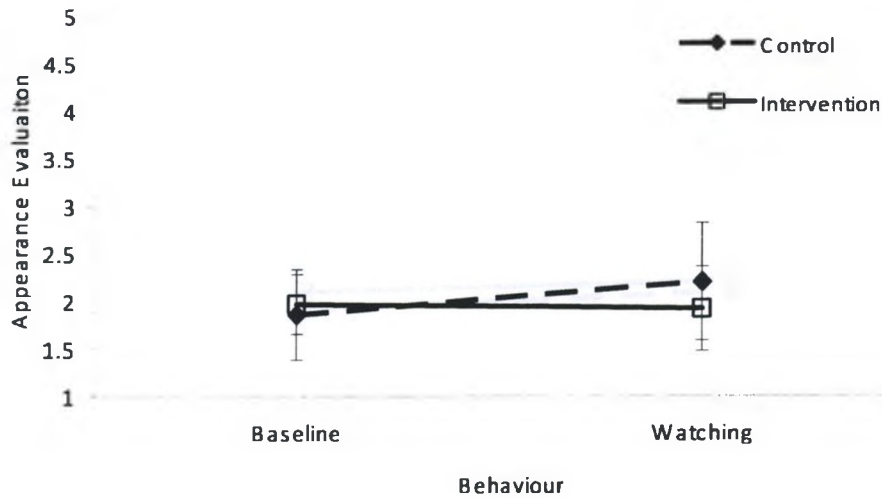
Table 13

Descriptive Statistics for Primary and Secondary Outcomes for Participants with Higher Body Dissatisfaction

Variable	Entire Sample (<i>n</i> = 22)		Intervention (<i>n</i> = 10)		Control (<i>n</i> = 12)	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
Appearance Evaluation						
Baseline	1.92	0.40	1.98	0.31	1.87	0.47
Watching	2.08	0.55	1.93	0.44	2.21	0.61
Exercising	2.10	0.59	2.07	0.42	2.13	0.71
Body Areas Satisfaction						
Baseline	1.72	0.41	1.82	0.37	1.64	0.43
Watching	1.88	0.47	1.94	0.58	1.83	0.36
Exercising	1.88	0.51	2.10	0.59	1.69	0.35
Exercise Motivation						
Future	4.22	1.15	4.00	1.25	4.42	1.08

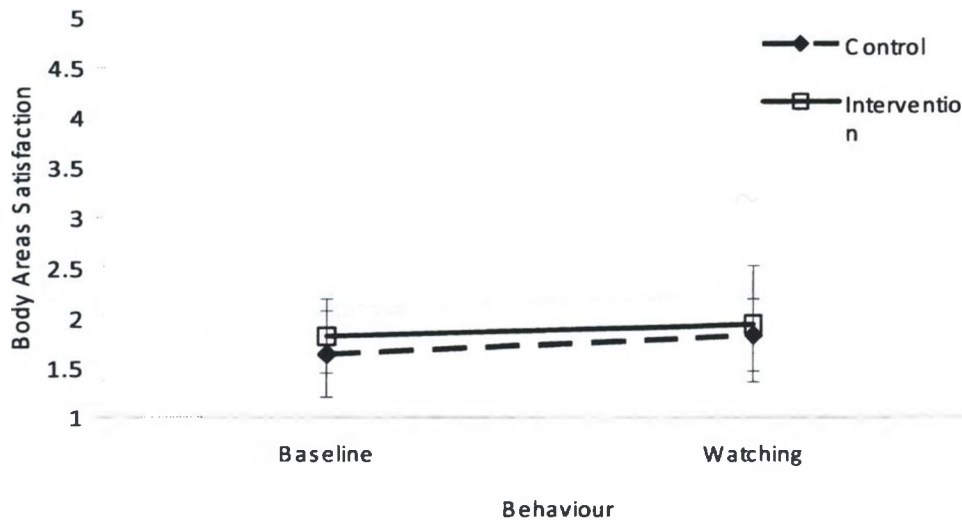
Contrary to the hypothesis, for Appearance Evaluation, there was a significant main effect for time, $F(1, 21) = 5.76, p = .03, \eta^2 = 0.22$ and a significant interaction between treatment condition and time, whereby the attention control group increased to a greater extent compared to those receiving the media literacy intervention, $F(1, 21) = 10.32, p = .01, \eta^2 = 0.34$. This is displayed in Figure 8.

Figure 8. Appearance evaluation scores at baseline and after watching for the treatment groups in participants with higher body dissatisfaction.



For Body Areas Satisfaction, results indicated a significant main effect for time, $F(1, 21) = 5.54, p = .03, \eta^2 = .22$. Contrary to hypothesis 1, however, a significant interaction did not occur between treatment and time, $F(1, 21) = .26, p = .61, \eta^2 = .01$. This is displayed in Figure 9.

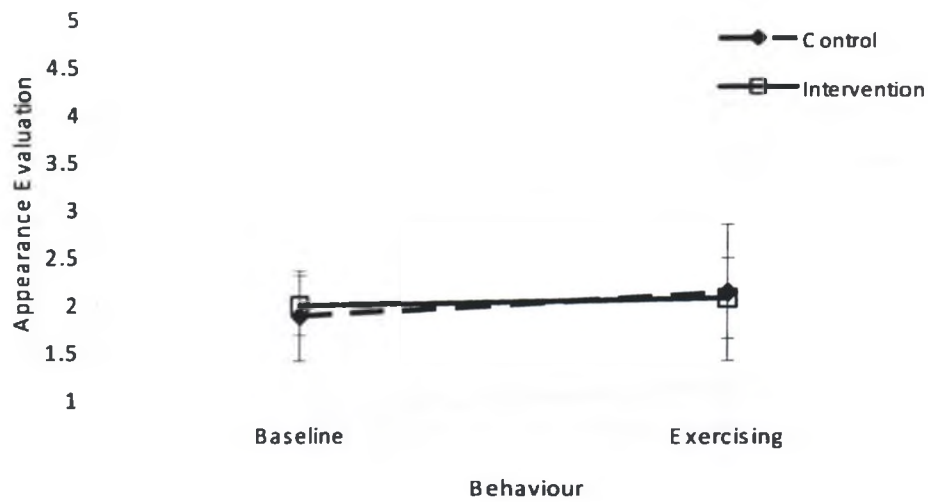
Figure 9. Body areas satisfaction scores at baseline and after watching for the treatment groups in participants with higher body dissatisfaction.



Treatment Group Differences in Body Dissatisfaction after Exercising to the Video

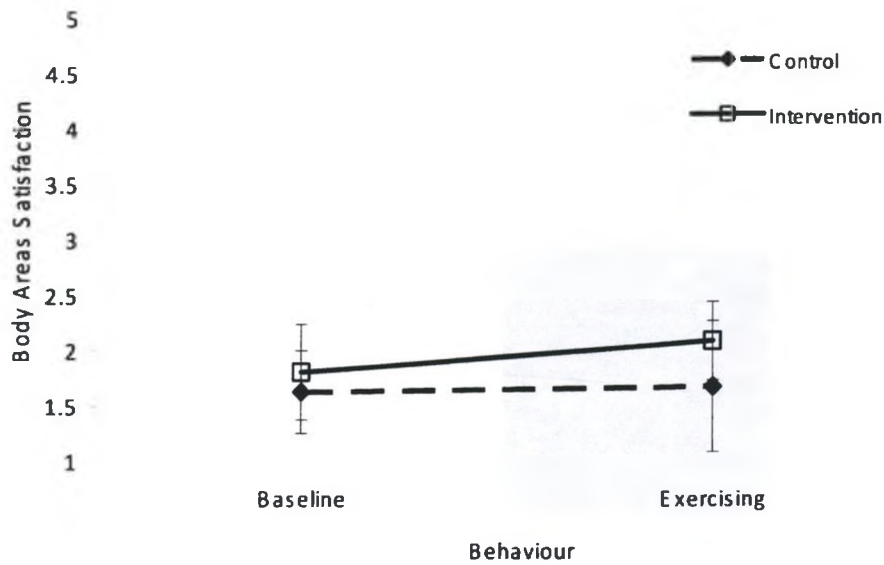
Table 13 presents descriptive statistics for the primary (Appearance Evaluation and Body Areas Satisfaction) outcomes for the exercising behaviour. To examine hypothesis 2 – that the intervention group will have greater body satisfaction compared to the control group after exercising– a separate factorial (treatment group: media literacy intervention vs. attention control) x repeated measures (time: baseline and post-exercising to the video) ANOVA was conducted. For Appearance Evaluation, the ANOVA analysis revealed that a significant main effect for time effect did not occur, $F(1, 21) = 4.01, p = .06, \eta^2 = .17$ and that a significant interaction did not occur between treatment and time, $F(1, 21) = .91, p = .35, \eta^2 = 0.04$. This is displayed in Figure 10.

Figure 10. Appearance evaluation scores at baseline and after exercising for the treatment groups in participants with higher body dissatisfaction.



For Body Areas Satisfaction there was a significant main effect for time, $F(1, 21) = 6.25, p = .02, \eta^2 = .24$, however contrary to the hypothesis there was not a significant interaction between treatment and time, $F(1, 21) = 2.75, p = .11, \eta^2 = .12$. This is displayed in Figure 11.

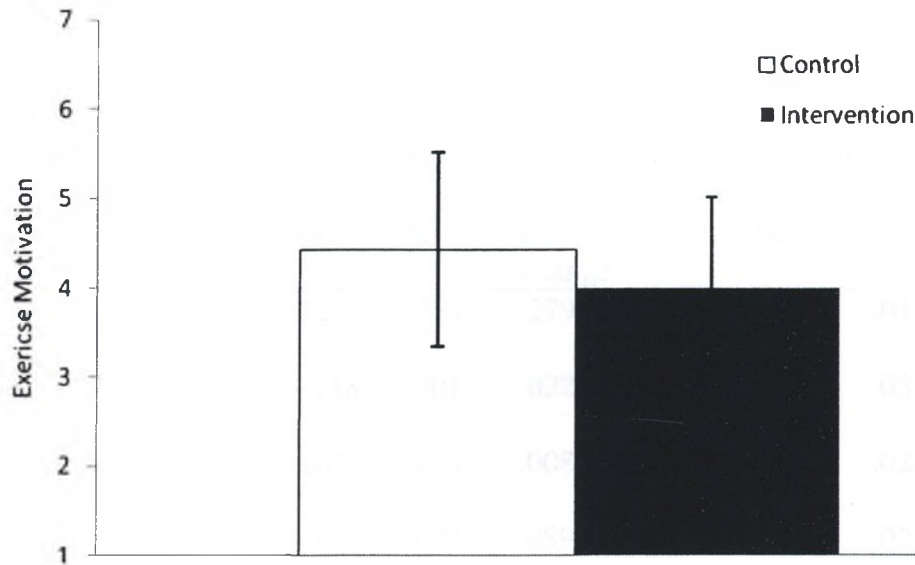
Figure 11. Body areas satisfaction at baseline and after exercising for the treatment groups in participants with higher body dissatisfaction.



Treatment Group Differences in Future Exercise Motivation

To examine hypothesis 3 – that the intervention group will have less future exercise motivation compared to the control group – a one-way ANOVA was conducted. Results did not reveal a significant difference between groups, $F(1, 21) = .70, p = .41$. Figure 12 displays future exercise motivation between groups.

Figure 12. Treatment group differences in future exercise motivation in participants with higher body dissatisfaction.



Moderation

To examine hypothesis 4, testing for moderation for participants with higher body dissatisfaction was replicated in the same manner as in the sample with moderate body dissatisfaction. Results demonstrated that none of the baseline psychological variables moderated the body satisfaction variables. Table 14 displays the moderation results after watching, and Table 15 displays the results after exercising.

Table 14

Potential Moderators for Appearance Evaluation and Body Areas Satisfaction after Watching for Participants with Higher Body Dissatisfaction

Potential Moderator	Watching							
	Appearance Evaluation				Body Areas Satisfaction			
	Beta	R ²	R ² change	<i>p</i>	Beta	R ²	R ² change	<i>p</i>
Self-esteem (SE)	.529	.279	.279	.011	.107	.012	.012	.632
<i>SE x treatment</i>	-.148	.301	.022	.449	.141	.032	.020	.540
Internalization (I)	.162	.008	.008	.696	-.164	.024	.024	.501
<i>I x treatment</i>	-.307	.097	.089	.119	.036	.025	.001	.882
Investment								
Motivational salience (MS)	.638	.232	.232	.050	.257	.054	.054	.371
<i>MS x treatment</i>	-.379	.351	.119	.131	-.061	.057	.003	.834
Self-evaluative salience (SES)	.040	.003	.003	.839	.015	.008	.008	.729
<i>SES x treatment</i>	-.149	.017	.014	.651	.120	.017	.009	.717

Table 15

Potential Moderators for Appearance Evaluation and Body Areas Satisfaction after Exercising for Participants with Higher Body Dissatisfaction

Potential Moderator	Exercising							
	Appearance Evaluation				Body Areas Satisfaction			
	Beta	R ²	R ² change	<i>p</i>	Beta	R ²	R ² change	<i>p</i>
Self-esteem (SE)	.362	.131	.131	.098	-.059	.003	.003	.805
<i>SE x treatment</i>	-.014	.131	.000	.947	.384	.150	.147	.090
Internalization (I)	.148	.018	.018	.561	-.038	.002	.002	.833
<i>I x treatment</i>	-.060	.021	.003	.807	.376	.136	.134	.112
Investment								
Motivational salience (MS)	.541	.232	.232	.050	.158	.088	.088	.247
<i>MS x treatment</i>	-.080	.237	.005	.761	.338	.183	.095	.223
Self-evaluative salience (SES)	-.049	.002	.002	.879	-.101	.031	.031	.486
<i>SES x treatment</i>	.143	.014	.013	.666	.453	.159	.128	.151

Investigating Relationships between Demographic, Psychological Variables, Exercise Motivation, and Social Comparison with Body Dissatisfaction

To examine hypothesis 5, bivariate correlation analyses were first carried out to investigate the relationships between demographic, psychological variables, exercise motivation, and social comparison with body satisfaction scores obtained at baseline, and after watching and exercising to the video.

Table 16 presents baseline correlations among the variables. At baseline, Appearance Evaluation was negatively correlated with BMI and positively correlated

with self-esteem, while Body Areas Satisfaction was negatively correlated with BMI and positively correlated with past exercise motivation. Table 17 presents correlation relationships among the variables under the watching condition. After watching, Appearance Evaluation was negatively correlated with BMI, and positively correlated with self-esteem and Motivational Salience. Similar to baseline, Body Areas Satisfaction was negatively correlated with BMI and positively correlated with past exercise motivation. Table 18 presents correlation relationships among the variables under the exercising condition. After exercising, Appearance Evaluation was negatively correlated with BMI and positively correlated with Motivational Salience, where Body Areas Satisfaction was negatively correlated with BMI.

Predicting Appearance Evaluation and Body Areas Satisfaction after Watching

Values for the unstandardized (B), unstandardized standard error (SE B), and standardized beta (β) coefficients are presented in Table 19 for after watching. Variables that were significantly related to the body satisfaction variables were entered into a regression analysis, with Appearance Evaluation and Body Areas Satisfaction after watching serving as the dependent variables.

Under the watching condition, BMI, self-esteem, and Motivational Salience predicted 52% of the variance ($R^2 = .52$) for Appearance Evaluation. None of these variables had significant beta weights in the regression model (BMI = $-.320$, self-esteem = $.380$, Motivational Salience = $.310$). BMI and past exercise motivation were entered in the regression analysis for Body Areas Satisfaction and predicted 43% of the variance ($R^2 = .43$). These two variables were significant beta weights in the regression model ($-.481$ and $.413$; respectively).

Predicting Appearance Evaluation and Body Areas Satisfaction after Exercising

Values for the unstandardized (B), unstandardized standard error (SE B), and standardized beta (β) coefficients are presented in Table 20 for after exercising. Under the exercising condition, BMI and Motivational Salience were entered into the regression model and predicted 39% of the variance ($R^2 = .39$) for Appearance Evaluation. None of these variables had significant beta weights in the regression model (BMI = $-.428$ and Motivational Salience = $-.339$). BMI was entered into the regression model and predicted 23% of the variance ($R^2 = .23$) for Body Areas Satisfaction. This variable had a significant beta weight in the regression model (BMI = $-.474$).

Table 16

Correlations between Demographic, Psychological, Social Comparison, Exercise Motivation, Appearance Evaluation, and Body Areas Satisfaction at Baseline for Participants with Higher Body Dissatisfaction

	1	2	3	4	5	6	7	8	9	10	11	12
1. Appearance Evaluation	-	.51*	-.60**	-.30	-.01	.05	.47	.50*	.01	.31	.23	-.15
2. Body Areas Satisfaction		-	-.53*	-.32	-.07	.19	.28	.10	-.20	.06	.48*	.06
3. Body Mass Index			-	.47*	-.11	-.03	-.32	-.27	.03	.10	-.06	.10
4. Age				-	-.19	-.47	-.43	-.07	-.06	.25	-.03	.15
5. Internalization					-	.57*	.58*	.022	.31	.12	.15	.44*
6. Self Evaluation Salience						-	.47*	-.46	.370	-.05	-.07	-.01
7. Motivational Salience							-	.18	.05	.05	.05	.03
8. Self-Esteem								-	-.30	.25	.23	-.07
9. Physical appearance comparison									-	.42	-.22	-.14
10. Physical fitness comparison										-	-.04	-.02
11. Past exercise motivation											-	.30
12. Future exercise motivation												-

* $p < 0.05$, ** $p < 0.01$

Table 17

Correlations between Demographic, Psychological, Social Comparison, Exercise Motivation, Appearance Evaluation, and Body Areas Satisfaction after Watching for Participants with Higher Body Dissatisfaction

	1	2	3	4	5	6	7	8	9	10	11	12
1. Appearance Evaluation	-	.39	-.48*	-.31	.09	-.05	.48*	.53*	-.14	.16	.29	.04
2. Body Areas Satisfaction		-	-.51*	-.33	-.16	.09	.17	.11	-.27	-.24	.44*	.01
3. Body Mass Index			-	.43*	-.11	-.03	-.32	-.27	.03	.10	-.06	.10
4. Age				-	-.19	-.43	-.43	-.07	-.06	.25	-.03	.15
5. Internalization					-	.58*	.58*	.02	.31	.12	.15	.44*
6. Self Evaluation Salience						-	.47*	-.46	.37	-.05	-.07	-.01
7. Motivational Salience							-	.18	.05	.05	.05	.03
8. Self-Esteem								-	-.30	.25	.23	-.07
9. Physical appearance comparison									-	.42	-.22	-.14
10. Physical fitness comparison										-	-.04	-.02
11. Past exercise motivation											-	.30
12. Future exercise motivation												-

* $p < 0.05$, ** $p < 0.01$

Table 18

Correlations between Demographic, Psychological, Social Comparison, Exercise Motivation, Appearance Evaluation, and Body Areas Satisfaction after Exercising For Participants with Higher Body Dissatisfaction

	1	2	3	4	5	6	7	8	9	10	11	12
1. Appearance Evaluation	-	.46*	-.51*	-.32	.14	.04	.48*	.36	-.27	.06	.31	.36
2. Body Areas Satisfaction		-	-.47*	-.05	.05	.18	.23	-.06	-.25	-.06	.41	.17
3. Body Mass Index			-	.43*	-.11	-.03	-.32	-.27	.03	.10	-.06	.10
4. Age				-	-.19	-.43	-.43	-.07	-.06	.25	-.03	.15
5. Internalization					-	.58*	.58*	.02	.31	.12	.15	.44*
6. Self Evaluation Saliency						-	.47*	-.46	.37	-.05	-.07	-.01
7. Motivational Saliency							-	.18	.05	.05	.05	.03
8. Self-Esteem								-	-.30	.25	.23	-.07
9. Physical appearance comparison									-	.42	-.22	-.14
10. Physical fitness comparison										-	-.04	-.02
11. Pre-intervention exercise motivation											-	.30
12. Post-intervention exercise motivation												-

* $p < 0.05$, ** $p < 0.01$

Table 19

Regression Analysis for Variables Predicting Appearance Evaluation and Body Areas Satisfaction after Watching for Participants with Higher Body Dissatisfaction

Variable	Appearance Evaluation			Body Areas Satisfaction		
	B	SE B	β	B	SE B	β
Body Mass Index	-.025	.016	-.320	-.036	.013	-.481*
Self-Esteem	.509	.261	.380	–	–	–
Motivational Salience	.232	.148	.310	–	–	–
Past exercise motivation	–	–	–	.191	.080	.413*

Note. $R^2 = .52$ for Appearance Evaluation, $R^2 = .43$ for Body Areas Satisfaction, * $p < .05$

Table 20

Regression Analysis for Variables Predicting Appearance Evaluation and Body Areas Satisfaction after Exercising for Participants with Higher Body Dissatisfaction

Variable	Appearance Evaluation			Body Areas Satisfaction		
	B	SE B	β	B	SE B	β
Body Mass Index	-.038	.019	-.428	-.039	.016	-.474*
Motivational Salience	.289	.181	-.339	–	–	–

Note. $R^2 = .39$ for Appearance Evaluation, $R^2 = .23$ for Body Areas Satisfaction, * $p < .05$

Discussion

Participants with Moderate to Higher Body Dissatisfaction

Watching Behaviour

Contrary to the first hypothesis, Appearance Evaluation and Body Areas Satisfaction scores revealed increases in body satisfaction from baseline irrespective of group assignment. It appears that watching the exercise video bolstered body satisfaction among participants.

In contrast, empirical evidence has established a common finding that negative body dissatisfaction occurs upon media exposure; however, the present results do not support this. Although less common, some previous literature has also produced contradictory results such as those found here (Henderson-King & Henderson-King, 1997; Joshi, Herman, & Polivy, 2004; Mills, Polivy, Herman, & Tiggemann, 2002; Myers & Biocca, 1992). It is possible that individuals in these studies experienced a self-enhancement effect, where watching the video brought about positive feelings in regard to their physique. In terms of media images, self-enhancement is proposed to arise from an individual fantasizing that they are the thin desired ideal that they see in front of them (Myers & Biocca, 1992). Myers and Biocca (1992) describe body image as elastic, where upon viewing a media image, individuals' body image migrates to their ideal, and they perceive their bodies as thinner. However, this feeling is not anticipated to last. Instead, the reduction in body dissatisfaction is expected to subside and normalize to previous levels shortly after exposure to media images.

Other explanations for self-enhancement effects in media exposure studies have been put forth. For example, Joshi et al. (2004) posited that thin images might be

perceived as a threat to body image, and subsequently, individuals overcompensate as a means of preserving their global self-worth.

Exercise Behaviour

Contrary to the second hypothesis, a main effect for time occurred for both Appearance Evaluation and Body Areas Satisfaction, demonstrating the behaviour of exercising, rather than participants' assigned groups, increased body satisfaction. In the domain of exercise and body image research, these results are not surprising. There is considerable literature to support that regular exercise improves body image (Hausenblas & Fallon, 2006). Perhaps the acute bout of exercise participants engaged in this study improved body satisfaction. Hypothesis 2 further speculated that if participants demonstrated no change in their body satisfaction from baseline to exercising, it could be attributed to participants' focus on the exercise as opposed to body image concerns. It is possible that this is partially true – participants' cognitions could have been focused on engaging in unfamiliar movements, and less concerned about how they looked. However, exercising to the video extended beyond diminishing body image concerns, and improved how participants felt about their bodies.

Exercise Motivation

Our secondary goals and objectives addressed whether group condition assignment (media literacy or attention control) would influence future exercise motivation. In support of hypothesis 3, future exercise motivation in the media literacy intervention group was significantly lower compared to the control group. It is speculated that participants in the control group “bought into” to the unrealistic messages and

images portrayed in the video, and figured that with continued exercise, they would attain their ideal figure, in turn increasing their exercise motivation.

Moderation, Correlation, and Regression

Previous literature has supported dispositional characteristics, such as self-esteem, internalization of sociocultural ideals, and investment in one's appearance to moderate participants' reactions to media images (Cattarin et al., 2000; Groesz et al., 2002; Heinberg & Thompson, 1995). Contrary to hypothesis 4, none of these baseline psychological variables moderated results. In this study, these individual difference variables were to specify for whom the treatment works. It can be speculated from our findings that these moderators were overridden by the behaviour (i.e., watching and exercising to the video).

In support of hypothesis 5, correlation analyses, however, did demonstrate that self-esteem, internalization, Self-Evaluative Salience, BMI, age, and physical appearance comparison variables were related to Appearance Evaluation and Body Areas Satisfaction after watching and exercising to the video. With the exception of age, all relationships supported previous findings (Grabe et al., 2008; Groesz et al., 2002; Levine & Murnen, 2009). Body dissatisfaction scores were associated with greater BMI, internalization of sociocultural ideals, Self-Evaluation Salience, investment in their appearance, comparison to the instructors' physique and appearance, and lower self-esteem. Previous literature has reported that body dissatisfaction is most common among adolescents and young adult women, however, in this sample, body satisfaction scores were inversely related to age.

These six variables (self-esteem, internalization, Self-Evaluative Salience, BMI, age, and physical appearance comparison) accounted for a large amount in variance in Appearance Evaluation and Body Areas Satisfaction scores. After watching the fitness video, BMI and self-esteem significantly predicted Appearance Evaluation, whereas BMI and physical appearance comparison significantly predicted Body Areas Satisfaction. After exercising, BMI, self-esteem, and physical appearance comparison predicted Appearance Evaluation, and similarly, BMI and physical appearance comparison predicted Body Areas Satisfaction. Previous literature has demonstrated BMI to greatly influence body image (Stormer & Thompson, 1996; Tiggemann & McGill, 2004), therefore, it is not surprising that in this sample, BMI predicted these body image subscale scores. With the exception of Appearance Evaluation scores after watching, physical appearance comparison predicted Appearance Evaluation scores after exercising and Body Areas Satisfaction scores both after watching and exercising to the fitness video. Studies have revealed social comparison to relate to and mediate body satisfaction (Tiggemann & McGill, 2004; Tiggemann & Slater, 2004). The results demonstrating that physical appearance comparison with the exercise video instructor predicted participants' body dissatisfaction aligns with this growing body of literature.

Discussion

Participants with Higher Body Dissatisfaction

Watching Behaviour

For Appearance Evaluation, participants in the control group experienced a significant increase in their body satisfaction compared to the intervention group. This was contrary to our hypothesis, where it was expected that the intervention group would experience an increase in body satisfaction scores due to exposure to the media literacy content compared to the control group. While speculative in nature, it is possible that the media literacy instilled a realistic attitude in this highly dissatisfied sample of women towards the media in the video. Instead of engaging in an unrealistic fantasy and attempting to assimilate to the exercise video instructor, the intervention may have acted in a protective manner and buffered against the potentially damaging effects of viewing the instructor in the exercise video.

It is surprising that there was an increase in Appearance Evaluation scores in the control group in individuals with a high degree of body dissatisfaction. Although speculating, it is possible that participants in the control group, likewise to the larger sample of participants who reported a moderate to higher dissatisfaction, experienced a self-enhancement effect. In a study comparing restrained and unrestrained eaters, Mills and colleagues (2002) found that compared to unrestrained eaters, restrained eaters (e.g., dieting for weight purposes) reported greater appearance self-esteem upon viewing ads of thin physiques. Interestingly, even though the restrained eaters weighed more than the unrestrained eaters, both groups reported feeling similar to the images in the advertisements. Mills and colleagues (2002) contended that restrained eaters engaged in

self-enhancement, where not only do they desire to be thinner, they believe that they are thinner after viewing the ads. This highly dissatisfied sample in the current study could be similar to the restrained eaters in Mills and colleagues' sample.

Interestingly, the results of body satisfaction measures did not parallel one another after watching. Body Areas Satisfaction scores revealed that regardless of group assignment, participants reported an increase in their satisfaction with specific body parts or areas. One possible explanation as to why Appearance Evaluation and Body Areas Satisfaction measures produced conflicting results is because participants' self-enhancement was stronger for body parts compared to overall appearance. Tiggemann and McGill (2004) found that viewing body part images produced greater body dissatisfaction among participants. This may appear contradictory to the present study findings, where watching body part shots in the video (e.g., shots focused in on only the abdominal region) increased body satisfaction. However, if this may have brought about self-enhancement among participants, it could be due to their greater dissatisfaction they feel for specific body parts compared to their overall appearance, thus overriding any realistic effects the media literacy may have instilled. Research has shown that individuals' perceptions and evaluations to specific aspects of one's body (i.e., Body Areas Satisfaction) is different than perceiving and evaluating one's overall appearance (i.e., Appearance Evaluation; Cash, 2002), and is relevant in this sample.

Exercise Behaviour

Hypothesis 2 expected to observe the intervention group to experience an increase in body satisfaction scores after exercising to the video, and the control group to experience a decrease in body satisfaction scores after exercising to the video. It was also

thought that the act of exercising would attenuate the focus on body satisfaction, and perhaps act as a buffer to body image concerns. Participants, irrespective of their group assignment, improved their body satisfaction scores for Body Areas Satisfaction.

Appearance Evaluation did not show a main effect for time, however with a p value of .06 and a large effect size ($\eta^2 = .17$), additional participants may have demonstrated that overall, all participants increased their body satisfaction after exercising. Extensive literature supports a general consensus that regular exercise improves body image (Hausenblas & Fallon, 2006). In this instance, the acute bout of exercise reflected those findings. Interestingly, the non-significant interaction for Body Areas Satisfaction is close to a large effect size ($\eta^2 = .12$). If sufficiently powered, the intervention group may have exhibited significantly greater body satisfaction scores compared to the control group. The combination of exercising and the media literacy could account for this moderate to large effect size, although it is possible that exercise alone brought about positive feelings about one's body. With that positive affect, it may have counteracted or overridden self-enhancement, and allowed for the benefits of the intervention to come through.

Exercise Motivation

Contrary to hypothesis 3, motivation did not differ among treatment groups. This is not surprising given a highly dissatisfied sample may have equal motivations to engage in future exercise behaviour for body image reasons, and this may not change after briefly reading one media literacy material or unrelated material.

Moderation, Correlation and Regression

Similar to the participants with moderate body dissatisfaction, and contrary to hypotheses four, none of the baseline psychological variables were found to moderate the

effect treatment had on body dissatisfaction. It seems that the potential moderators were overridden by the behaviour (i.e., watching and exercising to the video).

In support of hypothesis 5, Appearance Evaluation was negatively associated with BMI, and positively associated with self-esteem and Motivational Salience after watching. Body Areas Satisfaction was negatively associated with BMI and positively associated with past exercise motivation. BMI and past exercise motivation significantly predicted Body Areas Satisfaction after watching the video. Interestingly, these findings show that poor past exercise motivation predicted poor Body Areas Satisfaction. This highlights that exercise motivation can influence the satisfaction that one has with particular body parts. Perhaps exercise has a strong influence on this type of body satisfaction measurement. Furthermore, an insufficient sample may be responsible for the lack of other significant predictors of body satisfaction given the large beta coefficients.

After exercising to the video, Appearance Evaluation was negatively associated with BMI and positively associated with Motivational Salience, whereas Body Areas Satisfaction was only negatively associated with BMI. Again, BMI appears to be an important correlate of body dissatisfaction, and a predictor of Body Areas Satisfaction (Stormer & Thompson, 1996; Tiggemann & McGill, 2004). To note, these participants overall were heavier than participants with moderate dissatisfaction, which could also explain why these participants are highly dissatisfied. Motivational Salience - which assesses grooming-like behaviours – aligns more so with one's overall appearance in this sample as opposed to body parts. However, given that this is a highly dissatisfied sample, this relationship likely implies that Motivational Salience decreases with greater body dissatisfaction. This finding appears to be counterintuitive, as one may think that as

body dissatisfaction increases, efforts to look physically attractive increase. It could be the case that individuals with high body dissatisfaction feel hopeless, and hence spend less effort on attempting to change how they look. Overall, this finding is unexpected in body image-investment literature, since the Self-Evaluative Salience subscale is expected to align with body dissatisfaction (Cash et al., 2004).

CHAPTER 3

Conclusion

General Findings

Differences and Similarities among Participants with Moderate to Higher and Participants with Higher Body Dissatisfaction

Given the present findings among participants with moderate to higher body dissatisfaction and participants with higher body dissatisfaction, addressing differences and similarities between these two groups of participants warrants further discussion. Namely, the general trend for the results after watching and exercising to the video were significant increases in body satisfaction regardless of group assignment. Overall, self-enhancement was proposed as the underlying mechanism to explain these findings. Interestingly, among the higher dissatisfied participants, the effect sizes were much greater, indicating that engaging in either watching or exercising had a greater impact on their body satisfaction compared to participants with a moderate to higher degree of dissatisfaction. More so, when focusing on those with moderate to higher dissatisfaction, Appearance Evaluation revealed large effect sizes for watching and exercising, perhaps indicating that this measure is a much better indicator of body satisfaction for this type of sample. However, in the higher dissatisfied sample, both measures perhaps congruently assessed body dissatisfaction. While group assignment did not appear to have a large impact in this study, there was one significant interaction and due to a large effect size, another interaction could have possibly resulted had there been a larger sample among those with higher body dissatisfaction. Among these participants it is possible that the media literacy intervention produced a buffering effect for Appearance Evaluation, and a positive effect for Body Areas Satisfaction.

It was expected that the psychological variables would moderate the relationship between treatment and the behaviour, given that main effects for time were found. As previously mentioned, it is likely that the behaviour of either watching or exercising could have overridden the potential moderators.

With respect to the relationships among the variables of interest, our findings with participants with moderate dissatisfaction parallel previous studies that have used similar samples (Cattarin et al., 2000; Groesz et al., 2002; Heinberg & Thompson, 1995). That is, internalization, Self-Evaluative Saliency, age, and physical appearance comparison are commonly found to be related to body dissatisfaction. Motivational Saliency and past exercise motivation were related to participants with higher body dissatisfaction. Given these unexpected relationships, a closer examination of these variables among a similar sample is needed to support these findings. Similarly, BMI and self-esteem were related to body satisfaction in both samples. However due to the small sample size of participants with higher body dissatisfaction, one can only speculate that BMI predicted body dissatisfaction as it did in the larger sample. Interestingly, physical appearance comparison with the exercise video instructor predicted body satisfaction among participants with moderate to higher dissatisfaction, yet was not associated with body dissatisfaction among the higher dissatisfied sample.

The manipulation check verified that both groups did engage in social comparison. However, looking at these social comparison values in conjunction with the study results, it appears that body dissatisfaction in moderate to higher dissatisfied individuals may be more likely to be affected by social comparison, whereas individuals who are highly dissatisfied, may still engage in social comparison, but could be more

likely to demonstrate self-enhancement. This might contribute to the growing literature on dispositional characteristics predicting body dissatisfaction. The manipulation check for social comparison did not indicate whether participants engaged in an upward or downward manner, or if a particular behaviour (watching the video or exercising to the video) induced more comparison. It is possible that women who were highly dissatisfied engaged in upward comparison, where feelings of assimilation to the instructor was inspirational and bolstered their body satisfaction.

Exercise motivation also demonstrated group differences. Among participants with moderate to higher body dissatisfaction, future exercise motivation was significantly higher in the control group compared to the intervention group. It is possible that, for some participants, the act of watching and exercising to a fitness video was novel and enjoyable. Recall that the participants in this study were infrequent exercisers, and as such, motivations to exercise in the future may be heightened after a first exposure with no exercise barriers to overcome. Conversely, given the sample, participants' motivation may be due to the notion that exercise behaviour is associated with losing weight, or a combination of these possibilities. This was alluded to by the higher dissatisfied participants where both groups were not significantly different from one another, yet had comparably moderate future exercise motivation.

Although speculative, these study results may simply demonstrate that participants who are dissatisfied with their body are vulnerable to acute changes in their perceptions, where images temporarily fuel their satisfaction. Unfortunately, the reality that their bodies do not and likely will never look like the fitness instructor in the exercise video may lead to continued or a further decrease in body satisfaction scores. Thus, the

increases in body satisfaction found within participants of this study should be interpreted with caution. The actual behaviour of exercising is thought to have produced a positive body satisfaction reaction among these participants. Some researchers have concluded that engaging in this healthy behaviour is a positive action (Field et al., 1999; Hausenblas & Fallon, 2006). However, other researchers have argued that having high initial expectations to lose weight may backfire, (Rothman, 2000), and that appearance-related reasons for exercise are not associated with long-term exercise maintenance (Crawford & Eklund, 1994). Similar to watching the fitness video, if women are exercising because they desire an ideal body, or are under the pretence that they can attain a physique that is simply not unattainable for most of them, their exercise motives may in fact lead to further body dissatisfaction, and they may experience feelings of frustration, anger, and depression. Overall, exercising for the purpose of attaining an unrealistic and unattainable figure is not healthy.

Media Literacy

Support for the efficacy of the media literacy intervention used in the present study is limited. The significant increase in Appearance Evaluation found in the control group after watching the fitness video could be inferred that in the absence of the media literacy, participants experienced a “fantasy effect”. While the intervention group did not experience an increase in their Appearance Evaluation, the media literacy might have prevented participants from engaging in such unrealistic fantasies. Perhaps if the intervention had additional content that tailored to specific body parts or areas, or was presented in a different way, these effects might have been exhibited in the Body Areas Satisfaction subscale as well.

Theoretical Implications

These findings present insight into the complexities of body image research. For the most part, this study highlighted the potentiality of the self-enhancement effect occurring among women who experience body dissatisfaction, more so among highly dissatisfied women. More research in self-enhancement theory could highlight another important aspect of body image research not predominately established.

The effects of an acute bout of exercise on increasing body image is not as greatly established compared to regular exercising. This study adds to this growing body of literature demonstrating that a short bout of exercise positively influences participants' body satisfaction. However, as discussed previously, this finding should be interpreted cautiously as this may not be healthy for women's well-being if the reasons behind the temporary increase in body satisfaction are due to motives to attain an unrealistic figure. Lastly, the social comparison manipulation check contributes to theory where participants compared themselves to the instructor. More so, physical appearance comparison with the instructor predicts Body Areas Satisfaction.

Limitations

There are several limitations in this study. First, the sample size in the sub-sample was extremely small, and perhaps with more participants, results could have highlighted similarities and differences between participants with moderate to higher body dissatisfaction and participants with higher body dissatisfaction with greater certainty. Examining data from the online survey used for pre-screening did indicate that women scoring 50% or less on Appearance Evaluation and Body Areas Satisfaction are prevalent, however, were less willing to complete Part II of the study.

Second, the pre-determined cut-off scores for Appearance evaluation and Body Areas Satisfaction was not based on previous literature cut-off scores, as there were no previous reports suggesting suitable criteria for determining body dissatisfaction. This could have affected the present study findings. Third, in laboratory settings, some researchers have recommended the use of state variables, such as visual analog scales or the Body Image States Scale (BISS; Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002) to capture short-term effects or changes in body satisfaction. However, given that baseline body satisfaction data were collected through an online survey in an uncontrolled setting, using a state variable in that circumstance was not ideal since they are recommended for laboratory use. More so, had trait variables been employed in the online survey, and state variables employed in the laboratory, there would be different measures attempting to measure body satisfaction throughout the study.

Another limitation of the present study was that a modified version of Posavac and colleagues' (2001) original media literacy intervention was used. It is possible that this modified version was not as effective at influencing body image in a positive manner as the original version. Perhaps tailoring some of the content to exercise video instructors was not effective, and possibly had the original content been utilized, participants may have responded differently. Ideally, this modified version should have been piloted on women with a higher degree of body dissatisfaction in attempts to generate a more efficacious media literacy intervention for the present study. Finally, it is not known whether certain aspects of the video affected results, such as the appearance of the instructor, her verbal commentary, the type of exercises she did, or the long-term effects with repeated exposure.

Future Directions

There are several avenues for future research in the area of exercise and body dissatisfaction. Given the small, yet growing literature on self-enhancement theory, future studies should assess precise mechanisms and effects of this theory and establish further empirical evidence. This would add to the complexities of exposure and responses to media images, especially on women who are most dissatisfied with their body. In addition to this, not only assessing if participants engaged in social comparison, but assessing whether they compared upward or downward would contribute to this theory in the context of body image. Understanding more about social comparison theory could also widen our knowledge of the self-enhancement theory, and their possible interactions.

Further examination of media literacy interventions and different modalities to develop efficacious interventions are fruitful avenues of research. Lastly, future studies can continue to examine the effects of watching and working-out to an exercise video. Asking participants their thoughts and experiences in the form of open-ended questions during such an experiment could provide valuable insight and guide future theoretical research.

General Conclusion

To conclude, this experiment did not reveal findings to support what has been typically found in body image and media literature. Usually, among adolescent or young women, increased body dissatisfaction occurs following exposure to media images. This study compared a sample of women with moderate to higher body dissatisfaction with a sub-sample of women with higher levels of body dissatisfaction only. For the most part, participants who received media literacy or attention control reading materials,

experienced an increase in body satisfaction from baseline levels following watching and exercising to a fitness video. Self-enhancement theory may help to explain this surprising finding. Participants may have assimilated their physique to the instructor's, where they may have momentarily fantasized that they were indeed the ideal body they desired.

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Appendix A: Media Literacy Intervention

The following article is going to discuss the tendency for women to feel bad when they compare themselves with exercise video instructors. Exercise video instructors skin seems perfect, it is evenly toned and free of blemishes. Instructors' bodies seem perfect, they do not have fat, bulges, or problem areas. 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 bodies. 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 North America wish that they were thinner.

Let us start by giving you a quick test. Look at this exercise video instructor:



When is the last time you saw someone who looked liked this? On the bus, in 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. Only women who are extremely underweight are selected to appear in magazines like *Fitness* or *Prevention*. Exercise video instructors are worked on by professional makeup artists and hairstylists for many hours. Expert makeup artists use their skills to create defined cheekbones and exotic eyes and to hide blemishes. Yes, these women have blemishes, dark circles under their eyes, and unevenly toned skin. They are often covered in makeup from head to toe.

Lighting effects are used to accentuate the instructor's assets and downplay her flaws. Then, literally hundreds of pictures are taken, but only the best picture is selected to be printed on an exercise video cover. 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.

This explains why you never see someone like this walking down the street:



This look of perfected beauty only comes after hours of work. In fact, if you were to see this instructor walking down the street today, you probably would not think that she was a professional exercise instructor because in real life her body is 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 which accentuate their positive characteristics and hide their flaws:



For example, when modeling exercise attire, instructors rarely, if ever, reveal their thighs from the front because the front of the thigh is an area which tends to be flabby. Instead, instructors will often pose slightly 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 coordinated to hide problem areas. There are other deceiving techniques which also make instructors' bodies appear perfect. Usually their stomachs are stretched out because the instructor is sucking in her stomach very hard.

In review, the flawless image of exercise video instructors 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 exercise video instructors with these images of flawless beauty on video covers, magazines and television. These images are everywhere! Is it any wonder most women are dissatisfied with their bodies and desperately wish they could lose some weight?

Besides the fact that images of female attractiveness in the media are unrealistic, another reason women should not compare themselves with exercise video instructors is that being as thin as these instructors is not possible for the majority of women.

The media have selected one particular body type for women, thinness, and presents thin instructors 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 than our society is currently obsessed with thinness? Women are often left feeling like they need to be thin in order to be attractive.

Although the media make it seem as though all women are thin by showing only thin exercise video instructors, this is far from the truth. Only women who are extremely below normal weight are selected to appear in magazines like *Fitness and Prevention*. How many women do you know who are as thin as the women in exercise magazines? Chances are the majority of your friends are not THAT thin. In fact, it has often been said that the only women who are as thin as these exercise instructors are the instructors themselves.

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 heredity 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.

As long as you are eating healthy (e.g., following Canada's Health Food Guide and physician recommendations) and exercise, what you weigh is what you are meant to weigh. If you think about it, women with blue eyes do not compare themselves to women with green eyes and then hate themselves because they do not have green eyes. Women do not do this because they realize that genetics determines their eye color and there is nothing they can do to change it. It is the same way with body weight. Women should not compare their bodies with other women's bodies because everyone's weight is

largely determined by genetics, and partly determined by lifestyle choices described above. It is crazy to think that all women should or could have the same body type. The media, however, display thin exercise video instructors on the video covers, internet, television, magazines, and advertisements. These images are everywhere! Is it not surprising that 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 exercise video instructors. For most women, being extremely thin is unnatural and requires drastic dieting and excessive exercise.

If being thin requires you to 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, dieters are likely to become moody and often feel depressed.

In closing, question what you see in the media. When you see images of thin exercise instructors, keep in mind that the majority of women are much heavier than the instructors who are artificially thin because of extreme and unhealthy dieting and exercising. In fact, being extremely thin is unnatural for most women.

Don't let the media fool you into believing that you need to be thin in order to be attractive. Women have been accepting this message far too long. As a result most women are unhappy with their own bodies. Challenge those messages that the media sends you with the information that has been shared with you today.

Appendix B: Attention Control

Alcohol: It's Effect on Women

The following article will discuss the effects alcohol has on individuals, particularly in women. This article will cover its physical effects as well as some strategies to reduce your risk of negative alcohol-related situations.

Women's Bodies & Alcohol

Women's bodies are more vulnerable to harm from alcohol. When it comes to alcohol consumption, men and women are anything but equal, and women are particularly vulnerable to the physical effects of alcohol.

- Lower body weight and less water in the body mean women cannot safely consume the same amount of alcohol as men.
- Women drinkers develop liver cancer and damage to their brain structure after fewer years of heavy drinking than men.
- Drinking during adolescence and the young adult years can dramatically compromise bone quality and may increase risk for osteoporosis.
- Women with alcohol problems can have a variety of sexual and reproductive health problems.
- Drinking during pregnancy can negatively impact fetal brain development, growth, physical appearance, learning and intelligence.
- Drinking during lactation exposes a breastfed baby to alcohol and can cause deficiencies in infant nutrition, growth, motor development, early learning and behaviour.

With more at stake than men, women in general gain more by drinking less or not at all.

Health Effects of Alcohol

Your liver

- Because the liver receives blood directly from the intestines, it takes the brunt of high alcohol concentrations. Heavy alcohol consumption can lead to two

serious types of liver injury: *hepatic inflammation* (alcohol hepatitis) and *progressive liver scarring* (fibrosis or cirrhosis).

- Women are more at risk to serious alcohol-related liver injury; they develop cirrhosis at a lower dose of alcohol than men do.
- Heavy drinkers are 3 times more likely to develop liver cancer than non-drinkers.

Your throat, stomach, and intestines

- Alcohol is a cause of long-term throat inflammation that sometimes leads to cancer. Inflammation occurs in part because alcohol reduces contraction of the smooth muscle in the lower throat.
- People who drink more than 21 drinks per week have almost a ten-fold higher risk of throat cancer than those who consume fewer than 7 drinks per week.
- Mouth cancers are six times more common in heavy alcohol users than in non-alcohol users.

Your pancreas

- The pancreas is a gland behind your stomach that releases chemicals important for digesting food. Heavy alcohol use can lead to long-term pancreatic inflammation, weakening, and scarring.
- Alcohol can also cause acute pancreatitis, a severe and very painful inflammation of the pancreas.

Your heart and circulatory system

- The potential health benefits of moderate drinking (up to 2 drinks per occasion) do not apply to younger people, whose risk for heart disease is ordinarily very low.
- Long-term drinking of more than four drinks per occasion has been linked to a variety of damaging effects on the heart and circulatory system.

Your brain

- Alcohol can cause direct or indirect damage to nervous tissues. Long-term heavy drinking is linked to brain damage and poor mental functioning.

Your endocrine system (hormone regulation)

- Alcohol interferes with the hormone regulation of a number of bodily activities. Men who have a history of heavy drinking often have lower levels of testosterone and increases in female sex steroids, such as estradiol and estrogen.

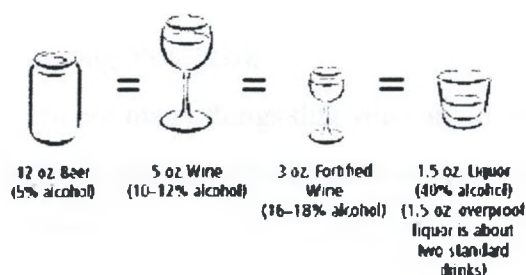
You may have heard that alcohol is good for your heart. What you may not have heard is that:

- The health benefits of alcohol apply mainly to people over the age of 45. A little goes a long way. In most cases, one drink of beer, wine or liquor every other day is enough.
- For most people, more than two drinks a day does more harm than good.
- Women who have more than nine drinks a week have higher rates of cancer and other problems than women who drink less.
- Men who have more than fourteen drinks a week also have higher rates of alcohol-related problems.
- Young people have very low rates of heart disease but very high rates of alcohol-related injuries and death.
- If you want to improve your health, you're better off eating a healthier diet, getting more exercise, and giving up smoking, rather than drinking more or starting to drink.

Low - Risk Drinking Guidelines

- 0 : Zero drinks = lowest risk of an alcohol-related problem
- 2 : No more than 2 standard drinks on any one day
- 9 : Women: up to 9 standard drinks a week

One Standard Drink = 13.6 g of alcohol



- 5 oz/142 mL of wine (12% alcohol)
- 1.5 oz/43 mL of spirits (40% alcohol)
- 12 oz/341 mL of regular strength beer (5% alcohol).

Higher alcohol beers and coolers have more alcohol than one standard drink

- If you don't already drink, don't start for health reasons.
- If you do drink, avoid getting intoxicated or drunk.
- Wait at least one hour between drinks.
- Have something to eat. Drink non-alcoholic beverages, such as water, soft drinks or fruit juice.

The Low-Risk Drinking Guidelines are for people of legal drinking age, the guidelines do not apply if you:

- Have health problems such as liver disease or mental illness.
- Are taking medications such as sedatives, painkillers or sleeping pills.
- Have a personal or family history of drinking problems.
- Have a family history of cancer or other risk factors for cancer.
- Are pregnant, trying to get pregnant or breastfeeding.
- Will be operating vehicles such as cars, trucks, motorcycles, boats, snowmobiles, all-terrain vehicles or bicycles.
- Need to be alert; for example, if you will be operating machinery or working with farm implements or dangerous equipment.
- Will be doing sports or other physical activities where you need to be in control are responsible for the safety of others at work or at home.
- Are told not to drink for legal, medical or other reasons.

Reducing Your Risk

There are many things that you can do to reduce the risk of hurting yourself or others.

Here are some small steps you can take to start making a change:

- Don't drink in any situation where there's a risk of accident or injury — for example, drinking and driving.

- Don't mix alcohol with other drugs — especially other depressants like tranquilizers, barbiturates, heroin or other opioids.
- Try to reduce by one or two days the number of days you drink each week.
- Decide how much you will drink ahead of time and keep yourself to this limit.
- Take a limited amount of money with you if you go out to have a drink.
- Keep track of the amount you drink.
- Alternate alcoholic with non-alcoholic beverages when you drink.
- Choose alcoholic beverages with lower alcohol content.
- If you are out drinking with friends, make sure at least one person stays sober. If that person is driving they should not drink any alcohol at all.

Smart Serve Program

Smart Serve Ontario is a non-profit organization dedicated to developing and delivering responsible server training to all individuals who serve alcohol beverages or work where alcohol beverages are served in the province of Ontario. Smart Serve Ontario is recognized by the Alcohol and Gaming Commission of Ontario as the official delivery agent of the **Smart Serve Responsible Server Training Program** in the province of Ontario.

Smart Serve trains servers to:

- know their responsibilities and obligations under the law
- develop proactive approaches to preventing alcohol-related problems
- recognize the signs of intoxication
- implement intervention strategies for aggressive customers

Reference: Middlesex-London Health Unit

Appendix C: Demographic Questionnaires

Demographics

Please fill out the following information:

Age _____

Ethnicity:

Please indicate: _____

What is your current status at The University of Western Ontario:

Undergraduate student

Graduate student

Employee

What is your highest level of education?

High school

Some post-secondary/Post-secondary degree or diploma

Other _____

Do you suffer from any physical conditions such as a cardiac, respiratory, orthoepedic, or any other condition where physically exerting yourself would not be safe?

Yes

No

Godin Leisure Time Exercise Questionnaire

Considering a 7-day period (a week), how many times on the average do you do the following kinds of exercise for more than 15 minutes during your free time (write on each line the appropriate number)?

a) STRENUOUS EXERCISE (Heart Beats Rapidly)

Times Per Week

(i.e. running, jogging, hockey, football, soccer, squash, basketball, cross-country skiing, judo, roller blading, vigorous swimming, vigorous long distance bicycling)

b) MODERATE EXERCISE (Not Exhausting)

(i.e. fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing)

c) MILD EXERCISE (Minimal Effort)

(i.e. yoga, bowling, easy walking, golf)

Appendix D: Primary Outcomes

Appearance Evaluation Subscale

Please circle the number that best represents how much you agree with each of the following statements. Please answer each statement honestly.

	DEFINITELY DISAGREE	MOSTLY DISAGREE	NEITHER AGREE NOR DISAGREE	MOSTLY AGREE	DEFINITELY AGREE
1. I like my looks just the way they are	1	2	3	4	5
2. My body is sexually appealing	1	2	3	4	5
3. Most people would consider me good looking	1	2	3	4	5
4. I like the way I look without my clothes on	1	2	3	4	5
5. I like the way my clothes fit me	1	2	3	4	5
6. I dislike my physique	1	2	3	4	5
7. I am physically unattractive	1	2	3	4	5

Body Area Satisfaction Subscale

Please use the 1 to 5 scale to indicate how satisfied you are with each of the following areas or aspects of your body. Please answer as honestly as possible:

- 1 = very dissatisfied
- 2 = mostly dissatisfied
- 3 = neither satisfied nor dissatisfied
- 4 = mostly satisfied
- 5 = very satisfied

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Face (facial features, complexion) 2. Hair (colour, thickness, texture) 3. Lower torso (buttocks, hips, thighs, legs) 4. Mid torso (waist, stomach) 5. Upper torso (breasts, shoulders, arms) 6. Muscle tone 7. Weight 8. Height 9. Overall appearance | <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> |
|---|---|

Appendix E: Secondary Outcomes

Past Exercise Motivation

For the item below, please indicate how much you agree with the following statement:

My motivation to exercise in the last week has been:

Very low _____ _____ _____ _____ _____ _____ _____ Very high

 1 2 3 4 5 6 7

Future Exercise Motivation

For the item below, please indicate how much you agree with the following statement:

My motivation to exercise next week is:

Very low _____ Very high
1 2 3 4 5 6 7

Rosenberg Self-Esteem Scale

Below is a list of statements dealing with your general feelings about yourself. Please place a tick in the appropriate box to say whether you strongly agree, agree, disagree, or strongly disagree with the statements below. Please answer honestly.

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

Sociocultural Attitudes Towards Appearance Scale - 3 (SATAQ-3)

Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement.

Definitely Disagree = 1
 Mostly Disagree = 2
 Neither Agree Nor Disagree = 3
 Mostly Agree = 4
 Definitely Agree = 5

1. TV programs are an important source of information about fashion and "being attractive." _____
2. I've felt pressure from TV or magazines to lose weight. _____
3. I do not care if my body looks like the body of people who are on TV. _____
4. I compare my body to the bodies of people who are on TV. _____
5. TV commercials are an important source of information about fashion and "being attractive." _____
6. I do not feel pressure from TV or magazines to look pretty. _____
7. I would like my body to look like the models who appear in magazines. _____
8. I compare my appearance to the appearance of TV and movie stars. _____
9. Music videos on TV are not an important source of information about fashion and "being attractive." _____
10. I've felt pressure from TV and magazines to be thin. _____
11. I would like my body to look like the people who are in movies. _____
12. I do not compare my body to the bodies of people who appear in magazines. _____
13. Magazine articles are not an important source of information about fashion and "being attractive." _____
14. I've felt pressure from TV or magazines to have a perfect body. _____

15. I wish I looked like the models in music videos. _____
16. I compare my appearance to the appearance of people in magazines. _____
17. Magazine advertisements are an important source of information about fashion and "being attractive." _____
18. I've felt pressure from TV or magazines to diet. _____
19. I do not wish to look as athletic as the people in magazines. _____
20. I compare my body to that of people in "good shape." _____
21. Pictures in magazines are an important source of information about fashion and "being attractive." _____
22. I've felt pressure from TV or magazines to exercise. _____
23. I wish I looked as athletic as sports stars. _____
24. I compare my body to that of people who are athletic. _____
25. Movies are an important source of information about fashion and "being attractive." _____
26. I've felt pressure from TV or magazines to change my appearance. _____
27. I do not try to look like the people on TV. _____
28. Movie stars are not an important source of information about fashion and "being attractive." _____
29. Famous people are an important source of information about fashion and "being attractive." _____
30. I try to look like sports athletes. _____

The Appearance Schemas Inventory-Revised

The statements below are beliefs that people may or may not have about their physical appearance and its influence on life. Decide on the extent to which you personally disagree or agree with each statement and enter a number from 1 to 5 in the space on the left. There are no right or wrong answers. Just be truthful about your personal beliefs.

1	2	3	4	5
Strongly Disagree	Mostly Disagree	Neither Agree or Disagree	Mostly Agree	Strongly Agree

- _____ 1. I spend little time on my physical appearance.
- _____ 2. When I see good-looking people, I wonder about how my own looks measure up.
- _____ 3. I try to be as physically attractive as I can be.
- _____ 4. I have never paid much attention to what I look like.
- _____ 5. I seldom compare my appearance to that of other people I see.
- _____ 6. I often check my appearance in a mirror just to make sure I look okay.
- _____ 7. When something makes me feel good or bad about my looks, I tend to dwell on it.
- _____ 8. If I like how I look on a given day, it's easy to feel happy about other things.
- _____ 9. If somebody had a negative reaction to what I look like, it wouldn't bother me.
- _____ 10. When it comes to my physical appearance, I have high standards.
- _____ 11. My physical appearance has had little influence on my life.
- _____ 12. Dressing well is not a priority for me.
- _____ 13. When I meet people for the first time, I wonder what they think about how I look.

_____ 14. In my everyday life, lots of things happen that make me think about what I look like.

_____ 15. If I dislike how I look on a given day, it's hard to feel happy about other things.

_____ 16. I fantasize about what it would be like to be better looking than I am.

_____ 17. Before going out, I make sure that I look as good as I possibly can.

_____ 18. What I look like is an important part of who I am.

_____ 19. By controlling my appearance, I can control many of the social and emotional events in my life.

_____ 20. My appearance is responsible for much of what's happened to me in my life.

Appendix F: Manipulation Check Social Comparison

Please answer each question honestly:

1. How often did you compare your age with that of the instructor?
 - Not at all _____
 - Rarely _____
 - Sometimes _____
 - Often _____
 - All the time _____

2. How often did you compare your waist and stomach with that of the instructor?
 - Not at all _____
 - Rarely _____
 - Sometimes _____
 - Often _____
 - All the time _____

3. How often did you compare your physical fitness with that of the instructor?
 - Not at all _____
 - Rarely _____
 - Sometimes _____
 - Often _____
 - All the time _____

4. How often did you compare your thighs with that of the instructor?
 - Not at all _____
 - Rarely _____
 - Sometimes _____
 - Often _____
 - All the time _____

5. How often did you compare your physical attractiveness with that of the instructor?
 - Not at all _____
 - Rarely _____
 - Sometimes _____
 - Often _____
 - All the time _____

6. How often did you compare your physical strength with that of the instructor?

- Not at all _____
- Rarely _____
- Sometimes _____
- Often _____
- All the time _____

7. How often did you compare your physique with that of the instructor?

- Not at all _____
- Rarely _____
- Sometimes _____
- Often _____
- All the time _____

8. How often did you compare your level of coordination with that of the instructor?

- Not at all _____
- Rarely _____
- Sometimes _____
- Often _____
- All the time _____

9. How often did you compare your back side with that of the instructor?

- Not at all _____
- Rarely _____
- Sometimes _____
- Often _____
- All the time _____

10. How often did you compare your skill at doing aerobics with that of the instructor?

- Not at all _____
- Rarely _____
- Sometimes _____
- Often _____
- All the time _____

11. How often did you compare your hips with that of the instructor?

Not at all

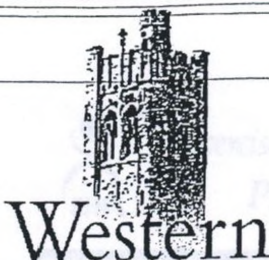
Rarely

Sometimes

Often

All the time

Appendix G: Ethics Approval



Office of Research Ethics

The University of Western Ontario
 Room 00045 Dental Sciences Building, London, ON, Canada N6A 5C1
 Telephone: (519) 661-3036 Fax: (519) 850-2466 Email: ethics@uwo.ca
 Website: www.uwo.ca/research/ethics

Use of Human Subjects - Ethics Approval Notice

Principal Investigator: Dr. H. Prapavessis
Review Number: 15101E **Review Level:** Expedited
Review Date: April 23, 2008

Protocol Title: Exercise Videos and its Effects on Body Dissatisfaction

Department and Institution: Kinesiology, University of Western Ontario

Sponsor:

Ethics Approval Date: June 11, 2008 **Expiry Date:** March 31, 2009

Documents Reviewed and Approved: UWO Protocol, Letter of Information and Consent, Debriefing Letter and Consent. Poster and Gazette Ad. Exercise Video.

Documents Received for Information:

This is to notify you that The University of Western Ontario Research Ethics Board for Health Sciences Research Involving Human Subjects (HSREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the Health Canada/ICH Good Clinical Practice Practices: Consolidated Guidelines; and the applicable laws and regulations of Ontario has reviewed and granted approval to the above referenced study on the approval date noted above. The membership of this REB also complies with the membership requirements for REB's as defined in Division 5 of the Food and Drug Regulations.

The ethics approval for this study shall remain valid until the expiry date noted above assuming timely and acceptable responses to the HSREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the HSREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of monitor, telephone number). Expedited review of minor change(s) in ongoing studies will be considered. Subjects must receive a copy of the signed information/consent documentation.

Investigators must promptly also report to the HSREB:

- a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- b) all adverse and unexpected experiences or events that are both serious and unexpected;
- c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to this office for approval.

Members of the HSREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the HSREB.

Chair of HSREB: Dr. John W. McDonald

Ethics Officer to Contact for Further Information			
<input type="checkbox"/> Jani O'Neil	<input type="checkbox"/> Elizabeth Wolcott	<input checked="" type="checkbox"/> Grace Kelly	<input type="checkbox"/> Denise Grafton

This is an official document. Please retain the original in your files.

cc: ORE File

Appendix H: Letter of Information



*Exercise & Health
Psychology Laboratory*



Western

THE EFFECTS OF EXERCISE VIDEOS ON WOMEN'S EXERCISE MOTIVATION

LETTER OF INFORMATION

Study Researcher/Supervisor: Dr. Harry Prapavessis (BA (Hon), MA, PhD)

Study Researcher Assistant: Joy Elkayam (BSc, MSc Candidate Student)

You are invited to participate in a research study assessing the effects of exercise videos on women's exercise motivation which will take part in two sessions. Please read this letter over carefully to decide whether or not you would like to participate in this study. Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future (academic status or employment etc). Additionally, participation in this study does not waive any of your rights. You may print this letter of information to keep.

Study Purpose

The purpose of this study is to examine women's motivation and behavioural intentions to exercise after watching and exercising to an exercise video.

Participants

To participate, you must meet the following criteria you:

- Must be between the ages of 18-50
- Have not exercised 3 times a week or more for 30 minutes at a moderate-intensity in the past 3 months
- Have not exercised 3 times a week or more for 30 minutes at a vigorous-intensity in the past 3 months
- Do not have a physical condition (orthopedic, cardiac, respiratory, or any type limitation) that advises against or does not allow moderate-intensity exercise

A total of 102 participants will be invited to participate in this study. It is estimated that it will take each participant approximately 20-30 minutes to complete Session I and approximately 45-60 minutes to complete Session II.

Study Procedure

Session I and Session II will take place individually. Session I will take place over the internet on this website, and Session II will take place in a private room in the Exercise and Health Psychology Laboratory, Room 408, in the Health Sciences Building

Session I: Session I will take place over the internet on this webpage (<http://surveysys1.robinhoodtech.com/research/exercisevideos>) where you will be asked to fill out measures about:

- Yourself (demographic information, i.e. age, ethnicity, etc)
- Your current activity levels
- Your opinions on the media
- How you feel about your body
- Your current exercise motivation

The purpose of Session I is to determine baseline measures of participants' opinion on the media and their current motivation and intentions to exercise.

Session II: If randomly selected, (like the flip of a coin) you will be invited into the Exercise and Health Psychology laboratory in the Health Sciences Building. In Session II, you will be placed to one of two groups, where both groups will read different information that relate to females in university. After reading this information, you will be asked to watch an exercise video for five minutes and then fill out measures about:

- Your opinions on the exercise video instructor
- How you feel about your body
- Your intentions to exercise in the future
- Your confidence to perform the movements shown in the exercise video

Following this, you will be asked to exercise to the video for 20 minutes. After, you will be asked to fill out measures about:

- How you feel about your body
- Your current exercise motivation
- Your intentions to exercise in the future
- Your confidence to perform the movements shown in the exercise video

As well, your weight and height will be taken using a standard scale.

Participation in Concurrent Studies

If you are participating in another study at this time, please inform the research assistant to determine if it is appropriate for you to participate in this study.

Benefits and Risks

By participating in this study, the potential to examine motivation and behavioural intentions to exercise among inactive women is enhanced.

There is a small risk of muscle strain or soreness during and after a moderate-intensity workout. If you experience any discomfort, pain or injury while exercising, stop immediately and report to the research assistant who is trained in CPR and First Aid and will assist you. Additionally, you may wish to speak to your doctor before engaging in this activity. There is also a small risk of psychological disturbance from viewing the images of the exercise video instructor if you are sensitive to images emphasizing the female physique. If this occurs, the Student Development Centre (519-661-3031) and Student Health Services (519-661-3771) on campus are available for help.

Confidentiality

All the information provided and collected will be kept in a locked in a filing cabinet in a locked office. Only the supervisor and research assistants will have access to your information. All of the questionnaires and data collected will only have a code on it and will not have your name or any other personal information. This code will be linked to your personal information which will be on a master list to identify you. This master list will be kept separate from the other information you supply in a locked filing cabinet in a locked room. All electronic data will be password protected and again, will only have your code on it. Only research assistants will have access to this. Your name will not be stated in any findings, and only group effects will be reported. Upon the completion of the study, the master list linking your personal information and your data will be destroyed. The study data will be kept for 6 years, and then it will be destroyed. Representatives of the University of Western Ontario Health Sciences Research Ethics Board may require access to your study-related records or follow-up with you to monitor the conduct of this research.

Study Results

If you are interested in receiving information about the outcomes in this study once it is complete, please inform the research assistant and provide them with your contact information which will be put on a separate piece of paper and a summary will be sent to you after completion of the study.

Compensation

All participants who complete Session I will be entered in a draw to win 2 free movie passes.

Upon completion of both sessions, you will be compensated for your time and effort with a \$10 Tim Hortons gift certificate and entered in a draw to win a \$100 gift certificate to the Western Bookstore.

If you drive a car to campus and require parking to participate in the study, your name will be provided to the parking services on campus, and which will provide you with free parking behind Alumni Hall residence.

Contact Person

If there are any questions about the study, you are welcome to contact the study researcher Dr. Harry Prapavessis (see above for his contact information). If you have any questions about your rights as a research participant or the conduct of the study you may contact:

The Office of Research Ethics at (519) 661-3036 or by email at ethics@uwo.ca.