

An Investigation of the Impact of Pro-Anorexia Website Exposure on
Women's Self-Esteem, Body Esteem and Body Dissatisfaction.

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Declaration

I declare that this report does not incorporate without acknowledgement any material previously submitted for a degree in any University, College of Advanced Education, or other educational institution, and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

I further declare that the ethical principles and procedures specified in the Faculty of Life and Social Sciences Human Research Ethics Committee document have been adhered to in the preparation of this report.

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Abstract

The impact of thin ideal media exposure on women's self and body cognitions has been a widely explored research topic over the past three decades. The aim of this investigation was to add to this area of research, providing an investigation of the impact of exposure to both a fashion oriented and a pro-anorexia website, on women's self-esteem, body esteem and body dissatisfaction, controlling for the effects of eating disorder vulnerability and thin ideal internalisation. The sample comprised 113 female participants (age: $M = 21.61$, $SD = 6.48$) who were assigned to view one of three websites: A pro-anorexia website, a thin ideal fashion website, or an outdoor enthusiast appearance neutral website. Subsequent to website viewing, participants completed a self-report questionnaire assessing self-esteem, body esteem and body dissatisfaction. As hypothesised, participants exposed to a pro-anorexia website experienced significantly lower levels of self-esteem in comparison to participants exposed to a neutral website. However, contrary to expectations self-esteem was not found to differ between either fashion and pro-anorexia, or fashion and neutral participant groups. Also contrary to prediction, body esteem and body dissatisfaction did not differ significantly between pro-anorexia, fashion and neutral website exposure groups. On the whole, findings suggest that pro-anorexia website exposure may have negative cognitive effects on young women however further investigation is required. Implications of the results, and suggestions for future research are discussed.

Chapter 1: Introduction

Over the past 30 years, the mass media's portrayal of ideal female body physique has evolved. The average body weight of female celebrities depicted in the media has gradually decreased over time, and unsurprisingly this has been coupled with a rise in 'thin ideal' messages in the form of dietary, weight loss, fashion, cosmetic, fitness and other body-oriented information (Garner, Garfinkel, Schwartz & Thompson, 1980; Wiseman, Gray, Mosimann, & Ahrens, 1992). As the mass media is today considered one of the most compelling sociocultural factors in the reflection and shaping of ideals and perceptions of the 'perfect' female body shape (e.g., Groesz, Levine & Murnen, 2002; Thompson & Heinberg, 1999), it is not unexpected then that over time societal views of feminine beauty have also changed from a voluptuous and rounded ideal, to a current thin, lean and angular ideal. As a pervasive communicator of such standards of appearance, the mass media has received devoted research attention in recent times, particularly due to its potential contribution to the development and maintenance of body image disturbances and eating dysfunctions in young women (Dunkley, Wertheim & Paxton, 2001; Irving, 2001).

Indeed, it has been frequently reported that the epidemiology of body image disturbances and eating dysfunctions over the past three decades appears to have mirrored the changes in media representations of women's body shape ideals (e.g., Harrison & Cantor, 1997). As the thin ideal has become increasingly pervasive in the media, the prevalence of weight preoccupations, body dissatisfaction, disturbed eating patterns and

clinical eating disorders including Anorexia and Bulimia Nervosa, have simultaneously increased at a steady rate (Berel & Irving, 1998; Harrison & Cantor; Wiseman et al., 1992). As reported by Berel and Irving, in today's society women's weight concerns and body image disturbances are common enough to be considered a normal female experience. Furthermore, the combined prevalence of clinical eating disorders in the Australian population is currently estimated to be at least 7%, a rate that is higher than ever before (Centre of Excellence in Eating Disorders, 2006; Eating Disorders Foundation of Victoria, 2006). Given these apparent trends, sociocultural theorists appear to have reason to believe that the slimming female beauty standards manifest in the media may indeed be an important contributing factor to the widespread prevalence of body image disturbances experienced in young women today (Harrison & Cantor, Thompson & Heinberg, 1999). Furthermore, as disturbances in body image are thought to play a causal role in the development and maintenance of eating disordered behaviours, this in turn offers an explanation for the increasing prevalence of clinical eating disorders (Posavac, Posavac & Weigel, 2001).

In addition to the previously discussed trends, mounting correlational and experimental evidence further supports the proposed relationship between media exposure to the thin ideal and body image disturbances in women (e.g., Clay, Vignoles, & Dittmar, 2005; Ogden & Munday, 1996; Shaw, 1995). Although research on this topic has examined numerous related variables as markers of body image disturbances, cognitive variables including self-esteem, body esteem and body dissatisfaction feature predominately in the literature and will thus be

the focus of the present study. Self-esteem can be defined as global feelings of self worth (Rosenberg, 1965), whilst body esteem can be defined as a multidimensional construct comprising feelings and attitudes towards body parts and functions associated with weight, physical attractiveness and physical condition (Franzoi & Shields, 1984). As defined by Thompson and Gray (1995), body dissatisfaction refers to the discrepancy between one's current and one's ideal body shape. Much research has revealed lowered levels of self-esteem and body esteem, and increased levels of body dissatisfaction in both eating disordered and normal populations as a result of varying forms of television and magazine exposure to the thin ideal (e.g., Clay et al.; Grogan, Williams & Conner, 1996; Shaw).

However, although the impact of thin ideal media exposure on women's self and body cognitions has been well explored with respect to mediums of television and magazine, little research has examined the potential impact of one of the newest transmitters of thin-ideal information, the Internet. This is surprising considering the Internet is awash with publicly accessible websites containing a plethora of body-oriented information, on topics including dieting, fashion, exercise and disordered eating. An Internet Google search for the term 'weight loss' alone reveals over 200,000,000 hits. Unfortunately, as Thompson and Heinberg (1999) and Keller, Rosenthal, & Rosenthal (2006) explain, the number of websites that provide unrealistic, misleading, inappropriate, inaccurate and potentially harmful body-oriented information, clearly outweigh the number of sites that provide helpful and responsible body image messages to young women.

Further to the extent of potentially harmful body oriented information that is publicly available on the Internet, the need to investigate the impact of websites containing such information is especially apparent considering the Internet is rapidly becoming a part of daily life for millions of computer users. Recent statistics indicate that in excess of 600 million people worldwide are now connected to the Internet (Bargh & McKenna, 2004), and in Australia alone, an estimated 68.4% of the population currently have Internet access (Internet World Stats, 2006). What is more, it has been reported that up to half of all adolescent females will at some stage seek health information online, and of those who do, almost half will search for weight loss advice, and almost a quarter will search for information regarding eating disorders (Wilson et al., 2005). Thus not only does the Internet contain an overabundance of body-oriented websites, but it also appears to be the case that such websites are indeed being sought and utilised by a far reaching audience, and at an increasingly frequent rate.

Although on the whole, studies have not yet been undertaken to examine the psychological impact of Internet websites containing body-oriented information, a specific genre of websites termed 'pro-anorexia' are beginning to attract research interest. Due to their controversial nature, it is not surprising that pro-anorexia websites have been the first of a myriad of other body-oriented websites to attract research attention. These websites generally operate under the guise of providing a sense of community and support for individuals with eating disorders (Andrist, 2003; Dias, 2003; Norris, Boydell, Pinhas & Katzman, 2006). However, in reality, most pro-anorexia websites go beyond the promotion of a thin ideal, to explicitly

encourage extreme slenderness, and endorse anorexia nervosa as a desired lifestyle choice rather than a potentially deadly psychological disorder necessitating medical treatment (Bardone-Cone & Cass, 2006, Golden et al., 2003; Shade, 2003). Further to this, as emphasised by Martin (2005), the nature of these websites not only encourages and endorses extreme slenderness, but also provides a method to attain such goals. Illustrating their potentially harmful nature, content analyses consistently report that the most common characteristics of pro-anorexia websites include ‘Thinspiration’ photo galleries containing images of extremely thin and even anorexic fashion models and celebrities (e.g., Mary-Kate Olsen), dietary advice including lists of zero calorie foods (e.g., celery), quotes and poetry endorsing food avoidance (e.g. What nourishes me, also destroys me), and ‘Tips and Tricks’ to facilitate caloric restriction, weight loss, and hiding eating disordered behaviour from family, friends and doctors (e.g., Drinking ice cold water burns calories) (Fox, Ward & O’Rourke, 2005; Lutz & Alexander, 2006; Norris et al.; Chesley, Alberts, Klein, & Kreipe, 2003).

The existence of pro-anorexia websites is quite widespread, with conservative estimates suggesting that there may be as many as 400 currently accessible to the public (Bardone-Cone & Cass, 2006). Of further concern, pro-anorexia websites are thought to outnumber pro-recovery sites 5 to 1 (Wilson et al., 2005). Considering their potentially harmful content, accessibility and prevalence, coupled with the fact that an increasing number of young women are utilising the Internet to seek body related information, the potential psychological consequences of pro-anorexia website exposure requires exploration (Bardone-Cone & Cass).

Based on this overview, the present study sought to extend the research that has examined the relationship between thin ideal media exposure and body image disturbances, providing an examination of the impact of exposure to both a fashion and a pro-anorexia website on young women's cognitions regarding self and body, as assessed across measures of self-esteem, body esteem and body dissatisfaction. Before explaining the scope of the present study in detail, relevant prior research on the topic will be outlined. The mass media's increasing presentation of thin ideal standards of women's beauty over time will be discussed and an overview of the research that has explored the impact of varying forms of thin ideal media exposure on women's self and body cognitions reviewed. Additional individual difference factors that may impact upon the relationship between media exposure and women's feelings about one's self and one's body will be addressed. Finally, the emerging literature available on pro-anorexia websites will be discussed, and the present study's specific aims and hypotheses outlined.

1.1 Media Representation of Women's Body Shape Ideals Over Time

As previously stated, much research has demonstrated that the media's representation of women's body shape ideals has evolved over time, and that such changes may be implicated in the growing incidence of eating disorders and body image disturbances in society. Perhaps the earliest studies to suggest a relationship between thin-ideal media exposure and disordered eating, examined the media's changing portrayal of women's body shape ideals over time, whilst relating these trends to the coinciding

prevalence of eating disorders in society. In a classic investigation and consequent follow up study, Garner et al. (1980) and Wiseman et al. (1992) assessed the bust and hip measurements, as well as the weights of models appearing in *Playboy* magazine and *Miss America Pageant* over a 30-year time frame (1959-1988). Ultimately, these studies demonstrated thinning standards of feminine beauty represented in the media, finding that although model's heights generally increased over the years, their weight, hip and bust measurements significantly decreased. Illustrating the extent of ideals of thinness depicted in the media during this time frame, Wiseman et al. reported that 69% of Playboy models and 60% of Miss America models weighed 15% or more below the expected weight for height and age categories, thus satisfying one of the diagnostic criteria for a diagnosis of Anorexia Nervosa as outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR: American Psychiatric Association, 2000). In addition, these researchers noted growing emphasis on thinness ideals prevalent in the media, reporting an increase in the number of diet and weight loss articles present in six leading women's magazines over the same time frame. Although cautioning against making causal inferences, these researchers suggested that such findings might offer insight into the 'epidemic' rise in incidence of eating disorders observed to occur during the same time frame.

Although the Garner et al. (1980) and Wiseman et al. (1992) studies have not been replicated in more recent times, up to date research likewise suggests a continuation of trends towards ultra thin beauty standards present in the mass media today. For example, researchers stipulate that female

media models are now often more than 20% underweight (Brown & Dittmar, 2005; Dittmar & Howard, 2004), and that illusory techniques including airbrushing and photo editing are now regularly used to ‘thin down’ women presented in the media, providing an unrealistic and unattainable representation of ultra thin body shape ideals (Lokken, Lokken Worthy & Trautmann, 2004; Thompson & Heinberg, 1999). Further emphasising the media’s current endorsement of thin beauty standards, research has reported that women’s magazines rarely present images of overweight women, and that less than 10% of female television personalities are overweight, with such individuals infrequently being presented in prestigious positions (Champion & Furnham, 1999). The growing number of Internet websites containing thin ideal body oriented information further illustrates the mass media’s widespread and continuing endorsement of ultra thin beauty ideals.

Whilst the previously discussed research clearly demonstrates that thinning standards of female beauty have become and remain increasingly endorsed and represented in the mass media, it must be noted that the actual weight of women under the age of 30 has on average, increased over time (Garner et al., 1980; Brown & Dittmar, 2005). In addition, recent statistics indicate that in Australia a reported 20% of women aged between 25 and 64 are obese, and a further 27% are overweight (Dixon & Waters, 2003). This suggests that trends evident in the media are far from a true reflection of reality, and indeed it has been emphasised that the thin standards prevalent in the media are for genetic and physiological reasons, unattainable for the vast majority of women (Groesz et al., 2002). Despite this, studies have

demonstrated that young women often take on board body image ideals gleaned from the media. For example, in a study by Levine, Smolak & Hayden (1994) it was found that 70% of schoolgirls who read magazines endorsed them as an important source of beauty information. Furthermore, it has been reported that adolescent girls often describe their perception of the ideal teenage girl as 5'7", weighing 45 kilograms and having long blonde hair and blue eyes - an ideal that clearly originates from the media (Thompson & Heinberg, 1999). Given this information, it is not surprising that women are typically dissatisfied with their bodies, and that thin ideal media exposure has been linked to both body image and eating disturbances. To better understand the underlying mechanisms by which thin ideal media exposure is thought to affect women's self and body image, social comparison theory (Festinger, 1954) has often been cited as a guide (Bessenoff, 2006; Cattarin, Thompson, Thomas & Williams, 2000; Halliwell & Dittmar, 2005; Posavac, Posavac & Posavac, 1998; Posavac et al., 2001; Tiggemann & Slater, 2003).

1.2 A Theoretical Explanation: Social Comparison Theory

Although there is not any one single theoretical framework that has been proposed to explain the thin ideal media exposure – body image disturbance relationship, social comparison theory is perhaps the most widely cited approach. Social comparison theory (Festinger, 1954) proposes that humans have an inherent propensity to frequently compare themselves with similar others in order to evaluate and improve their own standing on a broad range of characteristics. Two forms of social

comparisons are generally made; upward comparisons and downward comparisons (Halliwell & Dittmar, 2005). Upward comparisons involve comparing characteristics of oneself to characteristics of another deemed to be superior, whilst downward comparisons involve comparing oneself to another deemed to be inferior (Cattarin et al., 2000; Wood, 1989). It has been theorised that upward comparison processes may provide the mechanism by which thin ideal media exposure is thought to impact upon women's self and body image (Bessenoff, 2006; Cattarin et al.; Milkie, 1999; Tiggemann & Slater, 2003).

It is upward comparison processes that are generally made when everyday women compare themselves to the "superior" ultra thin ideals presented in the media (Tiggemann & Slater, 2003). Researchers have consistently suggested that when women make such comparisons with thin ideals, provided body image is considered to be self relevant, discrepancies between one's own appearance and the comparison targets are highlighted, consequently resulting in detrimental effects to aspects of self and body image (Bessenoff, 2006; Cattarin et al., 2000; Posavac et al., 1998; Posavac et al., 2001). Correlational evidence supports this theory, finding high scores on a trait measure of tendency to make social comparisons to be correlated with high levels of body image dissatisfaction and low self-esteem (Thompson, Heinberg & Tantleff, 1991, cited in Cattarin et al.). It has also been demonstrated experimentally that young women who engage in upward comparisons with thin models, suffer increased body dissatisfaction, and decreases in perceived physical attractiveness, whilst controls do not (Martin & Gentry, 1997 cited in Bessenoff). Based on this

information, it is believed that social comparison theory and processes of upward comparison provide a useful theoretical explanation for the growing amount of research that has demonstrated detrimental impacts of thin-ideal media exposure on women's self and body cognitions.

1.3 The Impact of Thin Ideal Media Exposure On Women's Self-Esteem, Body Esteem and Body Dissatisfaction

Correlational evidence that women's self and body cognitions may be negatively affected by thin ideal media exposure has been provided by a number of studies (e.g., Harrison & Cantor, 1997; Stice, Schupak-Neuberg, Shaw & Stein, 1994, Tiggemann, 2003). In a questionnaire study, Harrison and Cantor assessed the relationship between young women's media use and body dissatisfaction. Participants were asked to indicate the number of hours per average day spent viewing television, and the number of popular magazines read each month. Frequency of television viewing was found to significantly predict body dissatisfaction. In addition, a significant positive relationship between the number of fashion magazines read and body dissatisfaction was also revealed. In a similar fashion, Stice et al. examined female college student's frequency of exposure to health and fitness, beauty and fashion, and entertainment, arts and gossip magazines, as well as the hours of television programs watched over the past month. Frequency of overall media exposure was found to correlate positively with student's body dissatisfaction. In line with these findings, in a similar study, Tiggemann found both frequency of television and magazine exposure to be positively correlated with body dissatisfaction, and frequency of television

exposure to be negatively related with self-esteem. Although such correlational research suggests that media exposure often results in body image disturbances, alternative interpretations exist. It may be that individuals high in body dissatisfaction simply seek thin ideal media exposure, or it may be that some third variable (e.g., eating disorder vulnerability) causes both increased media use and body dissatisfaction.

In an endeavour to eliminate these alternative interpretations, a myriad of investigations using randomised laboratory experiments have been undertaken to examine the immediate effects of thin-ideal media exposure on women's self and body cognitions (for a review, see Groesz et al., 2002). The typical design of such studies involves participant exposure to thin media models (compared with other types of images), accompanied by various post exposure measures to assess any immediate effects on women's self and body cognitions. In a quantitative meta-analytic review of 25 such experimental studies, each of which examined varying post exposure measures including body dissatisfaction and body esteem (as assessed across dimensions of physical attractiveness esteem, physical condition esteem and weight concern esteem), an overall moderate and significant effect size ($d = -.31$) was found (Groesz et al.). This finding supports the proposal that on average, thin ideal media exposure has a negative impact on women's feelings and attitudes towards self and body image.

Additional experimental studies not included in the previously discussed meta-analysis provide further evidence for the proposal that thin ideal media exposure leads to disturbances in young women's self and body

cognitions (e.g., Clay et al., 2005; Hawkins, Richards, Granley & Stein, 2004). Hawkins et al. exposed 145 women (21 of whom had been diagnosed with an eating disorder) to a series of magazine advertisements. Half viewed 40 full-page advertisements containing thin fashion models, whilst the remaining participants viewed 40 neutral advertisements containing photographs of items including cars, jewellery, makeup and perfume. After viewing advertisements, participants completed a battery of questionnaires, with findings demonstrating that women exposed to thin-ideal advertisements scored greater levels of body dissatisfaction, lower self-esteem, and greater eating disorder symptoms in comparison to women exposed to neutral advertisements. In a further study assessing the impact of thin ideal media exposure on women's self and body cognitions, Clay et al. exposed girls aged 11 to 16 to two magazine covers for a short period of time (15 seconds each). Depending on experimental condition, participants either viewed covers depicting ultra thin models, average models or no models. In line with the findings of Hawkins et al., it was found that viewing magazines containing models led to decreases in trait body satisfaction and trait self-esteem that were not found in participants in the no model condition.

Although the studies described above address some of the shortcomings of correlational studies, namely issues of causality, their emphasis on the impact of media characteristics fails to account for additional individual difference factors that may impact upon the thin ideal media exposure – body image disturbance relationship (Berel & Irving, 1998). Two such individual difference factors widely cited in the literature

as potential confounders of the thin ideal media exposure – body image disturbance relationship, include thin ideal internalisation and eating disorder vulnerability. Thin ideal internalisation refers to an acceptance and endorsement of socially defined ideals of aesthetic standards of attractiveness (Heinberg, Thompson, & Stormer, 1995), whilst eating disorder vulnerability refers to one's propensity towards eating disordered behaviour and clinical eating disorders including anorexia nervosa (Garner, Olmstead, Bohr & Garfinkel, 1982). Much research has suggested that women who are high in internalisation of the thin ideal and/or high in eating disorder vulnerability, are more likely to be already dissatisfied with their bodies, and that such initial levels of body dissatisfaction may confound the previously described impact of thin ideal media on women's self and body cognitions (Cusumano & Thompson, 1997; Griffiths et al., 1999; Grogan et al., 1996; Harrison & Cantor, 1997; Hawkins et al., 2004; Heinberg & Thompson, 1995; Low et al., 2003; Thornton & Maurice, 1997).

In a questionnaire based examination, Low et al. (2003) found internalisation of the thin ideal to be positively correlated with body dissatisfaction and weight and shape concerns. Likewise, in an Australian sample of eating disordered and control participants, for both participant cohorts, internalisation of the thin ideal was found to be positively correlated with body dissatisfaction (Griffiths et al., 1999). In agreement with these findings, Thornton & Maurice (1997) also found high internalisation in young women to be associated with lower self-esteem and greater body dissatisfaction. Furthermore, it is widely recognised that body image disturbances, high levels of body dissatisfaction and low levels of self

esteem are psychological dimensions strongly associated with eating disordered symptomatology (Grogan et al., 1996; Harrison & Cantor, 1997, Thompson & Stice, 2001). Such findings clearly suggest that initial levels of thin ideal internalisation and eating disorder vulnerability may have an impact on the relationship between thin ideal media exposure and body image disturbances, and indeed it has been frequently demonstrated that women who report high levels of internalisation, and high levels of eating disorder vulnerability often have the greatest adverse reactions to thin ideal depicting media (e.g. Hawkins et al., 2004; Heinberg & Thompson, 1995). In studies that do not set out to examine mediating or moderating effects of these two variables, it would thus seem important to control for levels of internalisation and eating disorder vulnerability when examining the impact of thin ideal media exposure on young women.

1.4 Pro-Anorexia Websites: A Review of the Literature

Whilst the previously discussed review clearly accentuates the pervasive influence of thin ideal television and magazine exposure on young women's self and body cognitions, little empirical investigation has been undertaken to examine the potential effects of pro-anorexia website viewing. Despite this, given the profusion of images of extremely thin and often anorexic women on these websites, coupled with textual information that essentially encourages and enforces extreme adherence to an eating disordered lifestyle, such websites potentially pose a great deal of harm. Although pro-anorexia websites are only beginning to attract research attention, they have received a deal of media attention (Bardone-Cone &

Cass, 2006; Pollack, 2003; Tierney, 2006). In 2001, the National Association of Anorexia Nervosa and Associated Disorders recognised the potentially harmful nature of such websites, and heavily campaigned for Internet servers such as Yahoo to shut down all pro-anorexia websites (Pollack; Shade, 2003). Due to the unregulated nature of the Internet, their attempts to do so were largely unsuccessful. Since, the continuing proliferation of pro-anorexia websites has been regularly discussed in print and television programs including *The Oprah Winfrey Show* and *Judging Amy* as potentially causing disordered eating behaviours in young women (Bardone-Cone & Cass). Such media speculation appears to be warranted, given the nature of pro-anorexia websites.

To date, there exists just two recent studies that have attempted to examine the impact of pro-anorexia website viewing on young women (Bardone-Cone & Cass, 2006; Wilson et al., 2005). In a study of 64 eating disordered patients with a mean age of 17, Wilson et al. examined the association of pro-anorexia website usage with health outcomes. These researchers hypothesised that regular usage of such sites would hinder recovery and increase periods of hospitalisation in eating disordered patients. Highlighting the appeal of such websites to eating disordered individuals, Wilson et al. found that 39% of the sample reported regular access of pro-anorexia websites, and as hypothesised, compared to non pro-anorexia website users, users tended to spend more time in hospital. Such findings provide support for the assertion that pro-anorexia websites may especially appeal to eating disordered individuals via providing a means to connect with other like-minded individuals in a seemingly anonymous,

accepting and supportive environment (Keski-Rahkonen & Tozzi, 2005; Mulveen & Hepworth, 2006). Findings also suggest, in line with suggestions made by Bardone-Cone and Cass, that although pro-anorexia websites may offer eating disordered individuals a feeling of support, in reality, regular users are likely to become further entrenched in their eating disorder.

Given that an increasing number of young women are utilising the Internet to search for weight loss advice and information, it is unlikely that the only visitors to pro-anorexia websites will be eating disordered individuals. Recognising this, Bardone-Cone and Cass (2006) set out to provide an examination of the potential impact of pro-anorexia websites on non-eating disordered young women's affect and self and body cognitions. Participants included 24 university students ranging in age from 18 to 20 years, and the study involved viewing one of three websites (a prototypical pro-anorexia website, fashion website, or a home décor appearance neutral website), and the completion of a series of pre and post website exposure measures. Whilst the sample size was too limited to utilise inferential statistical tests, from pre to post exposure measures, negative affect appeared to increase, whilst self-esteem appeared to decrease in women exposed to the pro-anorexia website. Furthermore, suggesting a trend towards greater body dissatisfaction, women in the pro-anorexia website exposure condition reported an increase in their perceived weight, and a decrease in levels of self-attractiveness after website viewing. Similar trends emerged for women exposed to fashion websites, however these were much less pronounced, and no trends were revealed for women exposed to

neutral home décor websites. These findings suggest that similar to thin ideal magazine and television exposure, fashion website exposure may have comparable negative effects on young women's self and body cognitions, whilst pro-anorexia website exposure may have a more profound impact. However, given the small sample size utilised in this study, further research is required to confirm such trends.

1.5 The Present Study: Research Aims and Hypotheses

The present study aimed to extend upon the research literature that has examined the relationship between thin ideal television and magazine media exposure and body image disturbances in young women. In doing so, the current study set out to partially replicate and extend on the Bardone-Cone and Cass (2006) study, providing an examination of the impact of exposure to both a fashion and a pro-anorexia website on young women's cognitions regarding self and body, as assessed across measures of self-esteem, body esteem, and body dissatisfaction. Such variables were selected for examination based on the aforementioned thin ideal magazine and television literature that has widely implicated these as markers of body image disturbances. To examine research aims, the present study utilised a design similar to that of the Bardone-Cone & Cass study, in that participants were exposed to one of three websites (a typical pro-anorexia website, a fashion oriented website or an appearance neutral website), however, to avoid demand characteristics, only post website exposure assessments of self and body cognitions were made.

Based on the previously discussed thin ideal television and magazine literature review, and the findings of the Bardone-Cone & Cass (2006) study, it was hypothesised that there would be a significant difference in mean levels of women's self and body cognitions (as assessed across measures of self-esteem, body esteem and body dissatisfaction) across website exposure conditions, controlling for the effects of eating disorder vulnerability and internalisation of the thin-ideal. More specifically, it was hypothesised that participants exposed to a pro-anorexia website would experience significantly lower mean levels of self-esteem and body esteem, and significantly higher levels of body dissatisfaction in comparison to participants exposed to both neutral and fashion websites. Finally, it was predicted that participants exposed to a fashion website would experience significantly lower mean levels of self-esteem and body esteem, and significantly higher levels of body dissatisfaction in comparison to participants exposed to neutral websites.

Chapter 2: Method

2.1 *Participants*

The final sample of the main study consisted of 113 respondents, all of whom were female: 45 took part in the pro-anorexia website exposure condition, and 33 and 35 participants formed the fashion and neutral website exposure conditions, respectively. The sample was comprised predominantly of first year undergraduate psychology students from a Melbourne university, who completed the questionnaire voluntarily in exchange for course credit. Additionally, a snowball sampling technique was employed to obtain further participants. The ages of participants ranged from 17 to 48 years ($M = 21.61$, $SD = 6.48$). Six participants failed to specify their age. The sample was well educated, with 61% of participants having completed secondary school, and 31% holding a tertiary certificate, diploma or undergraduate degree. With regards to the cultural make up of the sample, a 72% majority were Australian. Of the 113 respondents, 4 indicated the presence of a current eating disorder, and 18 indicated the presence of a past eating disorder.

Participants were largely familiar and efficient Internet users, with 99% reporting regular access to the Internet. Furthermore, regarding hours of weekly Internet use, 29% of participants reported spending between zero and 3 hours online, 32% reported spending between 3 and 6 hours online, 22% reported spending between 6 and 9 hours online, 10% reported spending between 9 and 12 hours online, and 7% reported spending more than 12 hours online. In addition, 64% of participants indicated having

before used the Internet to search for personal health advice or information, and 33% indicated having before used the Internet to search for personal weight loss or eating disorder information or advice. In line with these statistics, 30% of participants also reported having in the past visited a website that contained information on eating disorders, and 16% reported having recently visited a website that contained information on eating disorders.

The sample originally comprised 122 participants, however nine individuals failed to complete Section 1 of the questionnaire, designed to ascertain whether or not participants viewed and explored essential components of designated websites. As the focus of this study was to ascertain the impact of website viewing, cases who failed to complete this section of the questionnaire were consequently excluded from the present study.

2.2 *Materials*

As part of the experimental manipulation, participants were directed to view one of three websites (appearance neutral, fashion oriented, and pro-anorexia), before then completing a post-website questionnaire containing a battery of self report measures designed to assess website exploration, levels of self-esteem, three dimensions of body-esteem, body dissatisfaction, eating disorder vulnerability and internalisation of the ‘thin-ideal.’

Participants also answered a series of demographic questions regarding age, ethnicity, education, Internet usage and eating disorder status. Websites and

scales used in the present study are described below, and a copy of the full questionnaire is attached (see Appendix A).

2.2.1 Appearance Neutral and Fashion Oriented Websites

An ‘appearance neutral’ control and a ‘fashion oriented’ comparison website (www.wildernesswear.com.au, and <http://www.six6photography.com.au/Articles/2005/articles2005.html> respectively) were each selected for use in the experimental manipulation of the current study. The ‘appearance neutral’ website featured information and products associated with outdoor enthusiast activities. It contained photographs of activities including bushwalking, camping, trekking, fishing, cycling, rally driving and yachting, as well as photographs and descriptive information regarding clothing and apparel marketed for each activity. Although this website contained images of people participating in various outdoor activities, and wearing marketed clothing products, it contained no direct or obvious cues to appearance or body shape. The ‘fashion oriented’ website predominately featured photographs of catwalk models and celebrities, all of whom were prototypical examples of the thin ideal body shape typically displayed in the media (see Appendix B for website excerpts.)

Both ‘appearance neutral’ and ‘fashion oriented’ websites were selected for use on the basis of the results of an initial pilot study (see Appendix C). The pilot study sample consisted of 15 females ranging in age from 18 to 34 years ($M = 22.60$, $SD = 4.01$). Participants spent up to 2 minutes exploring each of 10 websites (five of which were considered by the primary researcher to be ‘appearance neutral’, and five of which were

considered to be ‘fashion oriented’). Participants rated the list of ‘appearance neutral’ websites on a 5-point Likert scale from 1 (“not at all appearance neutral”) to 5 (“very appearance neutral”), and the ‘fashion oriented’ websites similarly from 1 (“not at all fashion oriented and appearance focussed”) to 5 (“very fashion oriented and appearance focussed”). Out of the 10 websites, the two with the highest mean scores in ‘appearance neutral’ and ‘fashion oriented’ categories were selected for use in the current study. The selected ‘appearance neutral’ website had a mean rating score of 4.13, and the selected ‘fashion oriented’ website had a mean rating score of 4.73, thus confirming that the two websites were perceived as highly representative of their respective categories.

2.2.2 *Pro-Anorexia Website*

To avoid unnecessary participant exposure to multiple pro-anorexia websites, a pilot study was avoided for selection of the experimental pro-anorexia website to be used in the current study. Alternatively, the pro-anorexia website (www.pro-ana-nation.com/v1) was selected for use in the current study on the basis of an Internet search and examination of approximately 20 pre-existing pro-anorexia websites (See Appendix D) and a review of the literature available on such sites. It was deemed to be representative of a typical pro-anorexia website, consisting of essential components most commonly discussed in content analysis studies (e.g., Chesley et al., 2003). These included: a personal profile and journal of the website designer, general health information related to anorexia (including health risks, physical effects and behavioural patterns associated with

anorexia), a picture gallery containing photographs of thin fashion models and celebrities termed “Thinspirations,” quotes and poetry endorsing food avoidance and devotion to the pro-anorexia lifestyle, exercise tips for weight loss, dietary advice including lists of zero and low calorie foods, and a “Tips and Tricks” section containing advice for successful food avoidance and restriction, and hiding an eating disorder from family, friends and doctors (see Appendix B for website excerpts). Additionally, the selected website’s clear organisation of information, as well as its overall professional appearance were both considered aspects in its selection. Furthermore, the nature of imagery depicted in the selected website was considered less extreme in comparison to other pro-anorexia websites examined, with no pictures of clearly anorexic women displayed. Due to the already sensitive nature of the current study, this was considered highly in website selection.

2.2.3 Website Question Sheets

A brief question sheet was used to aide the process of thorough website exploration, and to provide indication as to whether or not participants accessed and took notice of core components of websites. Three similar versions of the question sheet were constructed, one for each of the three website conditions. Each version asked six free response style questions. Questions were both general (e.g., “Do you think this website provides accurate and helpful lifestyle information for women? Explain.”), as well as specific (e.g., “Under the ‘Tips – At home’ section of the website, what is this first food avoidance tip listed?”). All three versions of the

question sheet were piloted on two participants to ensure all questions were relevant and answerable (see Appendix A for a copy of the question sheets).

2.2.4 Self-Esteem

Rosenberg's Self-Esteem Scale (RSES; Rosenberg, 1965) was used to measure global feelings of self worth. This scale comprises 10 items, five of which are phrased positively and five negatively to control for acquiescence (e.g., "On the whole, I am satisfied with myself" and "I feel I do not have much to be proud of"). Each item was rated on a 4-point Likert type scale, from 1 ("strongly disagree") to 4 ("strongly agree"). After recoding for negatively worded items (2,5,6,8 & 9), scores were summed to arrive at one aggregate Self-Esteem score (Theoretical range 10 – 40), with higher scores reflecting higher global feelings of self worth. This scale has demonstrated high internal consistency (Rosenberg). For the present study, internal consistency was also high (Cronbach's alpha = .86).

2.2.5 Body Esteem

Franzoi and Shields (1984) 32-item Body Esteem Scale (BES) was used to measure participants' current feelings and attitudes associated with one's body parts and functions. The BES comprises three female subscales, used to assess three dimensions of body esteem relevant to females. The first subscale assesses the dimension of Weight Concern (WC), consisting of 10 items related to body areas and functions likely to be associated with weight (e.g., "buttocks" and "appetite"). The second subscale assesses the dimension of Sexual Attractiveness (SA), consisting of 13 items related to

body areas and functions associated with physical attractiveness (e.g., “lips” and “body scent”). The third subscale assesses the dimension of Physical Condition (PC), consisting of 9 items related to body parts and functions associated with stamina, strength and agility (e.g., “biceps” and “reflexes”).

Participants responded to items according to their current feelings about each part or function of their own body, on a 5-point Likert type scale from 1 (“have strong negative feelings”) to 5 (“have strong positive feelings”). Scores were summed to arrive at three subscale scores (Theoretical range of 10-50, 13-65 and 9-45 for WC, SA and PC respectively), with higher scores in each instance reflecting higher body-esteem. Franzoi and Herzog (1986) and Thomas and Freeman (1990) reported data on the convergent and discriminant validity of the female subscales, providing support for the construct validity of BES dimensions. In addition, all three subscales have previously demonstrated high internal consistency, with Cronbach’s alpha values ranging from .78 to .87 (Franzoi & Shields, 1984). In the present study, all three subscales similarly demonstrated high internal consistency, with Cronbach’s alpha values of .93, .80 and .83 for WC, SA and PC subscales respectively.

2.2.6 Body Dissatisfaction

The female version of the Contour Drawing Rating Scale (CDRS; Thompson & Gray, 1995) was used as a measure of current levels of body dissatisfaction. The CDRS scale consists of nine female front-view figure drawings of precisely graduated sizes, ranging from extremely thin to obese, and rated 1 to 9 respectively. Participants were required to circle the figure

thought to best depict one's perceived current body shape, and the figure thought to best depict one's ideal body shape. The discrepancy between current and ideal selections was calculated (current – ideal = discrepancy score), representing a measure of self-ideal discrepancy in body image suggestive of body dissatisfaction. Larger discrepancy scores indicate greater body dissatisfaction (Theoretical range -8 – 8). Reported test-retest reliability for the female version CDRS is adequate (Thompson & Gray).

2.2.7 Eating Disorder Vulnerability

The Eating Attitudes Test-26 (EAT-26; Garner et al., 1982) was used to measure attitudes towards food, eating and weight. This measure has been found to be a reliable and valid instrument, useful as an objective assessment of symptoms of and vulnerability towards eating disorders such as anorexia nervosa and bulimia nervosa (Garner et al). This scale is an abbreviated version of the Eating Attitudes Test (EAT-40; Garner & Garfinkel, 1979), which was originally devised to diagnose Anorexia Nervosa. As reported by Garner et al., the EAT-26 is an appropriate measure to screen for the presence of disturbed eating patterns in non-clinical samples.

The measure comprises 26 items (e.g., “I like my stomach to be empty”), with participants required to rate each on a 6-point Likert type scale, from 1 (“never”) to 6 (“always”), according to how well each statement applies to themselves, in general. After recoding for one negatively worded item (Item 4), scores were summed to arrive at an aggregate scale score with a theoretical range from 26 to 156. Higher

scores reflect greater symptoms of disturbed eating patterns, and hence higher levels of eating disorder vulnerability. The EAT-26 scale has demonstrated very high internal consistency (Cronbach's alpha = .90) (Garner et al., 1982). In the present study, internal consistency was also very high (Cronbach's alpha = .92).

2.2.8 *Sociocultural Internalisation of the Thin Ideal*

The Internalisation sub-scale of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ; Heinberg et al., 1995) was used to assess cognitive acceptance and endorsement of socially defined ideals of aesthetic standards of attractiveness. This subscale consists of 8 items (e.g., "Music videos that show thin women make me wish that I were thin") rated on a 5-point Likert type scale from 1 ("completely disagree") to 5 ("completely agree"). After recoding for one negatively worded item (Item 4), scores were summed to arrive at an aggregate Internalisation score, with a theoretical range from 8 to 40. Higher scores indicate greater levels of cognitive acceptance and endorsement of socially defined ideals of attractiveness. This scale has demonstrated high internal consistency (Cronbach's alpha = .88) (Heinberg et al.). For the present study, internal consistency was also high (Cronbach's alpha = .89).

2.3 *Procedure*

Data was collected via a take home pen and paper questionnaire. Participants first answered demographic questions before the questionnaire directed them to view one of the three websites, depending on experimental

condition. Participants were instructed to explore all sections of the website thoroughly, with the website question sheet aiding this process.

Immediately following website exposure, participants were instructed to complete the remainder of the questionnaire in order, with measures presented in the following order: RSES (Rosenberg, 1965), BES (Franzoi & Shields, 1984), CDRS (Thompson & Gray, 1995), EAT26 (Garner et al., 1982), SATAQ (Heinberg et al, 1995). Participants were allocated to either 'pro-anorexia', 'appearance neutral' or 'fashion oriented' exposure conditions based upon their allocation to lecture groups. Those participants recruited via snowball technique were randomly allocated to only 'appearance neutral' and 'fashion oriented' conditions, so as to ensure no participant without regular access to the University's counselling facilities and debriefing material took part in the 'pro-anorexia' condition.

To avoid response bias, the true purposes of the study were not revealed to participants. A written disclosure form attached to the front of the questionnaire provided information regarding 'mock' study aims (see Appendix A). All participants were informed that the study aimed to examine how differing personality types perceive the quality and effectiveness of certain women's health and lifestyle websites. Participants were ensured the anonymity of their responses, and were advised that they were free to withdraw from the study at any time. Informed consent was implied through the completion and return of questionnaires.

Two weeks subsequent to questionnaire distribution, during normal lecture time slots, participants who took part in the 'pro-anorexia' experimental condition were offered psychoeducational debriefing by a

registered psychologist and specialist in the field of eating disorders. All participants were informed of the true aims of the study, and given the opportunity to discuss any concerns that may have arisen as a consequence of participation in the present study. Participants were provided with local contact numbers for counselling services, in the instance of any concerns associated with the study, or eating disorders in general. Additionally, a debriefing form was made accessible to further provide helpful information for anyone with eating disorder concerns. It provided a list of websites that offer helpful and accurate information about eating disorders (see Appendix E).

Data was collected over approximately seven weeks, from May 2nd to June 16th 2006. Websites were monitored daily, and remained accessible and unchanged for the duration of data collection.

Chapter 3: Results

3.1 *Preliminary Analyses*

Questionnaire data was analysed using the Statistical Package for the Social Sciences (SPSS) version 13.0. Prior to testing hypotheses, data screening procedures were performed to ensure the data file was free from errors and suitable for further analyses. A small number of missing values were detected in the data set, all of which appeared to be missing at random. To preserve the mean of the data distribution as a whole, and to allow all cases to be included in further analyses, missing values were replaced with variable means (Tabachnick & Fidell, 2001).

The data was then examined for deviations from normality, assessed via a combined examination of the visual appearance of variable distributions, and Kolmogorov-Smirnov statistics. An inspection of histograms and boxplots suggested that scores on eating disorder vulnerability, body dissatisfaction and self-esteem demonstrated significant departures from normality, and this was confirmed by examination of the Kolmogorov-Smirnov statistics. The data was consequently examined for the presence of univariate outliers, to determine if these were affecting the variable distributions. Scores for each of the variables were converted to z scores and inspected for cases with values greater than 3.29, $p < .001$ (Tabachnick & Fidell, 2001). One case was found to have a z score above the critical value on body dissatisfaction. The identified univariate outlier was retained, given that it was merely a true representation of the extent of self-ideal discrepancy in body image that can be experienced in the target

population. No extreme cases were detected on self-esteem, weight concern esteem, physical condition esteem, sexual attractiveness esteem, eating disorder vulnerability and internalisation variables, and thus it was assumed that departures from normality were predominately caused by skewness rather than outliers.

Although eating disorder vulnerability and body dissatisfaction were both positively skewed, and self-esteem negatively skewed, it was decided that these variables would not be transformed given that they were skewed in the expected direction for a non-clinical sample population. In addition, transformation was not considered necessary, as the key data technique applied in this thesis, multivariate analysis of covariance (MANCOVA), is robust to modest violations of univariate normality with the provision that skewness rather than outliers are contributing to non-normality, and that the sample size is adequate (Tabachnick & Fidell, 2001). Additional requirements and assumptions underlying MANCOVA were assessed.

Observations were measured independently of each other and the sample size consisted of more cases than dependent variables in every cell, which according to Tabachnick & Fidell (2001) is satisfactory. With the use of $p < .001$ criterion for Mahalanobis distance, two multivariate outliers were identified. Further examination of these cases revealed that their pattern of scores involved an unusual combination of elevated scores on body dissatisfaction and eating disorder vulnerability, and lower scores on self-esteem and body esteem variables, compared to the sample as a whole. This was not considered to be unrealistic random variation, especially considering both cases also self-reported the presence of a past eating

disorder. Both cases were therefore considered important to the analysis, and were retained. Covariates were found to be reliable, and assumptions of linearity and non-multicollinearity were met, as was the assumption of homogeneity of variance-covariance matrices, Box's $M > .001$.

3.2 *Descriptive Statistics and Correlations*

To examine the relationships among measures, and the suitability of variables to be included as covariates in further analyses, bivariate correlations amongst variables were calculated, and are presented in Table 1. Self-esteem, weight concern esteem, sexual attractiveness esteem and physical condition esteem were all significantly positively correlated with each other, and negatively correlated with body dissatisfaction. In addition, eating disorder vulnerability and internalisation of the thin-ideal were both significantly correlated with all variables expected to be affected by website viewing, suggesting their appropriateness for inclusion as covariates in further analyses. Furthermore, although these two variables were also significantly positively correlated with each other, the strength of this relationship was moderate and therefore it was still considered appropriate for both to be used as covariates in later analyses (Tabachnick & Fidell, 2001). Age was not found to be significantly correlated with any other variable.

Presented in Table 2 are summary statistics including observed means, standard deviations and adjusted means (after controlling for eating disorder vulnerability and internalisation of the thin ideal) for each variable, as a function of website exposure condition. From Table 2, it can be seen

that adjusted mean scores on measures of self and body cognitions, appeared to differ somewhat between website exposure groups. Notably, both pro-anorexia and fashion website exposure groups appeared to score, in general, lower mean levels of self-esteem, weight concern esteem, sexual attractiveness esteem, physical condition esteem, and higher mean levels of body dissatisfaction in comparison to the neutral website exposure group, with these trends being more profound for the pro-anorexia website group. As can also be seen in Table 2, participant age appeared to differ between website exposure groups, with those in the fashion group tending to be older than those in the neutral and pro-anorexia groups. A single factor between subjects analysis of variance (ANOVA) confirmed a significant effect of website exposure group on participant age, $F(2, 104) = 4.43, p < .05$, however, as no significant bivariate correlations were previously revealed between age and any other variable measured, it was therefore decided that it would be unnecessary to control for age in further statistical analyses.

3.3 Self and Body Cognitions of Women Exposed to Pro-Anorexia, Fashion and Neutral Websites

In order to test the hypothesis that there would be a significant difference in mean levels of women's self and body cognitions across website exposure conditions, controlling for the effects of eating disorder vulnerability and internalisation of the thin-ideal, a one-way between groups MANCOVA was performed. Website exposure condition (pro-anorexia, fashion and neutral) was entered as the independent variable, with measures of self and body cognitions (self-esteem, weight concern esteem, sexual

Table 1.

Summary of Bivariate Correlations Between Study Variables

Variables	1	2	3	4	5	6	7	8
1. Self Esteem	-							
2. Weight Concern Esteem	.49**	-						
3. Sexual Attractiveness Esteem	.51**	.55**	-					
4. Physical Condition Esteem	.26**	.41**	.40**	-				
5. Body Dissatisfaction	-.38**	-.54**	-.26**	-.20*	-			
6. Internalisation	-.37**	-.57**	-.33**	-.26**	.43**	-		
7. Eating Disorder Vulnerability	-.53**	-.52**	-.30**	-.20*	.57**	.67**	-	
8. Age	-.03	-.05	-.07	.02	.14	-.09	-.05	-

Note. $p^* < .05$. $**p < .01$.

Table 2

Summary of Observed and Adjusted Means and Standard Deviations Across Website Exposure Conditions

Variable	Pro-Anorexia ^a			Fashion ^b			Neutral ^c		
	Observed <i>M</i>	Adjusted <i>M</i>	<i>SD</i>	Observed <i>M</i>	Adjusted <i>M</i>	<i>SD</i>	Observed <i>M</i>	Adjusted <i>M</i>	<i>SD</i>
Self Esteem	27.53	28.13	5.01	29.21	28.70	4.59	31.03	30.74	3.63
Weight Concern Esteem	26.84	27.95	10.23	28.14	27.52	8.64	30.77	29.94	8.26
Sexual Attractiveness Esteem	44.84	45.36	7.15	43.06	42.74	6.25	47.09	46.72	6.69
Physical Condition Esteem	27.77	27.98	5.81	28.58	28.51	5.11	31.20	31.00	5.40
Body Dissatisfaction	1.80	1.59	1.67	1.27	1.44	1.26	1.04	1.15	1.45
Internalisation	25.80	-	6.96	24.48	-	8.54	23.54	-	8.05
Eating Disorder Vulnerability	64.08	-	22.44	54.91	-	14.98	56.84	-	17.49
Age	20.48	-	5.24	24.38	-	8.88	20.37	-	4.16

Note. Higher mean values indicate higher levels of each construct

^a*n* = 45. ^b*n* = 33. ^c*n* = 35.

attractiveness esteem, physical condition esteem and body dissatisfaction) entered as dependent variables. Scores on the EAT-26 and SATAQ Internalisation measures were entered as covariates. The results of this analysis demonstrated that both eating disorder vulnerability and internalisation were found to be having significant covariate effects on participants self and body cognitions, Pillai's trace = .27, $F(5, 104) = 7.76$, $p < .001$, and Pillai's trace = .13, $F(5, 104) = 5.15$, $p < .05$ respectively. After these effects were controlled for, results indicated a significant multivariate effect of website exposure condition, Pillai's trace = .18, $F(10, 210) = 2.07$, $p < .05$, $\eta^2 = .09$.

Follow up univariate analyses of covariance (ANCOVA), were computed to examine individual contributors to the significant multivariate effect. In accordance with Tabachnick & Fidell (2001), Bonferroni adjustments at the .01 level were made on the alpha values for all follow-up univariate ANCOVAs and pairwise comparisons. Having adjusted for the effects of eating disorder vulnerability and internalisation of the thin ideal, as hypothesised, a significant effect of website exposure condition on mean levels of self-esteem was found, $F(2, 108) = 4.61$, $p = .01$, $\eta^2 = .08$. However, contrary to expectations, mean levels of sexual attractiveness esteem, $F(2, 108) = 3.38$, $p = .04$, physical condition esteem, $F(2, 108) = 3.31$, $p = .04$, weight concern esteem, $F(2, 108) = 1.05$, $p > .05$, and body dissatisfaction, $F(2, 108) = 1.21$, $p > .05$ were not found to differ significantly across website exposure groups.

Additional pairwise comparisons were performed to further examine the relationship between website exposure condition and self-esteem. These

revealed that, as predicted, mean levels of self-esteem were significantly lower in the pro-anorexia website exposure group compared to the neutral website exposure group, $p = .01$. However, contrary to expectations, mean levels of self-esteem were not found to differ significantly between pro-anorexia and fashion website exposure groups, $p > .05$, or between fashion and neutral website exposure groups, $p > .05$.

Discussion

4.1 Overview of Study Aims and Findings

The general aim of the present study was to explore the impact of exposure to both a fashion oriented and a pro-anorexia website on young women's self and body cognitions as assessed across measures of self-esteem, body esteem and body dissatisfaction. The results of the present study supported the hypothesis that there would be an overall significant difference in participants mean levels of self and body cognitions across website exposure conditions, controlling for the effects of eating disorder vulnerability and thin ideal internalisation. More specifically, as anticipated, participants exposed to the pro-anorexia website experienced significantly lower mean levels of self-esteem in comparison to participants exposed to the neutral website. However, contrary to predictions, no significant differences in mean levels of self esteem were revealed between pro-anorexia and fashion, or between fashion and neutral participant exposure groups. Furthermore, against hypotheses, no significant differences in mean levels of body esteem or body dissatisfaction were found between any of the website exposure groups.

These findings are considered below, followed by a discussion of the overall implications of the present study's results. Finally, limitations of the present study are outlined and suggestions for future research made.

4.2 Significant Findings: Differences in Self-Esteem Between Pro-Anorexia and Neutral Website Participant Groups

As anticipated, and consistent with hypotheses and trends reported in previous pro-anorexia website research (Bardone-Cone & Cass, 2006), the present study found that participants exposed to a pro-anorexia website experienced significantly lower mean levels of self-esteem in comparison to participants exposed to a neutral website. As well as being in line with the trends reported by Bardone-Cone and Cass, this finding concurs with the findings of Clay et al. (2005) and Hawkins et al. (2004), in which exposure to thin magazine models (compared to neutral magazine images) resulted in reduced levels of self-esteem amongst young women. Although an important distinction between the present study and the research undertaken by Clay et al. and Hawkins et al., involves the current study's use of websites rather than thin magazine models as part of the experimental manipulation, findings are comparable suggesting that like other thin ideal media sources, pro-anorexia website exposure may indeed negatively impact young women's self-esteem in a similar manner. Previous researchers that have demonstrated a negative impact of thin ideal media exposure on women's self-esteem have often used social comparison theory, and processes of upward comparison to explain such findings (e.g., Clay et al.).

Social comparison theory and upward comparison processes could likewise be used as a possible explanation for the present study's finding. It is possible that participants exposed to a pro-anorexia website in the present study perceived their own body shape ideals to be similar to the ultra thin ideals endorsed via the website, and thus engaged in upward comparison processes with the "superior" thin ideals depicted. As most women are

unlikely to be similar in body physique to the ultra thin models depicted in pro-anorexia websites, such comparisons may have highlighted discrepancies between participant's own appearance and the website's depiction of ideal attractiveness. As explained by numerous researchers, such self-ideal body image discrepancies consequently result in detrimental effects to aspects of self and body image, including self-esteem (e.g., Bessenoff, 2006; Cattarin et al., 2000; Posavac et al., 1998; Posavac et al., 2001). Thus in the present study, such mechanisms may have indeed been responsible for apparent detriments in self-esteem observed in the pro-anorexia website exposure group, compared to the neutral website exposure group.

4.3 Non-Significant Findings

Unexpectedly and contrary to the trends reported by Bardone-Cone and Cass (2006), as well as the findings reported by Clay et al. (2005) and Hawkins et al. (2004), no significant differences in mean levels of self-esteem were revealed between either pro-anorexia and fashion, or fashion and neutral website exposure groups in the present study. Furthermore, contrary to previous research findings (e.g., Bardone-Cone & Cass; Groesz et al., 2002; Hawkins et al.), no significant differences in mean levels of body esteem or body dissatisfaction were found between any of the website exposure groups in the present study. Despite this, it must be noted that non-significant trends in the expected directions were found, such that pro-anorexia and fashion website exposure groups appeared to score, in general, lower mean levels of self-esteem and body esteem and higher mean levels of body dissatisfaction in comparison to the neutral website exposure group,

with these trends being more profound for the pro-anorexia website group (refer to Table 2, Section 3.3). In light of such trends, and given the demonstrated negative impact of pro-anorexia websites on young women's self-esteem, the potential impact of pro-anorexia and fashion website exposure on women's self and body cognitions should not be underestimated on the basis of the present study's non-significant results. Although these findings did not reach statistical significance, a number of potential explanations can be posed to account for this.

Firstly, although the present study utilised similar experimental methods employed by previous researchers who have investigated media exposure-body image disturbance relationships, a few potentially imperative distinctions existed, possibly resulting in observed non-significant findings. Notably, the current study utilised a single measure, between subjects design, when other researchers have instead utilised a repeated measures between subjects design (e.g., Bardone-Cone & Cass, 2006). Whilst participants in previous studies were administered self report measures of self and body cognitions both before and after media exposure, participants self and body cognitions in the present study were only assessed once, after website exposure. As explained by Champion & Furnham (1999), repeated measures designs hold greater power in bringing to light treatment effects. Thus if a repeated measures design had been utilised in the present study, findings may have better concurred with expectations. Furthermore, compared to most other studies on this topic of research, the present study was not undertaken in a controlled laboratory environment, and thus participants had the freedom to undertake the study at their own accord. As

such, a realm of extraneous factors may have confounded the present study's results. For example, participants may have viewed experimental websites, whilst concurrently viewing other websites unrelated to the study, or whilst undertaking other activities such as watching television. Such extraneous factors would have inevitably clouded any effects produced by website exposure conditions, undoubtedly having an impact upon the significance of findings. Had the present study been undertaken under controlled conditions, trends prevalent may have been more likely to approach, or even reach significance. There exists many additional methodological and measurement factors that may offer additional explanations for the non-significant of findings described herein, and these are explained in section 4.5 of this paper as limitations of the present study in general.

4.4 Implications of the Present Study

Although non-significant findings of the present study require further investigation before associated implications can be made, the finding that participants in the pro-anorexia website condition experienced significantly lower mean levels of self-esteem in comparison to those in the neutral website group, has a number of practical implications. This finding indicates that pro-anorexia websites may indeed adversely impact their audience, at least on the dimension of self-esteem. As low self-esteem is a widely recognised marker of body image disturbances, and as body image disturbances are known to play a role in the development of eating disturbances (Clay et al., 2005), this clearly warrants that preventative

methods should be implicated to minimize the impact that pro-anorexia websites may have on this dimension. Because of the unregulated nature of the Internet, it is unlikely that a ban on pro-anorexia websites could easily be enforced (Bardone-Cone & Cass, 2006). However, methods to minimise young women's likelihood of exposure to such sites could be taken. Firstly, with an increasing number of teenage girls utilising the Internet in the personal home to seek weight loss and eating disorder information (Wilson et al., 2005), parents should be encouraged to implement "blocking" technologies to filter out pro-anorexia websites from Internet searches (Bardone-Cone & Cass). Alternatively, home computers should be placed in public areas of the home, so that parents are able to easily monitor the content of information that their teenagers are accessing (Bardone-Cone & Cass). If these two methods were implemented, this would at the very least make it more difficult for young women to access, and consequently be impacted by pro-anorexia websites.

In addition to employing methods to limit young women's exposure to pro-anorexia websites, an increased implementation of media literacy interventions encouraging critical evaluation of appearance related media messages should be directed at young women (Berel & Irving, 1998; Irving, 2001; Posavac et al., 2001; Thompson & Heinberg, 1999). As explained by Thompson and Heinberg, such interventions generally set out to teach young women that the thin ideal messages and standards prevalent in the media are both unrealistic and unhealthy, and should thus be avoided as targets of social comparison. Research suggests that media interventions may indeed be beneficial in reducing the negative impact of thin ideal media

exposure on variables including self-esteem. For example, in an intervention study by Posavac et al., it was found that after a brief media education program, participants engaged in less upward social comparisons with fashion models and experienced less body dissatisfaction after exposure to such models, in comparison to participants who did not undergo a similar program. It appears that such programs could similarly prove useful in countering the impact of unrealistic and unhealthy messages depicted in pro-anorexia websites.

Furthermore, based on the current study's findings, it would appear vital that psychologists and other health care professionals working in the field of eating disorders gain knowledge and understanding of pro-anorexia websites and their associated risks. If pro-anorexia websites can negatively impact the self-esteem levels of a non-clinical student sample, it is likely that they may have more devastating effects on eating disordered individuals. Compared to the average person, those with eating disorders are more likely to perceive the images and messages present in pro-anorexia websites as being inline with their own values and perceptions of ideal beauty, and thus are more likely to make upward comparisons when viewing such information. Professionals working in the field need to be aware of this possibility, and should thus make an effort to find out whether or not their clients are accessing pro-anorexia material, and if so, apply treatment strategies that challenge patients to think critically about the information present at such sites. In addition, given the present study's findings, coupled with the prevalence of pro-anorexia websites, organisations associated with eating disorder support and research should

make an increased effort to add to the number of pro-recovery websites available on the Internet. Although additional pro-recovery sites may not directly counter the potential negative effects of pro-anorexia website exposure, they would play an important role in ensuring a more accurate, informative and helpful form of body image and eating disorder information is made readily available to young women.

Finally, as the present study was the first of its kind to statistically examine the impact of both fashion and pro-anorexia website exposure, implications for future research are obvious. In order to gain a better understanding of the potential impact of both fashion and pro-anorexia websites, the present study should be replicated and extended upon in future. Further studies should take note of the present study's shortcomings, and address suggestions made for future methodological and measurement improvements. These are further explained in the following section of this paper.

4.5 Limitations of the Present Study and Directions for Future Research

Whilst a number of implications can be made from the significant findings of the present study, it is important to recognise that certain limitations may have impacted upon findings, and should thus be considered. Firstly, it must be noted that due to the sensitive nature of exposing potentially vulnerable participants to a pro-anorexia website, the pro-anorexia website utilised in the present study was deliberately selected for its somewhat mild stance and content of information and images, in comparison to other pro-anorexia websites. Notably, unlike many other pro-anorexia websites accessible on the Internet, the site used in the current

study did not contain any images of obviously anorexic young women. Furthermore, unlike more extreme pro-anorexia websites, the website used in the present study outlined a deal of informative health information related to anorexia, including details and warnings of the disorders health risks. Given this, it cannot be assumed that the current study's findings would be the same if participants had been exposed to a more extreme version of a pro-anorexia website. It is likely that the self and body cognitions of participants would have been more adversely impacted (resulting in additional significant group differences being revealed) if exposed to a more extreme pro-anorexia website, however further investigation is needed to test this hypothesis.

In addition to the aforementioned constraint, a further limitation of the present study is associated with its measurement of body dissatisfaction. The CDRS scale (see section 2.2.6) that was used to assess participant's body dissatisfaction contains just two items used to calculate a single discrepancy score between participants actual and ideal body shape. In utilising measures that contain few items, variability in participant responses is limited from the outset, and a restricted investigation of the construct is provided. It may be of benefit for future studies to include measures of body dissatisfaction that contain a greater number of items, in order to provide a more thorough assessment of the construct under investigation and to better detect any group variability that may arise. A large number of studies have investigated the impact of media exposure on body dissatisfaction using the Eating Disorder Inventory's (EDI: Garner, Olmstead & Polivy, 1983) Body Dissatisfaction subscale (e.g., Thornton &

Maurice, 1997). This scale consists of 9 items (e.g., “I feel satisfied with the shape of my body”) that are rated on a 6-point Likert type scale. Future research should consider using an alternative measure of body dissatisfaction, such as the EDI’s Body Dissatisfaction subscale, that provides a broader assessment of the construct. Perhaps if a broader measure of body dissatisfaction were used in the present study, differences between website exposure groups on this variable may have reached significance.

Further to discussed measurement limitations, aspects of the present study’s design, posed additional limitations. Notably, as mentioned earlier, the present study was conducted outside of controlled laboratory settings. A consequence of this, is that there was no way of ensuring participants spent equal amounts of time viewing websites, and explored websites in an equally thorough manner. Although methods were employed to counter this problem (e.g., the implementation of a website question sheet designed to aide thorough website exploration), some participants may have in reality only examined aspects of the websites required to complete the website question sheet, whilst other participants may have spent a longer amount of time examining all links and information contained in the website. Furthermore, although participants were instructed to complete post exposure measures of self and body cognitions immediately following website viewing, it is possible that some may have completed these measures some time later, or in instances, prior to website viewing. These issues should to be taken into account when examining the current study’s findings, as it is likely that they impacted the assessment of website

exposure effects. Future research should attempt to overcome these issues via undertaking experimental investigation under controlled laboratory settings. A further limitation associated with the design of the present study, is that it only provided an examination of immediate effects of website exposure. As such, conclusions associated with findings are limited to short-term effects. Further studies utilising longitudinal designs should be undertaken to gauge the long lasting effects of fashion and pro-anorexia website exposure.

In addition, due to recruitment methods, the participant sample was comprised predominantly of well-educated undergraduate psychology students who were both efficient and regular Internet users, with many having already visited websites containing weight loss and eating disorder information in the past. Clearly, this particular sample is more likely than a community sample to be aware and familiar with issues associated with media influence, body image disturbances and eating disorders. It could thus be expected that this sample may be more critical of thin ideal messages gleaned from the media, and less likely to be negatively impacted. This may provide yet another alternative explanation for non-significant findings of the current study. Consequently, results of the current study cannot be generalised to the community at large, and for this reason, future research should attempt to overcome this issue by examining a more representative community sample. Examining a younger sample may also be of benefit, considering adolescence is the time when most self-conceptions are formed, and when issues of social comparison are most likely to be of relevance (Bardone-Cone & Cass, 2006). Furthermore, as the

majority of participants in the present study's sample were non-eating disordered, findings cannot be generalised to a clinical eating disordered population. As pro-anorexia websites are likely to be most frequented by eating disordered individuals (Bardone-Cone & Cass), future research should attempt to examine the impact of these websites on the self and body cognitions of an eating disordered population. Specifically research should attempt to explore the proposal that pro-anorexia website exposure can be linked to the exacerbation of eating disordered cognitions and behaviour in a clinical sample (Bardone-Cone & Cass).

Finally, future research might also investigate potential individual difference variables that may act as moderators of the relationship between website exposure-and body image disturbances. As emphasised by Bardone-Cone and Cass (2006), it is unlikely that all women will be equally affected by website exposure, and that in order to better understand the ways in which thin ideal images and messages contained within websites may impact upon young women differently, moderating factors that may promote susceptibility towards, or act as a buffer against negative effects should be examined. A deal of research that has explored the association between thin ideal magazine and television exposure and women's self and body cognitions has found variables including body dissatisfaction level, eating disorder vulnerability and degree of thin ideal internalisation to moderate the relationship (e.g., Hawkins et al., 2004). Future research examining the impact of fashion and pro-anorexia website exposure should thus similarly investigate these variables as potential moderators of the website exposure – body image disturbance relationship.

4.6 *Conclusion*

The aim of this study was to extend upon the research literature that has examined the relationship between thin ideal media exposure and body image disturbances in young women. In doing so, the current study provided an investigation of the impact of both fashion and pro-anorexia website exposure on the self-esteem, body esteem and body dissatisfaction of young women. Whilst results of the present study were limited by a number of methodological and measurement issues, and whilst limited support was generally provided for hypotheses, a notable finding was that participants exposed to a pro-anorexia website experienced significantly lower levels of self-esteem in comparison to participants exposed to an appearance neutral website. This finding offers preliminary support for the suggestion that pro-anorexia websites may have a negative impact on the self and body cognitions of young women, at least on the dimension of self-esteem. Based on this finding, implications for minimising negative impacts of pro-anorexia websites exist. Furthermore, as the present study was the first of its kind to statistically examine the effects of pro-anorexia and fashion website exposure, further research addressing the limitations associated with present study is clearly warranted.

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Appendix A

* Please note: This file would not fit on a disk with my Appendix included. Please see hard copy for Appendix.