

THE EFFECTS OF MEDIA EXPOSURE ON BODY  
DISSATISFACTION AND COGNITIVE BIAS IN ADOLESCENT  
GIRLS AND BOYS

Hannah Rebecca George

Submitted in accordance with the requirements for the degree of  
Doctor of Clinical Psychology (D. Clin. Psychol.)  
The University of Leeds  
Academic Unit of Psychiatry and Behavioural Sciences  
School of Medicine

July 2010

The candidate confirms that the work submitted is his/her own and that appropriate credit has been given where reference has been made to the work of others.

This copy has been supplied on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement.

© 2010 The University of Leeds and Hannah Rebecca George

## **ACKNOWLEDGEMENTS**

Firstly, I would like to thank my supervisor Andy Hill for his continued help and encouragement from the initial planning stages to the final write up of this thesis, and for containing my anxieties and keeping me motivated along the way. My gratitude also goes to the teachers and pupils from the participating school for enabling the research to happen. To the course staff, academic and administrative, I would like to thank for all their help over the past three years. Particularly I would like to thank Sheila Youngston for her support and guidance, Dave Green for his constant source of energy and enthusiasm, and Stephen Morley for his calming influence. Each of them has proven an inspiration for me in both my academic and clinical work and also in my personal development. To my friends and family I would like to thank for always being there for me however near or far, for bearing with me, and for keeping my sense of self alive. My thanks also go to Joanna Webb for reminding me how to have fun and brightening up my Wednesday nights. Finally, I would like to thank Alwin for his love, understanding, and patience, and for providing me with the strength I needed to make it through.

## ABSTRACT

The transmission of information by the media about the ideal body has been highlighted as a cause of body image problems. Exposure to such information is hypothesised to increase appearance-related cognitive bias and body dissatisfaction. Two socio-cultural influences, ideal internalisation and perceived pressures from the media, are postulated to be individual risk factors for these effects. Investigation of body dissatisfaction is particularly important in adolescents when body image problems become prominent.

Aims were to investigate the effects of exposure to an appearance-related magazine feature on adolescents' body dissatisfaction and appearance-related cognitive bias, and the effects of internalisation and perceived pressures on these relationships. Participants were 124 boys ( $M_{\text{age}} = 12.9$ ) and 125 girls ( $M_{\text{age}} = 13.0$ ). After viewing either an appearance-related or neutral magazine feature they answered questions about the feature then completed a word-stem and a sentence completion task, two visual analogue scales measuring body dissatisfaction, and a measure of socio-cultural influence.

Girls exposed to an appearance-related magazine feature had higher levels of body-shape dissatisfaction than those exposed to a neutral magazine feature. There was no effect of exposure on boys' body dissatisfaction and no effect on appearance-related cognitive bias for either gender. Socio-cultural influences did not affect these relationships, although girls with high levels of these experienced the highest levels of body dissatisfaction.

Both media exposure and socio-cultural influence negatively impact on girls' body image, but seem to have little effect on boys. This has implications for the development of media literacy interventions aimed at addressing body image problems. Limitations in the measurement of cognitive bias and in the salience of the stimuli could explain the null results. Further research on the causes of body dissatisfaction in boys is needed, as is investigation into the effects of a variety of stimuli and developments in measures of cognitive bias for use with adolescents.

## TABLE OF CONTENTS

<b>INTRODUCTION .....</b>	<b>9</b>
Body Dissatisfaction: A Cause for Concern .....	9
Body Dissatisfaction and Eating Disorders.....	10
Body Dissatisfaction in Males.....	12
<i>Body dissatisfaction in boys and adolescent males.</i> .....	13
<i>Physical and psychological consequences of body dissatisfaction in males.</i> .....	15
Body Dissatisfaction: A Socio-Cultural Perspective .....	16
The Western ‘Body-ideal’ .....	16
Media Portrayals of the Ideal Body.....	17
<i>Depictions of the ideal body in magazines.</i> .....	18
Effects of Media Exposure on Body Dissatisfaction.....	20
<i>Correlational studies.</i> .....	20
<i>Experimental studies.</i> .....	22
<i>Longitudinal studies.</i> .....	24
Effects of Media Exposure on Male Body Dissatisfaction .....	25
Effects of Media Exposure on Body Dissatisfaction: Comparing Male and Females .....	27
Vulnerability to Body Dissatisfaction: A Cognitive Processing Approach.....	29
Cognitive Bias and Eating Disorders.....	29
Cognitive Bias in Non-clinical Individuals .....	30
Cognitive Bias, Body Dissatisfaction and Media Exposure .....	32
Vulnerability to Body Dissatisfaction: Individual Risk Factors.....	34
Thin-Ideal Internalisation.....	34
Perceived Pressures from the Media .....	38
Socio-cultural Ideal Internalisation and Perceived Pressures in Males .....	40
Socio-cultural Ideal Internalisation and Perceived Pressures: Comparing Males and Females .....	41
Integrating Body Image Dissatisfaction, Cognitive Bias and Media-Ideal Internalisation .....	42
The ‘Body Focus’: Beyond the Media .....	<b>Error! Bookmark not defined.</b>
Research Objectives and Hypotheses .....	45
<b>METHOD .....</b>	<b>47</b>

Design .....	47
Participants.....	47
Materials and Measures .....	48
Measures .....	48
<i>Body dissatisfaction</i> .....	48
<i>Cognitive bias</i> .....	49
<i>Socio-cultural influence</i> .....	50
<i>Additional measures</i> .....	51
Response Booklet.....	51
Stimulus Material .....	52
<i>Pilot Study</i> .....	53
<i>Final selection of stimuli</i> .....	54
Procedure.....	54
Data Analysis .....	55
<b>RESULTS .....</b>	<b>57</b>
Participant Characteristics .....	57
Effects of Exposure on Body Dissatisfaction and Cognitive Bias .....	58
Body Dissatisfaction.....	58
Appearance-related Cognitive Bias .....	59
Effects of Individual Vulnerabilities on Body Dissatisfaction and Cognitive Bias .....	60
Body Dissatisfaction and Internalisation .....	60
Body Dissatisfaction and Perceived Pressures .....	62
Regression Analyses for Body-shape Dissatisfaction.....	64
Appearance-related Cognitive Bias and Internalisation .....	65
Appearance-related Cognitive Bias and Perceived Pressures.....	66
Regression Analyses for Negative Sentence Completions .....	68
Additional Exploratory Analyses .....	69
Effects of Appearance-related Cognitive Bias on Body Dissatisfaction.....	69
Word-stem and Sentence Completion Missing Responses .....	71
<b>DISCUSSION.....</b>	<b>73</b>
Discussion of Main Findings .....	73
Summary of Results in Relation to Hypotheses.....	73
Effects of Exposure to an Appearance-related Magazine on Body Dissatisfaction	73
Cognitive-bias and Exposure to an Appearance-related Magazine Feature .....	76

<i>Appearance-related cognitive bias, media exposure and body dissatisfaction...</i>	78
The Influence of Socio-cultural Ideal Internalisation and Perceived Pressures.....	80
<i>Socio-cultural ideal internalisation, perceived pressures and body dissatisfaction.</i>	
.....	81
<i>Socio-cultural ideal internalisation, perceived pressures and appearance-related</i>	
<i>cognitive bias.....</i>	82
<i>Socio-cultural ideal internalisation and perceived pressures in adolescent boys.</i>	
.....	83
Study Implications .....	85
Methodological Considerations.....	88
Stimuli.....	88
Procedure, Design, and Participant Sample.....	90
Outcome Measures.....	92
Future Directions .....	93
Conclusion .....	96
<b>REFERENCES .....</b>	<b>97</b>
<b>APPENDICES.....</b>	<b>111</b>
Appendix A: Information pack for parents and pupils.....	111
Appendix B: SATAQ-3 subscales .....	119
Appendix C: Control stimuli .....	120
Appendix D: Female experimental stimuli.....	121
Appendix E: Male experimental stimuli.....	122
Appendix F: Response booklet for female experimental group .....	123
Appendix G: Male equivalents of VASs and SATAQ-3 .....	131
Appendix H: Questions for male experimental feature.....	133
Appendix I: Questions for control feature.....	134
Appendix J: Protocol and standardised instructions.....	135
Appendix K: Participant debrief letter.....	137

## LIST OF TABLES

Table 1 - Mean (SD) age and SATAQ-3 scores for whole sample.....	57
Table 2 - Mean (SD) body-shape dissatisfaction and muscle dissatisfaction scores by gender and condition.....	58

Table 3 - Mean (SD) number of appearance-related word-stem completions and negative sentence completions by gender and condition .....	60
Table 4 - Mean (SD) body-shape dissatisfaction and muscle dissatisfaction scores by gender, condition, and level of internalisation.....	61
Table 5 - Mean (SD) body-shape dissatisfaction and muscle dissatisfaction scores by gender, condition, and level of perceived pressures.....	62
Table 6 - Regression coefficients for body-shape dissatisfaction.....	64
Table 7 - Mean number of appearance-related word-stem completions and negative sentence completions by gender, condition and level of internalisation.....	66
Table 8 - Mean number of appearance-related word-stem completions and negative sentence completions by gender, condition and level of perceived pressures.....	67
Table 9 - Regression coefficients for female body-shape dissatisfaction with word-stem completions.....	70
Table 10 - Regression coefficients for female body-shape dissatisfaction with negative sentence completions .....	71
Table 11 - Mean number of missing responses on the word-stem and sentence completion tasks by gender and condition.....	72

### LIST OF FIGURES

Figure 1 - Socio-cultural model of body dissatisfaction and eating disorders (adapted from Stice, 1994, 2001).....	35
Figure 2 - Model of body image integrating cognitive processing and individual characteristics (adapted from Williamson et al., 2004) .....	43
Figure 3 - Mean body-shape dissatisfaction by condition and gender .....	59
Figure 4 - Mean body-shape dissatisfaction by condition, gender and level of perceived pressures .....	63
Figure 5 - Mean number of negatively completed sentences by condition, gender and level of perceived pressures.....	68
Figure 6 - Mean number of missing responses on the sentence completion task by gender and condition.....	72



## INTRODUCTION

### **Body Dissatisfaction: A Cause for Concern**

Body image refers to a person's perceptions, thoughts and feelings about his or her body and the psychological importance they place on their appearance (Cash, Morrow, Hrabosky, & Perry, 2004; Grogan, 2008). A core facet of this is a person's overall evaluation of their body – *body satisfaction*. Body dissatisfaction is defined as a person's negative evaluation of their body shape, muscularity/tone, weight or size (Grogan, 2008). This usually involves a discrepancy between the person's evaluation of their body and their ideal body (Cash & Szymanski, 1995). While the prevalence of body dissatisfaction is difficult to quantify due to the lack of definition of the concept across studies (Cash, 2002b), evidence indicates that a high proportion of individuals struggle with body image concerns (Cash & Pruzinsky, 2002; Heatherton, Mahamedi, Striepe, Field, & Keel, 1997; Neighbors & Sobal, 2007). The extent of body dissatisfaction in Western populations is such that the desire for thinness in women has been labelled a "normative discontent" (Rodin, Silberstein, & Striegel-Moore, 1985).

Far from being a solely adult phenomenon, body dissatisfaction and an associated desire to be thinner has been reported in girls as young as six (Dohnt & Tiggemann, 2006). In a review of the literature on body image in children, Ricciardielli and McCabe (2001) reported that estimates of the number of pre-adolescent girls (aged between six and 11) wanting to be thinner ranged from between 28% to 55%. The increasing importance of body image during adolescence has been emphasised in the literature (e.g. Clark & Tiggemann, 2007; Groesz, Levine, & Murnen, 2002; Sinton & Birch, 2006). Longitudinal studies have shown that body dissatisfaction in girls increases from age nine to 14 (Gardner, Freidman, Stark, & Jackson, 1999). In female adolescents (aged between 12 and 16), it has been demonstrated that up to 44% are either moderately or extremely dissatisfied with their bodies (Bearman, Presnell, Martinez, & Stice, 2006). It is postulated that the body changes accompanying puberty, along with the preoccupation with image and concern for social acceptance, heighten the vulnerability of adolescents to body dissatisfaction (Harter, 1999; Sherman, Iacono, & Donnelly, 1995).

The extent of body image problems is by no means inconsequential. Dissatisfaction with one's body is associated with extreme behaviours such as cosmetic surgery, strict dietary regimes, fasting, laxative abuse, and self-induced vomiting, all aimed at changing body shape and all of which have potentially damaging consequences (Grogan, 2008; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006). Further, body dissatisfaction has been consistently linked with a range of physical and mental health problems including obesity, body dysmorphic disorder, low self-esteem, social anxiety, depression and eating disorders (Cash, Morrow et al., 2004; Cash & Pruzinsky, 2002; Grabe, Ward, & Hyde, 2008; Paxton, Eisenberg, & Neumark-Sztainer, 2006; Thompson, 2004b). Worryingly, it has been reported that girls younger than 12 engage in dieting practices in attempts to achieve the thin-ideal and that the existence of body dissatisfaction in young girls can predict dieting behaviour in later life (Clark & Tiggemann, 2007; Shisslak et al., 1999).

### *Body Dissatisfaction and Eating Disorders*

Of particular concern is the link between body dissatisfaction and eating disorder pathology. Eating disorders are associated with both co-morbid psychopathology such as depression and anxiety (Thompson, 2004b), psychosocial impairment (Stice, 2002) and high rates of in-patient hospitalisation and treatment seeking (Newman et al., 1996; Wilson, Heffernan, & Black, 1996). Further, research has indicated that suicide attempts occur in up to 35% of people with eating disorders (Franko & Keel, 2006). As a group, eating disorders have amongst the highest rates of mortality of all common psychiatric problems with estimates reaching 8% (Herzog et al., 2000; Steinhausen, Seidel, & Metzke, 2000; Sullivan, 2002).

Prospective studies have identified that the development of eating pathology is most likely in female adolescents aged between 15 and 19 (Stice, Shaw, & Marti, 2007) with this group making up approximately 40% of identified cases of anorexia nervosa (Hoek & van Hoeken, 2003). Further, incidence rates of eating disorders have risen over the course of the 20<sup>th</sup> century (Hoek, 2006). The rise in incidence of anorexia nervosa is most substantial amongst adolescent females aged between 15 and 19, but has also been recorded in females aged between 10 and 14 (Hoek, 2006). The prevalence of

eating disorders in adolescent girls and the reported rise in incidence in this group is worrying given the severe consequences of eating pathology described above.

Recognising the severity of eating disorders, large numbers of studies have sought to identify risk factors contributing to their development (Franko & Striegel-Moore, 2007; Polivy & Herman, 2002). In a longitudinal study of children aged between six and 14, Gardner, Stark, Friedman, and Jackson (2000) found that body dissatisfaction at age nine was a significant predictor of higher scores on eating disorder inventories at ages 11 through to 14. These results were replicated in a longitudinal study on Spanish school children (Beato-Fernández, Rodríguez-Cano, Belmonte-Llario, & Martínez-Delgado, 2004). The authors measured a number of psychopathological, social and family variables at age 12 to 13 and then two years later. They found that those who were identified at time two as having probable eating disorders also had higher levels of depression and low-self-esteem and were more likely to have made suicide attempts and to have been self-injurious. However, only body dissatisfaction and the feeling of not being loved enough by the mother at time one were significant predictors of eating disorder pathology, with body dissatisfaction holding the majority of the predictive power. These variables were related to a three fold increase in the risk of developing an eating disorder. Supporting these results, Johnson and Wardle (2005) found that, in adolescent girls aged between 13 and 16, body dissatisfaction entirely mediated the relationship between dietary restraint, depression and low self-esteem. The effects of body dissatisfaction in childhood appear to extend into adulthood. For example, in a longitudinal study, Ohring, Graber, and Brooks-Gunn (2002) found that girls who had recurrent body dissatisfaction in early and late adolescence were more likely to have serious eating problems and depressive symptoms in early adulthood than those girls with positive body image.

Since the early 60s body image disturbance has been recognised as a necessary factor in the development of anorexia nervosa (Bruch, 1962). More recently it has been argued that, although not a sole cause of eating disorders, body dissatisfaction is a key factor in their development and maintenance (Polivy & Herman, 2002). As negative opinions about one's body intensify, the more it is likely that attempts to lose weight will be made (Polivy & Herman, 2002). Subsequently, dieting behaviours and disordered

eating at sub-clinical levels place individuals at risk of developing clinical eating disorders (Paxton & Franko, 2009; Polivy & Herman, 1985, 1987; Stice, 2000, 2001).

Given the significance of body image in terms of its effects on physical and emotional wellbeing, understanding the development of body dissatisfaction is of critical importance. This is reflected in the growing amount of research in this area (Dittmar, 2009). Further, although eating disorders primarily manifest in mid- to late-adolescence, evidence suggests that body dissatisfaction as a primary precipitant is established in pre-adolescence and increases in early-adolescence. Given the emphasis on prevention and early intervention of eating disorders highlighted in government documents (National Collaborating Centre for Mental Health, 2004) special emphasis needs to be placed on the importance of understanding more about the development of body dissatisfaction at this age.

### *Body Dissatisfaction in Males*

Traditionally, the majority of studies investigating body dissatisfaction have focused on females. However, over the past 10 years, research had paid more attention to body image in boys and men (Cafri, Thompson et al., 2005). This reflects the growing interest in male body dissatisfaction (Grogan, 2008). A substantial amount of empirical evidence exists indicating that males experience dissatisfaction with aspects of their appearance and weight, albeit to a lesser extent than females (Cohane & Pope, 2001; Cohn et al., 1987; Muth & Cash, 1997; Ricciardelli & McCabe, 2001). However, it has been suggested that not only is body dissatisfaction in males increasing (Garner, 1997), but that poor body image in men is substantially higher than has previously been assumed (Frederick et al., 2007). In a large scale survey, 48% of men reported being dissatisfied with their weight, 11% reported feeling physically unattractive and 16% reported that they would avoid wearing swimsuits because they were so dissatisfied with their bodies (Frederick, Peplau, & Lever, 2006).

It has been acknowledged that the nature of male body dissatisfaction is perhaps more complex than female body dissatisfaction. While females strive for thinner bodies, males consistently report wanting to be more muscular (e.g. Olivardia, Pope,

Borowiecki, & Cohane, 2004). In one study, over 90% of male undergraduate students reported wanting to be more muscular (Frederick et al., 2007). Dissatisfaction with body fat has also been observed in males, although results are mixed. For example, some studies have reported men to desire smaller/thinner bodies, while others have demonstrated that a proportion of men desire to be heavier than their current body weight (e.g. Drewnowski & Yee, 1987; Frederick et al., 2007; Hildebrant, Langenbucher, & Schlundt, 2004). Cohane and Pope (2001) have highlighted that a major problem with much of the research investigating body image in males is the lack of distinction between body shapes increasing in size due to shape and due to muscularity. Therefore, while it is evident that males generally desire more muscular bodies, body dissatisfaction as a function of body fat in males is less clear. As a consequence, recent publications have highlighted the importance of examining male body dissatisfaction with weight as a proportion of those desiring to be thinner and those desiring to be larger (Frederick et al., 2007). Further, the importance of examining body weight dissatisfaction and dissatisfaction with muscularity in males as two separate dimensions is emphasised (e.g. Frederick et al., 2007; Olivardia et al., 2004).

*Body dissatisfaction in boys and adolescent males.*

Evidence suggests that pre-adolescent boys are comparatively more satisfied with their bodies than pre-adolescent girls. For example, Sands, Tricker, Sherman, Armatas, and Maschette (1997) found that girls aged between 10 and 11 were twice as likely to report a preference for being thinner than boys of the same age. In a qualitative study on children of the same age, Polce-Lynch, Myers, Kilmartin, Forssmann-Flack, and Kliewer (1998) found that girls were more likely to indicate negative feelings about their body than boys, who tended to report a positive body image. Similarly, in children aged between eight and 11, Cusumano and Thompson (2000) found girls to score significantly higher on measures of body dissatisfaction than boys. These results point towards boys having better body image than girls in pre-adolescence.

However, evidence suggests that as boys enter adolescence they begin to experience higher levels of body dissatisfaction. This developmental shift was demonstrated by

Folk, Pederson, and Cullari (1993) who found that boys aged between 11 and 12 had higher levels of body dissatisfaction than boys aged between eight and nine. In a study investigating body dissatisfaction in children aged between eight and 13, Schur, Sanders, and Steiner (2000) found that approximately half of girls and boys desired no change in their body size. The other half of the girls predominantly desired thinner bodies while for boys, 35% of the sample wanted to look thinner and 20% of the sample wanted to look heavier. Although the authors did not report an age break down, it is possible that the inclusion of older boys resulted in the higher levels of body dissatisfaction observed therefore supporting evidence that boys' satisfaction with their body decreases in early-adolescence. Further, it is clear that there was a split in the number of boys wanting thinner or heavier body sizes in comparison to the girls, who expressed preference almost exclusively for thinner bodies.

Studies examining body dissatisfaction in adolescent boys have found similar results, demonstrating an approximately equal division of those wanting to be heavier and those wanting to be thinner (e.g. Furnham & Calnan, 1998). In these studies, however, no distinction is made between body size as a function of fatness or muscularity. It is therefore possible that the split in boys desiring a larger or smaller body could be a result of confusion about what is being asked, or a divide between desire for a lean and a muscular body (Cohane & Pope, 2001; McCabe & Ricciardelli, 2004). Indeed, there is evidence to suggest that drive for thinness measures are unrelated to drive for muscularity measures in both female and male adolescents (McCreary & Sasse, 2000). When measures of muscularity are used, it is apparent that adolescent boys express body dissatisfaction in terms of muscle tone and size (Jones & Crawford, 2005; McCabe & Ricciardelli, 2004; Smolak, 2004).

Acknowledging the distinction between body 'fatness' and 'fitness', Jones and Crawford (2005) have hypothesised that weight and muscularity concerns form a dual pathway to body dissatisfaction in males. They found support for their 'Dual Pathways Model' in a cross-sectional study with adolescent boys aged between 13 and 17; in contrast to adolescent girls, the development of body image was best represented by both weight and muscularity concerns. Additionally, they found that older boys had greater muscularity concerns than the younger sample. They suggested that this may reflect a developmental shift between younger and older adolescent boys; there is a potentially

increasing awareness with age of the connection between muscularity, masculinity and attractiveness. This confirms previous research suggesting that the pursuit for muscularity in boys increases through adolescence (McCabe & Ricciardelli, 2004; Smolak, 2004).

While females generally report higher levels of body dissatisfaction (e.g. Ata, Bryant Ludden, & Lally, 2007; Botta, 2003; Ogden & Munday, 1996), it is clear that males are also vulnerable to poor body image. This seems to be especially the case as boys enter into adolescence and beyond.

*Physical and psychological consequences of body dissatisfaction in males.*

As previously discussed, the negative effects of body dissatisfaction in females have been well documented. Similarly, research has linked body dissatisfaction in males to a range of physical and psychological consequences including low-self esteem, depression, excessive exercise, performance enhancing substances (Keel, Fulkerson, & Leon, 1997; Leon, Fulkerson, Perry, & Early-Zald, 1995; Olivardia, 2002; Olivardia et al., 2004). Although the prevalence of eating disorders is substantially less in males than in females (Hudson, Hiripi, Pope, & Kessler, 2007), body dissatisfaction in males has also been linked to eating pathology, and extreme dieting strategies have been linked specifically to the pursuit of being lean and muscular (Cafri, Thompson et al., 2005). Adolescent boys are not immune to the effects of body dissatisfaction. Evidence suggests that a negative body image in adolescent boys is linked to negative affect, low self-esteem, eating disorders, extreme weight and muscle building strategies, and alcohol, drug and anabolic steroid use (Ricciardelli & McCabe, 2004). Rates of anabolic steroid use in boys aged between 11 and 16 have been reported at between 9% and 12.4% (Irving, Wall, Neumark-Sztainer, & Story, 2002; Ricciardelli & McCabe, 2004; Smolak, Murnen, & Thompson, 2005; Thompson, 2004b). Smolak et al. (2005) highlight that estimates of steroid abuse in adolescent boys exceed the estimated prevalence of anorexia nervosa in adolescent girls. Further, the use of extreme muscle building techniques can have severe psychological and physical consequences, especially in the developing adolescent (Botta, 2003; Brower, 1992; Cafri, Thompson et al., 2005).

The reported rise in body image problems in males combined with the increase in body dissatisfaction in adolescence and its negative psychological and physical consequences is worrying. This has been reflected in the increase in research into the development of body dissatisfaction in males, and points towards the importance of investigation in this area (Hobza & Rochlen, 2009).

### **Body Dissatisfaction: A Socio-Cultural Perspective**

Influential models of the development of body image disturbances and eating disorders emphasise the importance of socio-cultural variables in the onset of such problems (Stice, 1994; Stice & Agras, 1998; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Socio-cultural variables include the ways in which the core themes of society, namely the 'body-ideal' and importance of appearance, are transmitted to and influence individuals. Three sources of influence have been highlighted as 'transmitters' of socio-cultural themes; family, peers and the media (Stice & Agras, 1998).

#### *The Western 'Body-ideal'*

Central to socio-cultural theories of the development of body dissatisfaction is that an ideal body is endorsed by society. In Western societies the female ideal is characterised by a slender figure which, for the majority of people, is unattainable. The inability to achieve the ideal body leads to body dissatisfaction which subsequently leads to dieting, negative affect and eating disorder symptomatology (Stice & Agras, 1998). Evidence for cultural variations in attractiveness judgments suggests that this ideal is indeed culturally fostered, with non-Western cultures endorsing larger figures in comparison to the thin-ideal of Western societies. For example, Furnham and Baguma (1994) have found larger body shapes to be rated as less attractive by British people in comparison to Ugandans. Similarly, Wetsman and Marlowe (Wetsman & Marlowe, 1999) found Hazda men in Tanzania rated larger figures more favourably than American men, who endorsed thinner bodies. The effect of culture on this ideal is demonstrated by evidence that younger generations in non-Western societies show



preferences more similar to those of Western societies, presumably due to the increasing influence of Western culture on non-Western societies (Swami, Knight, Tovée, Davies, & Furnham, 2007; Tovée, Swami, Furnham, & Mangalparsad, 2006). This absorption of socio-cultural ideal body size is supported by evidence that the length of residence of female Hispanic immigrants in the US was positively associated with an increase in body dissatisfaction as thinner ideals were preferred (Lopez, Blix, & Blix, 1995). Relating body dissatisfaction to eating pathology, there is evidence to suggest that rates of eating disorders are higher in Western than non-Westernised countries (Anderson-Fye & Becker, 2004).

Not only is there evidence for cross-cultural differences in the ideal body, but also that the Western ideal is becoming increasingly extreme. For females, numerous depictions of the ideal body such as cartoons, Miss America Pageant winners, shop store mannequins, film and television actresses, and fashion models, have become increasingly thinner over the second half of the twentieth century (Garner, Garfinkle, Schwartz, & Thompson, 1980; Klein & Shiffman, 2005; Rintala & Mustajoki, 1992; Silverstein, Perdue, Peterson, & Kelly, 1986; Spitzer, Henderson, & Zivian, 1999).

In contrast to the female thin-ideal endorsed by Western cultures, the ideal body for males is athletic and muscular with a flat abdomen, large upper body and wide shoulders (Frederick et al., 2007; Leit, Pope, & Gray, 2001). This is similarly unattainable to males as the thin-ideal is for females, especially for pre-adolescent and adolescent boys (Leit, Gray, & Pope, 2002). As for the female ideal body, authors have suggested that the male ideal body has become more extreme as society endorses an increasingly muscular male body idea (Pope, Phillips, & Olivardia, 2000). This view is supported by evidence that depictions of the male ideal body, such as Playgirl centrefolds and action toys, have become more lean and muscular (Leit et al., 2001; Pope, Olivardia, Gruber, & Borowiecki, 1999).

### *Media Portrayals of the Ideal Body*

Of the transmitters of socio-cultural themes, arguably one of the most powerful promoters of the ideal body in Western cultures is the mass media (Groesz et al., 2002;

Tiggemann, 2003). As such, in recent years the effects of the media presentation of the ideal body on body dissatisfaction and eating disorders have been an increasing focus in both the media itself and in empirical research. Illustrating the media attention that this has received is the “Size Zero Debate”. This centres on claims that the very low body weights of many top models can dangerously influence women. It was sparked after the sudden deaths of two catwalk models in 2006, reportedly due to self-starvation, and prompted a call for a ban on the use of models with dangerously low body weights (Cosgrave, 2006; Olins, 2008). This led to a huge debate in the media with some fashion capitals refusing to implement the ban (Cosgrave, 2006). More recently, a similar debate has begun in the media regarding the use of ultra-thin males in the fashion world. McViegh (2010) highlights a shift in the standard sizing of male fashion models, with demands for smaller male models on the increase. This has been likened to a repeat of the “Size Zero” trend and suggests that, as for women, it can encourage men to seriously endanger their health in efforts to emulate the apparent ideal. Paradoxically, such media attention only serves to increase the exposure of the thin-ideal, exposure which research has repeatedly demonstrated has negative consequences on body image (Grabe et al., 2008; Groesz et al., 2002; Want, 2009).

*Depictions of the ideal body in magazines.*

There is empirical evidence to suggest that images presented in the media have become increasingly thin and body focused. This is particularly true in the case of magazines. For example, it has been demonstrated that the body size of female fashion models and playboy centre folds decreased in the latter half of twentieth century and that there has been an increase in the frequency with which the media portrays the entire body of models (Morris, Cooper, & Cooper, 1989; Sypeck, Gray, & Ahrens, 2004; Voracek & Fisher, 2002; Wiseman, Gray, Mosimann, & Ahrens, 1992). It has also been documented that these images are thinner than the average size of the female population and can fall within the weight criteria for anorexia nervosa (see Grabe et al., 2008). Not only have images of women become thinner, but a rise in the number of such images being portrayed and of body focused media content has also been observed. For example, Wiseman et al. (1992) found a significant increase in exercise and dieting articles and advertisements in magazines over the second half of the

twentieth century. A similar pattern has been observed in magazines targeted at teenage girls. Luff and Gray (2009) examined the content of two such magazines and found that the number of articles about dieting and exercising they contained had increased between 1956 and 2005.

Equivalent trends have been observed regarding the male ideal body in magazines. Researchers have documented a rise in the use of lean and muscular males in magazines and an increase in the number of articles about men's weight and health concerns (Nemeroff, Stein, Diehl, & Smilack, 1994; Pope, Olivardia, Borowiecki, & Cohane, 2001). Further, Andersen and DiDomenico (1992) found that advertisements and articles published in men's magazines contained significantly more content on changing shape than on losing weight, suggesting a focus on muscularity over body fat. Examining the magazine *Sports Illustrated* between the 1970's and 2000's, Farquhar and Wasylikiw (2007) found an increase in the aesthetic conceptualisation of the male body in comparison to male performance. Evidence suggests that the male figures depicted in magazines are becoming increasingly muscular. For example Leit et al. (2001) found that *Playgirl* centrefolds became more dense and muscular in the last three decades of the 20<sup>th</sup> century with a proportion having a Fat Free Mass Index (FFMI) which cannot typically be achieved without the use of performance enhancing drugs (Grammas & Schwartz, 2009). Further, Frederick, Fessler, and Haselton (Frederick, Fessler, & Haselton, 2005) found that magazines targeted at a male audience depicted male bodies which were even more muscular than those presented in women's magazines. This suggests that the ideal male body to which men specifically are exposed is even more extreme than would typically be viewed as ideal by females. As described above, there is also a dichotomous shift in the male body ideal towards ultra-skinny males. Examples in the mass media include Mark Ronson, Russell Brand and a number of top male models with fashion magazines targeted at males including images of these ideals (McVeigh, 2010). Although research on male body size trends in these magazines is yet to be carried out, one can hypothesise that the body ideals for males as presented in magazines are becoming increasing extreme on both the muscular dimension and the thinness/leanness dimension.

### *Effects of Media Exposure on Body Dissatisfaction*

Communications theories suggest that, as individuals are repeatedly exposed to media content, they begin to accept the portrayals as part of reality (Grabe et al., 2008). Cultivation Theory (Gerbner, Gross, & Morgan, 2002) hypothesises that the mass media cultivates ideas that are present in society and, in turn, maintains and propagates these so that eventually what is presented in the media becomes social reality for its consumers. Therefore the unrealistic images presented in the media are not seen as such, but as something that is normal, real and achievable. Social Comparison Theory (Festinger, 1954) provides a framework for understanding how these ideals can influence body image. In order to evaluate personal characteristics, people compare themselves to others with personal or social importance (Blond, 2008). Based on Social Comparison Theory, Thompson et al. (1999) proposed their Tripartite Influence Model for the development of body dissatisfaction and eating disorders. They hypothesised that the influence on body image of three primary sources (parents, the media and peers) is exerted through the processes of appearance comparison and thin-ideal internalisation (the latter of which will be addressed later). In Western societies, where physical appearance is emphasised, societal ideals as presented in the mass media provide a reference point from which comparisons are made. Because the ideal is largely unattainable, upward social comparisons are hypothesised to result in a discrepancy between an individual's own appearance and that which is perceived as being standard. In the case of body size, this can result in feelings of dissatisfaction with one's body (Want, 2009). Researchers have investigated the impact of the media on body image with the general conclusion that exposure to idealised images increases levels of body dissatisfaction and associated behaviours (Grabe et al., 2008). These studies fall into three methodological paradigms: correlation studies, experimental studies and longitudinal and prospective studies.

#### *Correlational studies.*

Correlational research investigates the effects of media exposure using naturalistic data. The amount of media consumption, typically self-reported, is compared to measures of body dissatisfaction and/or other associated issues such as

eating behaviour. Results from these studies have demonstrated that an increase in the amount of media use which features ideal bodies is related to higher levels of body dissatisfaction and eating pathology. For example, Stice, Schupak-Neuberg, Shaw, and Stein (1994) asked female undergraduates to record the number of magazines (health and fitness, fashion and beauty, entertainments, arts and gossip) that they had looked at and the amount of television (comedy, drama and game shows) they had watched over a period of a month. They found a direct effect of media exposure on eating disorder symptomatology and a link between media exposure and body dissatisfaction; the greater the media consumption, the higher the scores were on eating pathology and on body dissatisfaction. Using a similar methodology, Bissel and Zhou (2004) found that the amount of self-reported exposure to thin-ideal television and magazines was related to measures of eating disorder pathology in undergraduate females. Supporting the Tripartite Influence Model, correlational research has shown media body comparison to mediate the relationship between body dissatisfaction and magazine exposure, but not television exposure, in young adult women (van den Berg et al., 2007).

Similar results have been found in studies using samples of adolescent and pre-adolescent girls. For example, Tiggemann and Pickering (1996) found that self-reported exposure to certain types of television programs depicting women in idealised roles were positively correlated with body dissatisfaction. Examining magazine exposure in girls aged between nine and 12, Sands and Wardle (2003) found that time spent looking at magazines which reflected the thin-ideal was positively correlated with body dissatisfaction. These studies produce findings that are in concordance with a number of other studies demonstrating that body dissatisfaction is higher in adolescent and pre-adolescent girls who watch more television and read more magazines (e.g. Anderson, Huston, Schmitt, Linebarger, & Wright, 2001; Hofshire & Greenberg, 2002).

Correlational research has also demonstrated appearance comparisons to partially mediate the relationship between media influence and body dissatisfaction in adolescent girls aged between 11 and 14 (Keery, van den Berg, & Thompson, 2004).

While correlational research provides naturalistic information on the relationships between media consumption and body image concerns, there are two main methodological issues which mean that results from these studies should be treated with caution. Firstly, they tend to rely on the self-reporting of media exposure. As such,

there is likely to be an element of unreliability in the measures of media exposure. Secondly, correlational studies limit the confidence with which causal inferences can be made about the effects of media exposure. For example it is possible that, as opposed to media exposure predicting body image concerns, higher levels of body dissatisfaction and eating pathology can result in an increase in the amount of thin-ideal media that one exposes themselves to, or that a common variable links the two (Grabe et al., 2008). Experimental studies, where exposure to media information can be controlled and manipulated, provide more reliable results and enable causal inferences to be made regarding exposure to media information and body dissatisfaction.

### *Experimental studies.*

In experimental research in this area, participants are typically exposed to media information containing images of the socio-cultural ideal or to neutral images. Participants are then asked to fill in measures of the construct being investigated such as body dissatisfaction, negative affect or eating pathology (Grabe et al., 2008). In terms of the measurement of body dissatisfaction, when considering experimental studies an important distinction should be made between trait body image and state body image (Thompson, 2004). The majority of research already described utilises measures which assess the former (aspects of body image that are stable over time). However in experimental studies it is more common and more appropriate to use measures which assess body image at a particular point in time (state body image). Typically these measures will ask participants to rate how they feel about their body “at the moment” or “right now”, or will ask them to choose a figure which they feel best represents their own and one which they would most like to look like (as in the case of visual analogue scales). Such measures assess the short term effects of the experimental manipulation. For example, Birkeland et al. (2005) exposed female undergraduates to magazine advertisements featuring attractive models either with an appearance-related product or a neutral product, or to advertisements with only an appearance-related or neutral product. They found that advertisements featuring an attractive model significantly increased state body dissatisfaction (as measured using a visual analogue scale) and mood disturbance. The presence of an appearance-related product had no effect and no effect was found for either of the product only conditions.

These results suggest that exposure to an ideal body, whether in isolation or not, increases body image concerns and that even appearance-related products are not enough to produce an effect.

Similar results have been found in studies with adolescent girls. For example, Durkin and Paxton (2002) exposed 12-13 and 15-16 year-old girls to magazine advertisements featuring either idealised females or fashion accessories. They found a significant decrease in state body dissatisfaction and a significant increase in state depression in both groups following exposure to the advertisements containing idealised females, but not for those containing fashion accessories. Although the majority of experimental studies have used magazine images (Grabe et al., 2008), experimental research using television commercials has produced similar effects in both adolescent and undergraduate females (e.g. Catterin, Williams, Thomas, & Thompson, 2000; Hargreaves & Tiggemann, 2004). Additionally, Tiggemann and Slater (2003) found that female undergraduates exposed to appearance-related music videos showed significantly higher levels of state body dissatisfaction than those exposed to non-appearance-related music videos.

There is, however, variability in the extent to which experimental studies have found exposure to thin-ideal images to increase body image concerns and related issues. For example, Halliwell, Dittmar, and Howe (2005) exposed women with a prior history of an eating disorder to advertisements featuring either an ultra-thin model, an average-size model or perfume bottles. They found no increase in body-focused anxiety as a result of viewing the advertisements featuring ultra-thin models, but found a decrease in body-focused anxiety following exposure to those featuring the average-size model. They suggested that high levels of pre-existing body concerns may have resulted in the lack of effect of viewing ultra-thin models. In contrast, Posovac, Posovac, and Posovac (1998) found that exposing women to images of thin-ideal fashion models increased weight concern, but only in women with already elevated levels of body dissatisfaction. Examining the effect of television commercials with appearance-related content on body satisfaction and mood, Heinberg and Thompson (1995) found that only participants with high levels of pre-existing body dissatisfaction and acceptance of socio-cultural ideals showed elevated levels of mood and body image disturbance.

In a meta-analysis examining the experimental manipulation of thin ideal media exposure on body image, Groesz et al. (2002) found a small to medium effect size ( $d = -0.31$ ). They concluded that females' body image satisfaction was significantly reduced after viewing images of the thin-ideal in comparison to control stimuli including average or plus size models or inanimate objects. Further, they found that effects were greatest in females who already had pre-existing body image concerns and were also greater in females under 19 years of age. This suggests that adolescents and also those with elevated levels of trait body dissatisfaction are particularly susceptible to the effects of appearance-related media information.

Grabe et al. (2008) included both correlational and experimental research in their meta-analysis examining the role of the media in female body image concerns. They found a mean effect size of  $-0.28$  and  $-0.30$  for the relationship between media exposure and body dissatisfaction and  $-0.30$  for the relationship between media exposure and eating behaviours and beliefs. Similar effect sizes in correlational and experimental research were reported. They suggested that, because the phenomenon is evident in both controlled experimental conditions and in naturalistic settings, the negative effects of media exposure on body dissatisfaction and eating pathology are robust. However, the presence of studies which have found no effects, or mixed effects, suggest that the effects of media exposure on body dissatisfaction may be dependent on individuals who are in some way vulnerable to the effects.

#### *Longitudinal studies.*

While experimental studies allow inferences about the acute effects of media exposure on body image, they lack in being able to examine long term effects. Grabe et al. (2008) highlight that longitudinal and prospective studies are important in assessing women's vulnerability to body image concerns, however there are relatively few of these studies in publication. Examining longer term implications of appearance-related media exposure, Hargreaves and Tiggemann (2003a) found that adolescent girls who viewed television commercials depicting the thin-ideal showed significantly higher levels of body dissatisfaction two years later in comparison to a control group who viewed non-appearance related commercials. Another longitudinal experiment has produced



conflicting results to these. Stice, Spangler, and Agras (2001) exposed adolescent girls to a 15-month subscription of an appearance-related magazine and compared the sample to a control sample who received no subscription. They found that exposure to magazines did not significantly effect long term body dissatisfaction or negative affect. However, they were able to show negative effects of exposure on those adolescents who already had high levels of perceived pressures to be thin and body dissatisfaction. While the study could be criticised for its lack of control over external media influence, it does contribute to the suggestion that exposure to appearance-related body image information affects only those who are vulnerable in some way to such information.

### *Effects of Media Exposure on Male Body Dissatisfaction*

Historically the majority of research investigating the effects of the media on body dissatisfaction has focused on women (Bartlett, Vowels, & Saucier, 2008). However, due to the cultural shifts regarding men's body image described above, an increasing amount of research attention has been paid to the effects of media exposure on male body image (Blond, 2008). While relatively fewer studies exist in this area in comparison to studies on females, evidence from both correlational and experimental research suggests that exposure to media featuring the ideal male body is related to body dissatisfaction, psychological disorders such as depression, and negative behavioural outcomes such as excessive exercising (Bartlett et al., 2008).

Correlational studies similar to those conducted with females have been conducted with male participants. For example, Hatoum and Belle (2004) asked male undergraduates to record the hours per week that they spent watching television, movies and music videos and reading magazines. They found that male-directed magazines were the form of media most associated with bodily concern. The amount of time reading these magazines was related to an increase in bodily concern, consumption of dietary supplements to build muscle, time spent exercising and drive for muscularity. The only other form of media that was related to body concern was music videos; an increase in the amount of time watching music videos was related to an increase in consumption of dietary supplements to build muscle. In a similar study, Botta (2003) asked adolescents to record how much time they spent reading certain types of magazines each day. They

found that an increase in fashion magazine reading was associated with a decrease in adolescent boys' body satisfaction and drive for muscularity. However, reading health/fitness magazines was related only to an increase in muscularity concerns. Results of these studies combined suggests that the type of images viewed (i.e. images of the male ideal body; thin or muscular) affects males' feelings about their body and associated behaviours in different ways.

In a meta-analysis of studies investigating the effects of media exposure on male body image, Bartlett et al. (2008) found an overall effect size of -0.19 from correlational studies and concluded that appearance-related media exposure was significantly related to body image concerns in males. In contrast to evidence that these effects are most prominent in younger people (e.g. Groesz et al., 2002), Bartlett et al. found the effect became stronger as male participants increased in age. However, as described above, results from correlational studies should be treated with caution as they do not allow causal inferences to be made between the variables of media exposure and body image concerns.

Studies using experimental paradigms have found that controlled exposure to male ideal bodies in the form of television, magazines and even action figures increases body image problems and negative affect (Bartlett et al., 2008; Blond, 2008). For example, Agliata and Tantleff-Dunn (2004) exposed male undergraduates to television commercials containing either ideal male images or neutral images. Participants exposed to the images of ideal males had significantly higher levels of state muscle dissatisfaction and depressed mood than those exposed to neutral images. Farquhar and Wasylikiw (2007) found boys aged between 11 and 14 who were exposed to images of objectified males (non-active, body-as-object, high levels of nudity and high muscularity and attractiveness) showed lower levels of performance and appearance self-esteem in comparison to boys who were exposed to non-objectified males (active, body-as-process). This suggests that a focus on the aesthetic qualities of the body, as has become increasingly common in the media over the past 30 years (Farquhar & Wasylikiw, 2007), has a stronger negative effect on body image concerns.

In their meta-analysis described above Bartlett et al. (2008) found an overall effect size of -0.22 from experimental studies investigating the effects of media exposure on body

dissatisfaction in males. They found that the type of media did not moderate the effect sizes, suggesting that all employed forms of media had similar effects on increasing body image concerns. Additionally, they reported the overall effect size to be similar to that of the effect size for experimental exposure of images of ideal bodies on female body image concerns. The authors concluded that males are equally vulnerable to the effects of exposure to idealised images as are females.

As with experimental studies using female participants, the effects of male exposure to ideal bodies are not universal across all experiments. For example, Hausenblas, Janelle, Gardner, and Hagan (2003) found that undergraduate males with pre-existing body image concerns, showed higher levels of body dissatisfaction after viewing slides of male models than those with low levels of pre-existing body image concerns. Further, some studies have found no effects. For example, Johnson, Mills, and McCreary, (2007) found no effect on male undergraduates' body image after exposure to magazine advertisements featuring muscular males. A positive effect of media exposure on body image has also been demonstrated. For example, Humphreys and Paxton (2004) exposed adolescent boys to images of idealised males selected from either magazines or websites. They found no overall change in their mood or desire to change their body tone or shape, and an increase in their satisfaction with their body shape. However, the authors noted that this result was not uniform across all participants. Those who had prior body image concerns and who were more accepting of societal ideas of the muscular, athletic ideal were more negatively affected as a result of viewing the images. The variability in effects demonstrated in these studies is consistent with the hypothesis that individual differences may cause some people to be more vulnerable to the effects of media exposure than others.

#### *Effects of Media Exposure on Body Dissatisfaction: Comparing Male and Females*

Bartlett et al. (2008) have highlighted the similar overall effects sizes of experimental exposure to ideal images on males and females. Although the authors point out that this comparison must be interpreted with caution as no statistical tests were used. Studies which include both male and female participants allow for a direct comparison of these effects between the genders. For example, Kalodner (1997)

exposed male and female undergraduates to gender specific images of thin models. They found that anxiety and body self-consciousness was increased in females but not in males. Conflicting results have been found by Ogden and Munday (1996). They also exposed male and female undergraduates to gender specific images of models and found that all participants showed a deterioration in their body image, although the effects were stronger for females. It is important to point out the different outcome measures used in these studies. Kalodner (1997) measured body self-consciousness which does not necessarily equate to body dissatisfaction. Ogden and Munday (1996), on the other hand, used visual analogue scales to measure body dissatisfaction.

Examining gender differences in adolescent girls and boys, Hargreaves and Tiggemann (2004) exposed 13-19 year-olds to television commercials featuring thin-ideal women or muscular-ideal men. They found subsequent increases in girls' body dissatisfaction but only a limited impact on boys' body dissatisfaction. They did, however, find that both boys and girls who scored higher on appearance investment were more likely to engage in social comparisons with the ideals presented in the commercials. As described above, such social comparisons can result in an increase in body dissatisfaction where the ideal is largely unattainable. The authors suggested that a lack of effect on boys' body dissatisfaction may have been a result of the muscular-ideal presented in their stimuli being less salient to the boys than the thin-ideal was to the girls. It is therefore possible that those boys who engaged in more social comparisons did not actually show an increase in body dissatisfaction as a result. Hargreaves and Tiggemann (2004) concluded that, while boys' body image concerns mirrored those of girls, they were typically less prevalent and that the impact of the media on girls' body image was stronger. They did, however, highlight that the importance of individual difference in predicting the extent of body image concerns as a result of media exposure, and suggested that as a result some girls and boys are more vulnerable to these effects.

In summary, correlational and experimental research has demonstrated that exposure to media featuring ideal bodies increases body image concerns in both males and females, although these effects appear to be stronger for females. Yet evidence suggests that for both males and females, effects of media exposure on body dissatisfaction may be dependent on individual characteristics.

## **Vulnerability to Body Dissatisfaction: A Cognitive Processing Approach**

Cognitive processing factors have been hypothesised to contribute to the development and maintenance of both body image disturbances and eating disorder pathology (Thompson et al., 1999). These models have been used to account for differences in the way that individuals process information related to food, body and appearance, which is related to the affective and behavioural consequences of exposure to such information (Hargreaves & Tiggemann, 2002a; Johansson, Ghaderi, & Andersson, 2005).

### *Cognitive Bias and Eating Disorders*

Cognitive processing models of eating disorders have proposed that bias information processing around body appearance and eating contribute to the maintenance of eating disorders (Vitousek & Hollon, 1990). It is hypothesised that individuals with eating disorders develop maladaptive self-schema regarding weight and its relations to the self. Self-schema are defined as organised cognitive structures which influence an individual's perceptions, thoughts, affect and behaviour by guiding the processing of information relevant to self (Markus, 1977). In people with eating disorders, these maladaptive schema subsequently produce cognitive bias, defined as systematic errors in the memory of, attention to or interpretation of information regarding food, body and appearance. This then influences an individual's thoughts, feelings and perceptions regarding these domains and their relevance to self (Vitousek & Hollon, 1990).

Experimental investigation has sought to identify these cognitive biases. A large proportion of such research has used modified versions of the Stroop colour naming task whereby the speed and accuracy of colour naming body, weight and shape, and food-related words is compared to that of neutral words. A relatively recent meta-analysis on such experiments found a medium effect size of Stroop interference ( $d = 0.48$ ) for individuals with eating disorders. This was significantly larger than the effect size for non-eating disordered individuals ( $d = 0.21$ ) (Johansson et al., 2005). Similar attentional biases have also been demonstrated using other methodologies. For

example, using a dot-probe paradigm Shafran, Lee, Cooper, Palmer, and Fairburn (2007) found that participants with eating disorders showed a significantly greater processing bias towards eating and weight stimuli than non-clinical participants. In support of cognitive theories, these results indicate a processing bias in eating disordered individuals towards increased attention to information that is schema salient. Studies have also examined memory bias in eating disordered individuals with the assumption that processing resources will be differentially allocated to salient information. Results have indicated that individuals with eating disorders show a memory bias for food- and body-related words, again providing support for cognitive processing models (Hermans, Pieters, & Eelen, 1998; Hunt & Cooper, 2001). Further, it has been demonstrated that women with eating disorders have significantly higher levels of negative thinking about food, eating, weight and shape than do women without eating disorders (Cooper, 1997). This suggests that cognitive bias is not only evident in implicit processing but in thought processes as well.

#### *Cognitive Bias in Non-clinical Individuals*

Evidence suggests that processing bias is not only present in those with eating disorders, but in non-clinical individuals to varying extents. For example, Hewig et al. (2008) examined the eye-gaze behaviour of male and female undergraduate viewing slides of attractive males or females. They found that those scoring high on drive for thinness showed preferential attention to parts of the body which are associated with the assessment of weight (waist, hips, legs and arms).

It is hypothesised that all individuals possess self-schema regarding appearance. These 'appearance schema' determine the level to which an individual places the importance of their appearance in their life and are argued to be a core facet of body image (Cash, Melynck, & Hrabosky, 2004). Self-schema are hypothesised to derive from personal and social experiences (Markus, 1977). Given the socio-cultural ideal of thin females and lean and muscular males, appearance schema in people from Western societies are likely to pertain to these ideals. Subsequently these can produce appearance-related cognitive bias towards information related to shape, body, weight

and food which can have negative cognitive-affective consequences such as body dissatisfaction (Hargreaves & Tiggemann, 2002a).

While it is postulated that all individuals possess appearance-related schema, not everyone will develop these schema to the same extent (Hargreaves & Tiggemann, 2002a). Those with stronger, more elaborate, and more accessible schema should demonstrate stronger appearance-related bias. Consistent with this hypothesis is evidence that 'appearance schematic' women show greater appearance-related attentional bias, as measured by the Stroop task, in comparison to 'aschematic' women (Labarge, Cash, & Brown, 1998). Research has also shown that males with high levels of appearance concern show a valence specific interpretation bias towards ambiguous stimuli (Rosser, Moss, & Rumsey, 2010). That is, these individuals were more likely than those with low appearance concern to class ambiguous words as appearance-related or negative. Providing support for the negative consequences of more prominent appearance schema, Hargreaves and Tiggemann (2002a) found that adolescent girls with high appearance schematicity showed a significantly greater increase in body dissatisfaction over the course of two years than girls with low appearance schematicity. An equivalent effect was not observed in adolescent boys. The authors attributed this to the relatively stable rates of body dissatisfaction and higher rates of attrition in their male sample.

However, studies using both the Stroop task and other methodologies have produced inconsistent evidence and small effect sizes for weight, shape and food-related appearance bias in women without eating disorders (Dobson & Dozois, 2004; Johansson et al., 2005; Rosser et al., 2010). One explanation for this is that body image concerns in non-eating disordered individuals have not been activated prior to the task (Cassin, von Ranson, & Whiteford, 2008). According to Beck (1979) contextual events prime or activate schema, thus if latent schema are not activated, then cognitive bias will not be observed. Support for this can be found in evidence that, in an adapted Stroop task, non-depressed women respond similarly to depressed women when primed with self-focusing information similar to that of the cognitive structure of the depressed sample (Segal & Vella, 1990). Experiments using the Stroop task to measure appearance-related cognitive bias have also found the effect to be dependent on priming individuals with appearance-related stimuli (Labarge et al., 1998). This

provides support for the hypothesis that schema need to be activated in order for processing bias to occur (Beck et al., 1979).

### *Cognitive Bias, Body Dissatisfaction and Media Exposure*

It has been suggested that appearance-related media exposure serves to activate appearance schema, and therefore primes individuals towards schema relevant information. This subsequently produces appearance-related cognitive bias (Cassin et al., 2008). Due to the individual differences in appearance schema, and therefore the resulting differences in appearance-related cognitive bias, it is hypothesised that cognitive-affective and behavioural consequences of appearance-related information will be stronger for people with more elaborate appearance schema (Hargreaves & Tiggemann, 2002a). Subsequently, appearance schema have been hypothesised to be a mediator between socio-cultural influences and body dissatisfaction (Clark & Tiggemann, 2007). Providing support for this theory, Clark and Tiggemann (2007) demonstrated that self-reported exposure to appearance media (television and magazines) was positively related to body dissatisfaction in nine-12 year-old girls and that appearance schema mediated this relationship. However, as this study was correlational, conclusions about the directional relationship between media exposure and body dissatisfaction as mediated by appearance schematicity cannot be made.

While this study provides evidence of a link between stable trait-like appearance schematicity, media exposure and body image, it does not provide information on the mechanisms by which appearance schema are hypothesised to operate (i.e. appearance-related cognitive bias). Tiggemann, Hargreaves, Polivy & McFarlane (2004) developed a word-stem completion task to investigate appearance and weight-related cognitive biases. The word-stem completion task is a non-obvious measure of implicit appearance-related cognitive processing bias and is therefore postulated to assess schema activation, which takes place outside of awareness, and which is argued to be reactive to appearance-related information (Tiggemann & Slater, 2004). Using the task, they have demonstrated an increase in appearance-related cognitive bias in both male and female undergraduates in response to appearance-related cues



such as self-reporting weight, ideal weight and appearance satisfaction (Tiggemann et al., 2004).

The word-stem completion task has also been used to demonstrate the effects of appearance-related media exposure on schema activation and body dissatisfaction. Using an experimental paradigm, Tiggemann and Slater (2004) found that female undergraduates exposed to appearance-related music videos had higher levels of both appearance-related cognitive bias (which they interpreted to be caused by appearance schema activation) and body dissatisfaction than those exposed to non-body animated videos. In a similar study with adolescents, Hargreaves and Tiggemann (2002b) found that viewing television commercials containing women depicting the thin-ideal led to increased appearance-related cognitive bias, as measured by the word-stem completion task and a recall task, and body dissatisfaction in girls aged between 15 and 19. Again, they interpreted this cognitive bias to indicate appearance schema activation which they found to partly mediate the relationship between television commercial viewing and body dissatisfaction. Although exposure to appearance-related television commercials led to increased appearance-related cognitive bias in males, they found no effect on male body dissatisfaction. The discrepancy between male and female levels of body dissatisfaction could be a result of the stimulus used; the commercials were selected for their reflection of the female thin-ideal and, although they contained male actors, they were not rated for attractiveness in commercial selection. The authors therefore suggested that, while appearance-related exposure increased appearance-related cognitive bias, it did not produce the appearance-related comparisons hypothesised to result in body dissatisfaction. In a similar experiment with younger adolescents aged between 13 and 15, Hargreaves and Tiggemann (2003b) found an increase in appearance schema activation, as measured by the word-stem completion task, but found appearance schematicity, as measured by the Appearance Schemas Inventory (Cash & Labarge, 1996), did not moderate the relationship between exposure to appearance-related television commercials and body dissatisfaction. They suggested that this lack of effect may have been due to the salience of appearance issues for all females of this age, therefore rendering moderating effects less prominent. Because the authors did not investigate the link between schema activation and body dissatisfaction they were only able to comment on the effects of trait appearance schematicity on body dissatisfaction. No research was found investigating the effects of exposure to

appearance-related media on appearance-related cognitive bias in pre- to early-adolescence children, using gender appropriate stimuli or stimuli from other forms of media. This indicates the opportunity for further investigation in this area with younger children and using alternative forms of media such as magazines.

### **Vulnerability to Body Dissatisfaction: Individual Risk Factors**

Cognitive processing models have been used to explain a possible mechanism by which exposure to appearance-related information such as that portrayed by the media can contribute to the development of body dissatisfaction. Yet while most people are exposed to the messages of mass media not all develop body image problems. As discussed above, variability in the results of studies investigating media effects on body image suggests that individuals who possess certain vulnerabilities are more likely to develop body image disturbances as a result of media exposure to ideal bodies. Socio-cultural models of body image disturbances and eating disorders postulate that individual risk factors determine the extent to which the transmission of socio-cultural themes of society leads to body dissatisfaction. The extent of body dissatisfaction subsequently determines the development of weight control behaviours, dieting and negative affect (Stice, 2001; Stice et al., 1994; Thompson et al., 1999). Two factors that have been postulated to increase the risk of developing body dissatisfaction are the extent to which one internalises societal ideas of attractiveness and the perceived pressures to conform to this ideal. Figure 1 shows the relationship between these factors and their contribution to eating pathology according to socio-cultural models<sup>1</sup>.

#### *Thin-Ideal Internalisation*

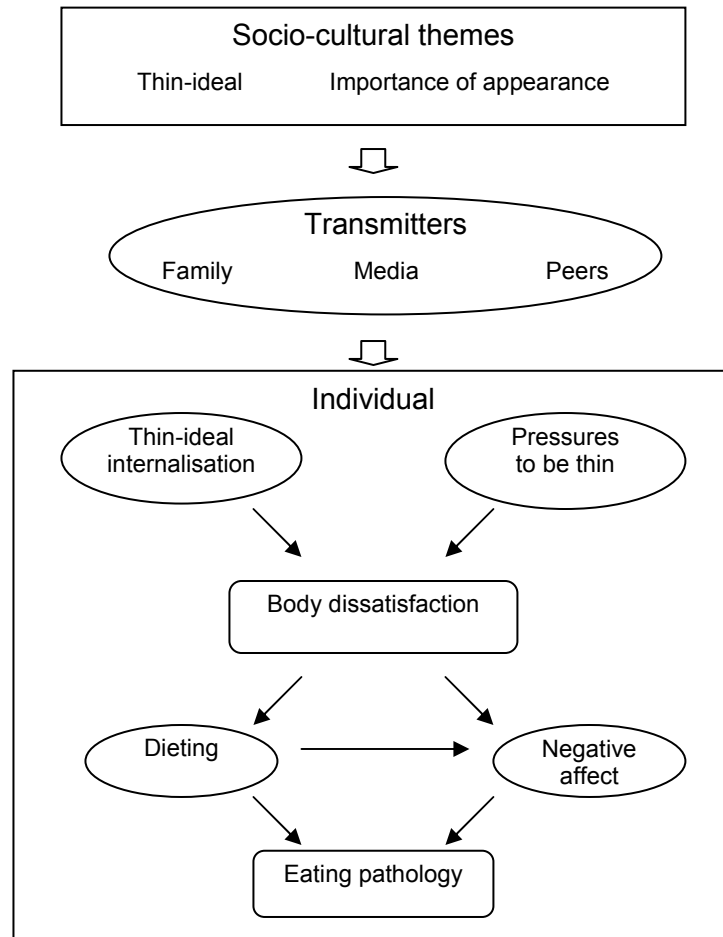
The level to which an individual internalises the core appearance-related themes of society has been termed *thin-ideal internalisation* (Thompson & Stice, 2001). A

---

<sup>1</sup> In this model, the societal ideal is described as the 'thin-ideal'. However, it is acknowledged that society's perceptions of attractiveness and the ideal body encompass more than thinness, especially for males. The term 'thin-ideal' is used as this is conventional in the literature and also because it is aspects of weight that are associated with eating disorder pathology (Thompson and Stice, 2001).

distinction is made between simple, passive awareness of the thin-ideal and the active incorporation of the thin-ideal into one's personal appearance standards (Cafri, Yamamiya, Brannick, & Thompson, 2005). In other words thin-ideal internalisation is defined as "the extent to which an individual cognitively "buys into" socially defined ideals of attractiveness" (Thompson & Stice, 2001, pg. 181). By reinforcing the thin-ideal, body dissatisfaction is directly fostered by the internalisation of this ideal into one's personal standards as, for most people, the ideal is unattainable (Thompson et al., 1999).

Figure 1 - Socio-cultural model of body dissatisfaction and eating disorders (adapted from Stice, 1994, 2001)



Cross-sectional research has examined the relationship between thin-ideal internalisation and body dissatisfaction in young women and in adolescent and pre-adolescent girls. These studies have consistently found thin-ideal internalisation to predict levels of body dissatisfaction and drive for thinness (e.g. Ahern, Bennett, & Hetherington, 2008; Cusumano & Thompson, 2000; Sands & Wardle, 2003; Smolak, Levine, & Thompson, 2001; Stice et al., 1994). Relationships have also been identified between internalisation of socio-cultural attitudes and eating behaviour. For example Anshutz, Engels, and Strien (2008) have found thin-ideal internalisation to be related to emotional eating in undergraduate females both directly and also indirectly through body dissatisfaction. Similarly, in adolescent girls aged between 11 and 16, thin-ideal internalisation has been shown to be significantly related to eating behaviour through body dissatisfaction (Halliwell & Harvey, 2006).

The effects of thin-ideal internalisation as a mediating factor between media exposure and body dissatisfaction and eating disorder pathology have also been examined. For example, Cusumano and Thompson (1997) examined self-reported levels of magazine exposure in undergraduate females and found that exposure to appearance-related magazines did not alone significantly predict body dissatisfaction, eating disturbance and self-esteem. While awareness of societal standards was able to offer some predictive value, internalisation accounted for substantially more variation in these factors, even after controlling for awareness. Mediational effects of thin-ideal internalisation have also been investigated in adolescent girls. For example, Jones, Vigfusdottir and Lee (2004) found internalisation of the thin-ideal directly mediated the relationship between self-reported appearance magazine exposure, appearance conversations with friends and peer appearance criticism in a sample of adolescent girls aged between 12 and 16. While offering valuable information about the effects of thin-ideal internalisation, these studies encounter the methodological problems of correlational research mentioned above.

Experimental studies provide information as to causality and are able to better control media exposure. For example, Brown and Dittmar (2005) exposed undergraduate women to magazine advertisements featuring ultra-thin models. They found that women with high thin-ideal internalisation show significantly elevated levels of weight-focused anxiety compared to women with low thin-ideal internalisation. These results replicate

those of previous experimental studies exposing women to appearance-related magazine advertisements and images of ultra-thin models (Dittmar & Howard, 2004a, 2004b; Halliwell & Dittmar, 2004). In a similar study, Dittmar, Halliwell and Stirling (2009) exposed women to images of thin, attractive models sampled from fashion magazines. They found that thin-ideal internalisation predicted the activation of weight-related self discrepancies which, in turn, led to body-focused negative affect. Durkin and Paxton (2002) examined the effects of experimental exposure to idealised images of thin women on body dissatisfaction and negative affect in 12-13 and 15-16 year-old girls. They found that thin-ideal internalisation predicted a negative general emotional response to the idealised images in both groups. However, only in the older group did thin-ideal internalisation predict body dissatisfaction. The authors suggested that in early-adolescence a framework for the ideal body is established, but only in later adolescence does this lead to a sense of failure at meeting this unrealistic ideal. These studies provide evidence for the direct effects of appearance-related media exposure on body dissatisfaction and the role of thin-ideal internalisation in this relationship. As experimental research examining the effects of thin-idea internalisation in adolescents is lacking, further research is needed to investigate the link between thin-ideal internalisation and body dissatisfaction in early-adolescent girls.

In a meta-analysis of studies examining the influence of socio-cultural factors on body image, Cafri, Yamamiya et al. (2005) found an overall effect size of -0.50 for the relationship between thin-ideal internalisation and body dissatisfaction. This was significantly stronger than that of the relationship between simple awareness of the socio-cultural ideal and body dissatisfaction. Further, there is experimental evidence that the reduction of thin-ideal internalisation, via a dissonance-induction intervention, can lead to a decrease in body dissatisfaction, dieting and eating disorder pathology (Stice, Chase, Stormer, & Appel, 2001). Specifically, media-literacy programmes have shown promising results in reducing thin-ideal internalisation, body dissatisfaction and negative affect (Posavac, Posavac, & Weigel, 2001; Wilksch, Tiggemann, & Wade, 2006; Yamamiya, Cash, Melynck, Posavac, & Posavac, 2005). These results provide support for the hypothesis that the incorporation of the socio-cultural ideal body into one's own appearance standards, rather than the simple awareness of this ideal, is a risk factor in the development of body image problems. However, further experimental

investigation of the effects of thin-ideal internalisation on body dissatisfaction in adolescents is needed.

### *Perceived Pressures from the Media*

While internalisation of the thin-ideal has consistently been linked to body dissatisfaction, researchers have acknowledged the multi-dimensional nature of societal influence (Thompson et al., 1999). Accordingly, socio-cultural theories incorporate both thin-ideal internalisation and perceived pressures to be thin, another form of societal influence, as risk factors in the development of body dissatisfaction and eating disorders (see Figure 1). Perceived pressures to be thin refers to the extent to which an individual feels external sources such as their family, peers, dating partners or the media, push them towards the thin-ideal (Cafri, Yamamiya et al., 2005). This is in contrast to thin-ideal internalisation which refers to active cognitions relating the thin-ideal to one's own appearance (as described above). These two sources of societal influence have been found to be highly correlated in both males and females (e.g. Knauss, Paxton, & Alsaker, 2007) suggesting that they are, perhaps unsurprisingly, related. However, exploratory factor analysis on questionnaire items pertaining to each of the influences has provided support for their conceptual distinctiveness and has revealed them to be independent predictors of various measures of body image and eating disturbance (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). It has been suggested that the relationship between the two may be causal, with perceived pressures to be thin preceding thin-ideal internalisation, although longitudinal research is yet to confirm this (Knauss et al., 2007).

Stice (2001) has hypothesised that thin-ideal internalisation and pressures to be thin form a dual pathway to bulimic pathology via the fostering of body dissatisfaction. In two prospective studies Stice (2001) demonstrated that perceived pressures to be thin and thin-ideal internalisation predicted a growth in body dissatisfaction in girls aged between 13 and 17 over a two year study period. Following this, Stice and Whitenton (2002) demonstrated that, for adolescent girls aged between 11 and 15, the predictive power of perceived pressures to be thin on body dissatisfaction growth over a one-year study

period was both independent of, and stronger than, the predictive power of thin-ideal internalisation.

Noting the influence of perceived pressures from the media, Thompson et al. (2004) revised their widely used measure of societal influence, the Socio-cultural Attitudes Towards Appearance Scale (SATAQ, Heinberg, Thompson, & Stormer, 1995) to include a measure of perceived pressures from the media (SATAQ-3). In two independent samples of female undergraduates, they demonstrated that both perceived pressures from the media and internalisation of the socio-cultural ideal predicted scores on the EDI-DT and EDI-BD (Eating Disorder Inventory - Desire for Thinness and Body Dissatisfaction subscales, Garner, 1991), each contributing unique variance. Studies incorporating measures of both perceived pressures from the media and thin-ideal internalisation have shown these factors to independently predict body dissatisfaction in female undergraduates (Bardone-Cone, Cass, & Ford, 2008), 14-16 year-old adolescent girls (Knauss et al., 2007) and 8-11 year-old girls (Cusumano & Thompson, 2000). Evidence also suggests perceived pressures to be thin to be related to eating behaviour in girls aged between 11 and 16, indirectly through social comparisons, thin-ideal internalisation and body dissatisfaction (Halliwell & Harvey, 2006). However, causal inferences cannot be made; it is possible that either increased body image dissatisfaction may cause perceived pressure from the media to be thin, or the internalisation of the thin-ideal.

Experimental investigation has found induced pressure from peers increases body dissatisfaction in women independent of thin-ideal internalisation (Stice, Maxfield, & Wells, 2003). Yet investigation of the effects of perceived pressures from the media on body dissatisfaction following experimental exposure to appearance-related information is lacking. Further, cross-sectional studies vary with respect to findings about the relative contribution of perceived pressures and thin-ideal internalisation on body dissatisfaction. In a meta-analytic review of studies examining socio-cultural effects on body image, Cafri, Yamamiya et al. (2005) found that the average effect size for perceived pressures was comparable to that of thin-ideal internalisation ( $r=0.48$  and  $r=0.50$  respectively). They highlighted, however, that the small number of studies investigating the effects of perceived pressures limited their confidence in concluding that the effect size for this variable is representative of the population effect size. This

highlights the need for more research, particularly experimental studies, investigating the effects of perceived pressures from the media in conjunction with the effects of thin-ideal internalisation.

### *Socio-cultural Ideal Internalisation and Perceived Pressures in Males*

Socio-cultural ideal internalisation<sup>2</sup> and perceived pressures from the media as risk factors for the development of body dissatisfaction have also been investigated in males. For example, Karazsia and Crowther (2008) examined body dissatisfaction in undergraduate males using the SATAQ-3. They found that general internalisation of the socio-cultural ideal was the strongest predictor of overall male body dissatisfaction and that internalisation of the athletic ideal significantly predicted muscularity dissatisfaction. Similarly, Karazsia and Crowther (2009) found socio-cultural ideal internalisation to significantly predict drive for muscularity in male undergraduates. Investigating the role of perceived pressures to lose weight and socio-cultural ideal internalisation in boys aged between 11 and 16, Halliwell and Harvey (2006) found that internalisation was significantly related to body dissatisfaction, and to eating behaviour indirectly through body dissatisfaction. The authors also found that weight pressures were indirectly related to body dissatisfaction through social comparisons and internalisation, and to eating behaviour through social comparisons, internalisation and body dissatisfaction. In an experimental investigation, Humphreys and Paxton (2004) found no overall effect of exposure to idealised images of males on adolescent boys' body dissatisfaction. However, they did note that those who internalised the muscular ideal were more likely to experience an increase in body dissatisfaction and negative affect following exposure. Results from these studies suggest some males possess similar vulnerabilities to body dissatisfaction as some females.

---

<sup>2</sup> Acknowledging the qualitative differences in body image dissatisfaction between males and females, thin-ideal internalisation will be termed 'socio-cultural ideal internalisation'.



*Socio-cultural Ideal Internalisation and Perceived Pressures:  
Comparing Males and Females*

While the effects of socio-cultural ideal internalisation and perceived pressure from the media have been noted in males, there is evidence to suggest that socio-cultural influences are more a prominent factor of body dissatisfaction for females. For example, Halliwell and Harvey (2006) found that adolescent girls aged between 11 and 16 reported significantly greater perceived pressures to lose weight and significantly higher levels of socio-cultural ideal internalisation than boys of the same age. Further, they found that the relationships between internalisation and body dissatisfaction and between perceived pressures to lose weight and body dissatisfaction (through internalisation) were stronger for females than for males. Comparing undergraduate males and females, Bardone-Cone et al. (2008) found that, while internalisation of the socio-cultural ideal and perceived pressures from the media predicted body dissatisfaction in females, only perceived pressures was a significant predictor of male body dissatisfaction. Similarly, Cusunamo and Thompson (2000) found perceived pressures from the media to significantly predict body dissatisfaction in pre-adolescent girls and boys (aged between 8 and 11), although internalisation was only a significant predictor of girls' body dissatisfaction. The total variance in body dissatisfaction accounted for by these variables was more than three times larger for girls than for boys. Supporting these results, in a sample of adolescent girls and boys (aged 14 to 16), Knauss et al. (2007) found less of the variance in male-body dissatisfaction to be accounted for by socio-cultural ideal internalisation and perceived pressures from the media than in female body-dissatisfaction. They too found that for girls internalisation was a stronger predictor, whereas for boys perceived pressures from the media was a stronger predictor. Jones et al. (2004) also found the relationship between socio-cultural ideal internalisation and body dissatisfaction to be stronger for girls aged between 12 and 16 than for boys of the same age. Although for both girls and boys, the relationship between these variables was significant. For girls, self-reported exposure to appearance magazines was significantly related to body dissatisfaction and mediated by socio-cultural ideal internalisation. They found no effect of self-reported appearance magazine exposure on either of these variables for boys. This suggests that body dissatisfaction in boys may be independent of exposure to media and is consistent with

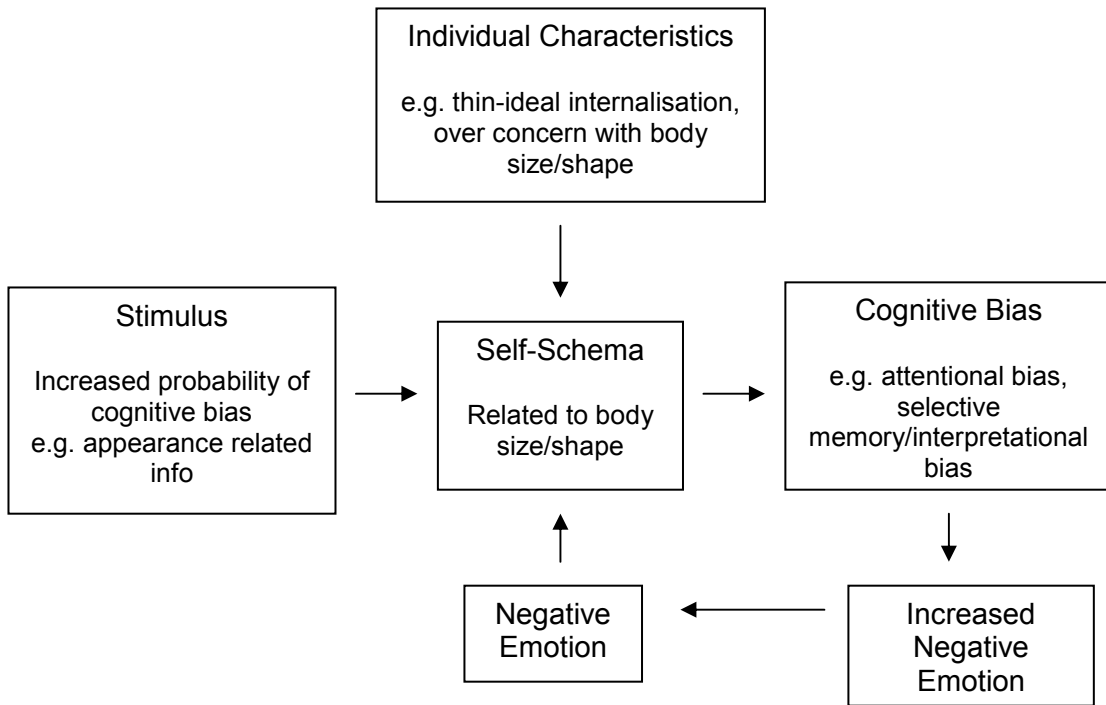
previous results with adolescent boys of a similar age (Hargreaves & Tiggemann, 2004).

While in general it seems that internalisation of the socio-cultural ideal is a more prominent feature in females, results regarding this as a vulnerability factor for males are mixed. The variability in evidence suggesting internalisation to be an important predictor of male body dissatisfaction could be in part due to differences in assessment of body dissatisfaction (Karazsia & Crowther, 2009). The studies in which internalisation was not a significant predictor of males' negative body image did not measure muscle dissatisfaction, therefore discounting an important part of male body image (Jones & Crawford, 2005). The use of measures more appropriate for measuring female body dissatisfaction has been highlighted as a problem in the literature that may have resulted in an underestimation of male body image problems (McCabe & Ricciardelli, 2004). As a result, research investigating socio-cultural influence in both males and females, using gender appropriate assessment tools, is much needed. Further, the studies cited here comparing males and females are all cross-sectional, therefore no assumptions about causality can be made. This indicates the need for further experimental investigation of these effects.

### **Integrating Body Image Dissatisfaction, Cognitive Bias and Media-Ideal Internalisation**

Williamson, Stewart, White, and York-Crowe (2004) have integrated an information-processing perspective on body image with individual risk factors. They describe a model of body image which hypothesises that certain stimuli (e.g. body /eating focussed) will lead to appearance/eating-related cognitive bias via activation of self-schema related to body/eating. However the extent of this bias will be determined by individual characteristics or vulnerabilities including internalisation of the socio-cultural ideal. They suggest a feedback loop whereby this cognitive bias activates negative emotions, which in turn activate appearance/food-related self-schema. Figure 2 illustrates this model.

Figure 2 - Model of body image integrating cognitive processing and individual characteristics (adapted from Williamson et al., 2004)



Brown and Dittmar (2005) have suggested a similar relationship between thin-ideal internalisation, appearance schemacity and body dissatisfaction. They hypothesise that, while appearance schemacity mediates (mediators being the “*why* and *how*”) the relationship between media exposure and body dissatisfaction, thin-ideal internalisation modifies it (moderators being the “*when* and *who*”). Therefore, in response to appearance-related media exposure, high internalisers should show appearance schema activation, measured by increased appearance-related cognitive bias, over and above low internalisers, but only in high internalisers will body dissatisfaction be increased. According to their predictions, they demonstrated that, while all women exposed to appearance-related media information showed appearance-related cognitive biasing to an extent, not all show increased body dissatisfaction. They found that women exposed to ultra-thin models from fashion magazines completed word-stems with significantly more appearance and weight-related words than women who viewed adverts for cars and drinks. However, body dissatisfaction was only increased in those women with high levels of thin-ideal internalisation. Levels of appearance-related cognitive bias were positively correlated with thin-ideal internalisation. They interpreted

these results in terms of a cognitive processing model of body dissatisfaction; thin-ideal media exposure activates appearance schema and causes appearance-related cognitive bias which, in vulnerable women, leads to increased body dissatisfaction. This supports Williamson et al.'s (2004) model in so far as exposure to appearance-related stimuli leads to cognitive bias via self-schema activation, this relationship being modified by individual vulnerabilities. Brown and Dittmar's (2005) results provide evidence for a link between cognitive bias, thin-ideal internalisation and body dissatisfaction. However, no studies investigating these links using adolescent or male samples were identified. Given the importance of the development of body dissatisfaction during adolescence (Sherman et al., 1995; Harter, 1999), and the increase in interest in male body dissatisfaction, this is an area in need of further investigation.

### **The 'Body Focus': Beyond the Media**

This introduction has highlighted how body dissatisfaction can be a significant problem for young people, how the mass media may contribute to this problem, and how certain factors may render some individuals more vulnerable to the development of body image problems than others. It is important, however, to view these problems in a broader socio-cultural context. The increasing rates of obesity in Britain over the second half of the twentieth century have resulted in the launch of a cross-government strategy aimed at tackling this problem ('Healthy Weight, Healthy Lives: A Cross-Government Strategy for England', Cross-Government Obesity Unit, Department of Health, and Department of Children, Schools and Families, 2008). The focus of this is on helping children to achieve and maintain a healthy body weight by encouraging healthy eating and physical exercise. However, although this emphasis on healthy eating and increasing activity levels is aimed at improving health, it too brings a focus on body size and shape. For example, an important part of the strategy is the National Child Measurement Programme (NCMP; Cross Government Obesity Unit, 2010) whereby every child in reception and in Year 6 is weighed and measured. So while children are being better educated about the healthy body, it could also be argued that they are being subject to yet more pressures to have the "right body" size and shape. Indeed evidence exists to suggest that a small proportion of children find the weighing and

measuring process of the NCMP distressing (Grimmett, Croker, Carnell & Wardle, 2008). An increase in awareness of a healthy lifestyle can potentially benefit the health of children who are overweight, yet it can also be argued to contribute to factors (for example external pressures) which may increase body dissatisfaction and negative affect in young people. In a society where people are often exposed to media messages about the “ideal body”, it is possible that additional focus on the body could be detrimental for body image in certain more vulnerable individuals. A greater knowledge about how body image problems develop in young people, and about socio-cultural and individual factors which may contribute to their development, could help inform how such health agendas are most safely and sensitively implemented.

### **Research Objectives and Hypotheses**

Body dissatisfaction is a cause for concern due to its relationship with negative affect, eating pathology and unhealthy shape and weight behaviours. Although much of the research on body image has focussed on females, the literature reviewed in this introduction highlights that body dissatisfaction is a significant issue for males as well. Further, body image problems have been shown to develop in pre-adolescence and to become more prevalent in early- to late-adolescence in both girls and boys. Research has consistently demonstrated the negative affect of media exposure of the socio-cultural ideal on body dissatisfaction in adults, adolescents and children. Cognitive processing models describe the relationship between media exposure and body dissatisfaction in terms of appearance schema activation and resulting appearance-related cognitive bias. Adding to this, individual characteristics such as internalisation of the socio-cultural ideal and perceived pressures from the media to conform to this ideal are highlighted as risk factors for the development of body dissatisfaction. This introduction has highlighted gaps in the literature in the investigation of these variables in early-adolescent girls and boys. Specifically, there is a lack of experimental research examining the effects of media exposure on early-adolescent girls' and boys' body dissatisfaction measuring all three variables described.

This study will investigate the potentially negative influence of the media on children in early-adolescence using an experimental paradigm. The main objective of the study is

to examine the effects of engagement with an appearance-related magazine feature on state body dissatisfaction and appearance-related cognitive bias in girls and boys aged between 11 and 14. Evidence reviewed in this introduction suggests that magazines have become a particularly potent source of images of the thin or muscular ideal, and information regarding diets and exercise. A secondary objective is to investigate whether levels of socio-cultural influence, namely socio-cultural ideal internalisation and perceived pressures from the media, affect these relationships.

In light of previous literature, three hypotheses will be tested:

1. Individuals who are exposed to an appearance-related magazine feature will have higher levels of state body dissatisfaction and appearance-related cognitive bias than those who are exposed to a neutral magazine feature.
2. This effect will be greater for girls than for boys.
3. Individuals with high levels of socio-cultural ideal internalisation and perceived pressures from the media will experience significantly greater state body dissatisfaction and appearance-related cognitive bias as a result of exposure to an appearance-related magazine feature than individuals with low levels of these variables.

## METHOD

### Design

An independent measures experimental design was used to examine the effects of media exposure on appearance-related cognitive bias and state body dissatisfaction. The dependent variable was the type of media exposure; an appearance-related or non-appearance-related magazine feature.

### Participants

Participants were 124 males ( $M_{\text{age}} = 12.9$ , age range 11.4 – 14.6 years) and 125 females ( $M_{\text{age}} = 13.0$ , age range 11.4 – 14.7 years).

Participants were from a mixture of working class and middle class backgrounds. Data on the ethnicity of participants was not collected. However, this can be estimated from the ethnicity of the cohorts from which participants were sampled which was primarily White British (99% White British, 1% Afro-Caribbean). Consent from both pupils and their parents was required in order for pupils to participate.

Participants were recruited from a secondary school located in South West Yorkshire. The recruitment procedure began by the researcher identifying a number of schools in the region and making written contact with senior members of staff from two schools. This was followed by a telephone call to each school. Meetings were then arranged in order to discuss the study further. Following agreement from the schools to participate, arrangements were made to accommodate the needs of each school with the practicalities of running the study. Due to time constraints, one school had to withdraw from participating in the study. With the remaining school, it was agreed that four forms from each year group would be randomly selected to participate. An information pack was then sent home to all selected pupils and their parents. This pack contained a covering letter to parents, an information sheet for parents and one for pupils, and a consent form to be filled in by both. Examples of these can be found in appendix A. The information sheet contained enough information for parents and pupils to make an

informed choice about participation, but did not reveal the hypotheses on which the study was based. Approximately one week before the study was due to take place, the school sent text messages to parents who had not responded to the letter reminding them of the study and requesting the return of the consent forms if they consented for their child to take part in the study. For both schools, only those pupils who gained parental consent and consented themselves were included in the study. A total of nine participants did not gain parental consent and 32 pupils were absent from school on the days when the study was carried out. In total, 85.9 % of pupils invited to participate did participate.

Ethical approval of the study was granted by the University of Leeds joint IHS/LIGHT Research Ethics Committee (UREC).

## **Materials and Measures**

### *Measures*

#### *Body dissatisfaction.*

To measure levels of state body dissatisfaction, two sets of figure rating scales were used. The Figure Rating Scale (FRS, Stunkard, Sorensen, & Schulsinger, 1983) was used as a measure of body-shape dissatisfaction. As in previous research with children, a seven figure version of the FRS was used which omits the two largest figures from the original scale (Phillips & Hill, 1998). To measure muscle dissatisfaction, a muscle figure rating scale was used (Peters & Phelps, 2001). The muscle rating scale consists of nine figures reflecting changes in muscular development, ranging from thin to very muscular. Participants were required to choose a figure from each scale according to three criteria: a) the figure that they would most like to look like, b) the figure that is most like them now, and c) the figure that is most like women/men in magazines. Each scale had a version consisting of female figures for use with female participants and a version consisting of male figures for use with male participants (see appendix F and G respectively for examples of each). The discrepancy between the perception of current body-size/muscularity and ideal body-size/muscularity is used as the measure of body dissatisfaction. A negative value of



body-size dissatisfaction indicates an individual's perceived current body size to be larger than their ideal. A positive value on muscle dissatisfaction indicates an individual's perceived current muscularity to be less than their ideal. Figure rating scales have good psychometric properties. For example Thompson and Altabe (1991) demonstrated a test-retest reliability of between .71 and .92. An adult version of the FRS was chosen over versions available for children (e.g. Tiggemann & Wilson-Barrett, 1998) due to their being an equivalent scale for muscularity. Although the face validity of using the adult figure rating scales in an adolescent population has been questioned, it has been demonstrated that in individuals of at least 11 years old the age appropriateness of the scale does not affect the pattern of responses (Sherman et al., 1995).

#### *Cognitive bias.*

Appearance-related implicit processing bias was measured using an adaptation of a word-stem completion task developed by Tiggemann et al. (Tiggemann et al., 2004). The word-stem completion task comprises twenty 3-letter word-stems which the participant is required to complete to create a word. For example, the word-stem "Ski" could be completed with the word 'Skinny', an appearance-related word, or the word 'Skiing', a neutral word. It is scored by categorising each word as an appearance or non-appearance word and summing all word completions that are appearance-related. An increase from zero in the number of appearance-related word completions indicates an increase in appearance-related cognitive bias. It has been used as a successful outcome measure of cognitive bias in a number of studies and an inter-rater reliability of between  $r = 0.88$  and  $r = 1.0$  has been demonstrated across all 20 items (Hargreaves & Tiggemann, (2002a; 2002b)). The measure was originally designed for use with females and, although a measure of appearance and weight-related cognitive bias, included a number of items that generated appearance-related words not specifically related to dissatisfaction with body image (e.g. Blonde). The measure was therefore adapted for use in this study by the exclusion of seven word-stems that were female and/or not associated with body dissatisfaction or eating related disturbance. Seven new stems were included which were less gender biased and were related specifically to body image (see appendix F for the complete modified task).

Cognitive bias was also measured in terms of negative appearance-related cognitive content. This was measured using the automatic thought items of the Sentence Completion for Eating and Exercise (SCEE, Barton, Walker, Lambert, Gately, & Hill, 2004). The SCEE is a cognitive measure in which people complete sentences concerned with eating (e.g. "Eating makes me feel..."), exercise (e.g. "For me, exercising...") and body appearance (e.g. "I feel that my weight...") using their own words. Completed sentences were coded using a coding manual to measure negative and positive thinking. The total number of negatively completed sentences was used as a measure of bias in negative appearance-related cognitive content. Nine automatic thought items (three were removed from the original SCEE that were less relevant to young adolescents) were combined with three non-eating, non-body or non-exercise 'filler' items measuring depressive thinking (e.g. "I think..."). All 12 items can be found in appendix F. The SCEE has been used to characterise cognitive changes in adolescents attending a weight loss camp (Barton et al., 2004) and to examine the cognitions of female exercisers (Lipsey, Barton, Hulley, & Hill, 2006). High inter-rater reliability ( $r=0.95$ ) between two independent coders on automatic thought items has been demonstrated (Barton et al., 2004).

In this study, the primary researcher was responsible for coding all responses on both the word-stem completion task and the SCEE. 10% of each of the completed tasks were randomly selected and coded independently by a graduate psychologist. Inter-rater reliability was high for both the word-stem completion task ( $r = 0.99, p < 0.001$ ) and for the total number of negatively completed sentences ( $r = 0.98, p < 0.001$ ) and total number of positively completed sentences ( $r = 0.99, p < 0.001$ ) on the SCEE.

#### *Socio-cultural influence.*

Aspects of media influence on body image were measured using the Socio-cultural Attitudes Towards Appearance Questionnaire-3 (SATAQ3, Thompson et al., 2004). The SATAQ-3 is a questionnaire consisting of 30 statements with which the participant is asked to indicate their level of agreement on five-point scale ranging from "definitely disagree" to "definitely agree". It is divided into four subscales: the nine-item

Internalisation-General subscale (e.g. “I try to look like the people on TV”) measures internalisation of the ideal body as presented by the media; the five-item Internalisation-athlete subscale measures the internalisation of the athletic body ideal (e.g. “I wish I looked as athletic as sports stars”); the seven-item Pressures subscale measures perceived pressures from the media to conform to body ideals (e.g. “I’ve felt pressure from TV or magazines to lose weight”); and the nine-item Information subscale measures the perceived importance of the media in providing information about the ideal body (e.g. “Movies are an important source of information about fashion and ‘being attractive’”). Participants are asked to indicate their level of agreement with each statement on five-point scale ranging from “definitely disagree” to “definitely agree”. The subscales have good psychometric properties in both male and female adolescents and undergraduates with Cronbach’s alpha ranging between .82 and .98 (Karazsia & Crowther, 2008; Knauss et al., 2007; Wilksch et al., 2006). As with previous studies using a male sample (Karazsia & Crowther, 2008), for male participants items referring to “pretty” or “thin” have been reworded to “attractive” and “muscular” respectively, and “models” are specified as “male models”. In addition to the rewording of some items for males, American-English words were replaced by Anglo-English words. All 30 statements of the SATAQ-3 can be found in appendix B.

*Additional measures.*

Participants were asked five questions relating to the stimulus material. Questions were almost the same for each condition, but worded according to the magazine feature that was being viewed (see appendix F, H and I). The number of correct answers served as a check on attention between conditions.

*Response Booklet*

All measures were contained in a response booklet. The first page of the booklet was a covering sheet on which participants were required to write their name, date of birth and form (class). Following this were three general questions about their opinions of the magazine feature (see below for selection of experimental stimuli). Participants were asked to rate how much they liked the feature on a scale of 1 to 10, to state in a

word or two what they thought the feature was mostly about and to state how the feature made them feel by choosing from a number of options. These questions were designed to focus the participants' attention on the magazine feature and to put the study in the context of a media literacy exercise. The word-stem completion task was then presented, followed by the five questions relating to the magazine feature. These questions were placed at this point to return the participants' attention to the feature before the SCEE. Following the SCEE were the figure rating scales and finally the SATAQ-3. The figure ratings scales and the SATAQ-3 were presented last in the response booklet to avoid participants being exposed to appearance related information extraneous to exposure from the magazine features. An introduction and clear instructions for each task were provided in the response booklet. The layout of the booklet and each measure within was carefully designed to be as interesting and as aesthetically pleasing as possible in order to minimise fatigue and retain participants' attention. Response booklets differed according to gender only by the VASs and the SATAQ-3 and differed for the experimental and control conditions only in terms of the questions asked about the feature. An example of the response booklet for the female experimental group can be found in appendix F. Male versions of the VASs and SATAQ-3 can be found in appendix G, and questions specific to the male experimental condition and to the control conditions can be found in appendix H and I.

### *Stimulus Material*

The experimental stimuli consisted of magazine features sampled from age relevant magazines. A variety of magazines targeted at teenagers were purchased over a period of four months. Features were selected that fitted the following criteria:

a) Experimental magazine feature:

- contained at least two images of a thin-ideal female (for female participants) and/or a muscular/lean male (for male participants);
- images included at least the full torso;
- content of the feature was appearance focused.

b) Control magazine feature:

- contained no images of people;

- content of the feature was not appearance focused.

In addition, the magazine features contained approximately similar numbers of words and were as equivalent as possible for males and females. The search narrowed the suitable features down to three control magazine features suitable for both males and females and two experimental magazine features for each gender and one experimental magazine feature suitable for both genders.

### *Pilot Study.*

Following selection of prospective stimuli, a pilot study was carried out with three males and three females aged between 11 and 14. Participants were recruited through personal connections of the researcher, were from different families and friendship groups, and from a variety of areas around Yorkshire. They were informed that they would be helping in the design of a study investigating what young people think and feel about magazines. They were individually shown one of the selected features and asked to complete the response booklet. Following this, they were told in more detail about the aims of the study, and were asked to comment on how they found completing the booklet and to offer any suggestions as to how they felt it may be improved. They were then shown all six of the features (three control features and three gender appropriate experimental features) and asked to comment on how representative each feature was of the type that they would usually see. With regards to the experimental magazine feature, they were also asked how much they thought the feature represented either the thin-ideal or the muscular-ideal.

Participants generally felt that the response booklet was easy to fill in, clear and maintained their attention. Three participants felt that the word-stem task needed clearer introduction and explanation. Therefore slight alterations were made to this from the pilot response booklet. Regarding the stimuli, participants all felt that the selection of images was generally typical of those that they would usually see. However, one control feature (for a mobile phone competition) was felt by five out of the six participants to be the most gender neutral, non-appearance related and most typical of what they would see in magazines. Regarding the experimental features, all female participants and one

male participant thought that they would most likely see the features containing only females/males (as opposed to both genders together). The remaining two males thought they were equally as likely to see single gender and dual gender features. Participants unanimously thought that the single gender features best represented the thin/muscular-ideal although they did not express one doing so more than the other.

#### *Final selection of stimuli.*

The final selection of the features was determined by a combination of the extent to which the magazine features fulfilled the selection criteria and comments from participants in the pilot study. The control stimulus selected was a magazine feature for a mobile phone competition and was used for both female and male participants (see appendix C). A feature containing a series of six celebrities was selected as the experimental stimulus. For female participants this depicted female celebrities and for male participants this depicted male celebrities (see appendix D and E). Single gender stimuli were chosen as they were felt by all of the pilot study participants to best represent the thin/muscular-ideal and by most participants to be most typical of the type of images they would usually see. Additionally, the specific stimuli chosen were the same feature taken from different issues of the same magazine. They were therefore as similar as possible for each gender thus increasing the confidence with which comparisons between genders could be made. The stimulus material was reproduced in high quality and in A4 on order to approximate the original magazine feature.

The magazine feature and response booklet were contained inside an opaque folder. The feature was clipped inside the front of the folder so that participants could refer back to it while completing the response booklet.

### **Procedure**

The study was carried out in same sex groups containing approximately 25 participants in each. Those pupils who did not have consent joined another form for the lesson during which study took place. The researcher was given a list of the groups containing only the name of the teacher of each group and the gender of the group. The

groups were then assigned a condition by chance. Each group carried out the study separately therefore preventing cross-contamination of conditions.

The study was introduced according to a standardised protocol and with standardised instructions (see appendix J). The participants were informed that the study was about what young people think and feel about different types of magazine features and what they thought about the media in general. Participants were informed that they were to be given a folder containing a magazine feature and a questionnaire booklet. They were told that they should look at the magazine feature before proceeding to fill in the booklet and that they should work through the response booklet from start to finish (preventing the possibility of appearance priming from later questionnaires in the booklet). In order to avoid participants looking at each others work, they were informed that each person in the class had the same magazine feature and response booklet and that they should work independently. To prevent anxiety about the study, it was emphasised that the study was not a test and that there were no right answers to the questions. It was also emphasised that their responses would remain anonymous. Participants were then given the opportunity to ask any questions after which they were given the folder containing both the magazine article and the response booklet.

Allowing for the introduction, participants had approximately 35 minutes to complete the study. At the end of the lesson the folders were collected and each participant was given a short debriefing letter (see appendix K). This contained some more information about the study and also details of who to contact if they wanted to talk more about the study or about any feelings that they had connected to the study. A letter was chosen over a verbal debrief because it was felt that, by not overtly announcing the opportunity to talk to somebody, participants would feel less embarrassment or inhibition from peer pressure should they wish to do so. Finally, participants were given the opportunity to ask any questions.

### **Data Analysis**

Data were analysed using SPSS (version 17.0 for Windows). Prior to all analyses, the distribution of all variables was checked for normality. Outliers were

identified as data points that were more than 2 standard deviations from the mean and were removed in order that all variables were normally distributed. Two outliers on the muscle dissatisfaction scale and one outlier on the word-stem completion task were removed. Additionally, data was excluded from the analysis using the SATAQ-3 subscales where there were more than 10% of responses on the measure missing ( $n = 13$ ). A preliminary analysis using 2 (gender) x 2 (condition) ANOVA was carried out in order to check that participant age did not differ significantly between the groups. To examine scores between the groups on the two SATAQ-3 subscales of interest (internalisation of the socio-cultural ideal (internalisation) and perceived pressures from the media (perceived pressures)), 2 (gender) x 2 (condition) x 2 ANCOVA, controlling for age, was carried out on each subscale independently.

In order to examine the effect of engagement with an appearance-related magazine feature and gender on body dissatisfaction and appearance-related cognitive bias, 2 (condition) x 2 (gender) Multivariate Analysis of Covariance (MANCOVA), controlling for age, were calculated independently for measures of body dissatisfaction (body-size and muscle dissatisfaction) and measures of appearance-related cognitive bias (number of appearance-related word-stem completions and number of negatively completed sentences). MANCOVA was followed by univariate analyses for each outcome variable.

To examine the influence of internalisation and perceived pressures the MANCOVAs were repeated adding internalisation and pressures as a third factor in two separate models. Prior to this, both SATAQ-3 subscales were divided into two categories by the median split. Participants with scores above the median split were categorised as having high levels of internalisation/perceived pressures and participants with scores including and below the median split were categorised as having low levels of internalisation/perceived pressures. With outcome variables where condition was either a main or an interaction effect, regression analyses were carried out to further explore the relative predictive power of condition, and internalisation and perceived pressures as scaled, rather than categorical variables. All factors and possible interactions were entered into the model using a backwards stepwise method, chosen as an exploratory method and to avoid potential suppressor effects of certain predictor variables. This was done including internalisation and perceived pressures in separate models.



## RESULTS

### Participant Characteristics

Table 1 shows the mean age for each group, the mean scores on the internalisation and perceived pressures subscales of the SATAQ-3. Two-way ANOVA revealed there to be no significant differences in age between groups. There was a positive correlation between internalisation and perceived pressures for both males ( $r(116) = 0.65$ ,  $p < 0.001$ ) and females ( $r(120) = 0.69$ ,  $p < 0.001$ ) indicating the subscales to be strongly related. Two-way ANCOVA revealed a significant main effect of gender for both internalisation ( $F(1, 231) = 33.18$ ,  $p < 0.001$ ) and perceived pressures ( $F(1, 231) = 33.94$ ,  $p < 0.001$ ). No main effect of condition or interaction between gender and condition were found on either SATAQ-3 subscale. Examining the mean scores, this indicates that females scored higher on both internalisation ( $t(234) = 5.77$ ,  $p < 0.001$ ) and perceived pressures ( $t(234) = 5.83$ ,  $p < 0.001$ ) than males, but condition had no effect on these scores.

Table 1 - Mean (SD) age and SATAQ-3 scores for whole sample

	Control Condition (non-appearance feature)			Experimental Condition (appearance-related feature)			Total (249)
	Male (66)	Female (63)	Total (129)	Male (58)	Female (62)	Total (120)	
<b>Age</b>	13.0 (1.0)	13.0 (0.9)	13.0 (0.9)	12.9 (1.2)	12.9 (0.9)	12.9 (1.0)	13.0 (1.0)
<b>Internalisation</b> (range = 9-45)	21.70 (8.63)	27.31 (9.59)	24.54 (9.52)	21.11 (8.14)	28.29 (7.40)	24.67 (9.52)	24.65 (9.04)
<b>Perceived pressures</b> (range = 7-35)	16.30 (7.68)	21.87 (8.53)	19.12 (8.56)	14.78 (6.21)	20.48 (6.95)	17.68 (7.17)	18.43 (7.93)

## Effects of Exposure on Body Dissatisfaction and Cognitive Bias

### *Body Dissatisfaction*

MANCOVA for both measures of body dissatisfaction revealed a significant main effect of gender ( $F(2, 241) = 72.76, p < 0.001$ ). No main effect of condition ( $F(2, 241) = 1.19, p = 0.31$ ) or interaction between gender and condition were found ( $F(2, 241) = 2.79, p = 0.064$ ).

Univariate analysis for body-shape dissatisfaction revealed only a significant main effect of gender ( $F(1, 242) = 7.64, p < 0.01$ ) and a significant interaction between gender and condition ( $F(1, 242) = 4.89, p < 0.05$ ). From Figure 3, and examining means in Table 2, it is evident that females had higher levels of body-shape dissatisfaction than males ( $t(245) = 2.71, p < 0.01$ ), perceiving their bodies to be larger than their ideal. Additionally, females in the experimental condition had higher mean levels of body-shape dissatisfaction than females in the control condition ( $t(122) = 2.05, p < 0.05$ ). There were no significant differences in mean scores for male participants, although a trend was observed whereby males in the control condition had higher levels of body-shape dissatisfaction than those in the experimental condition.

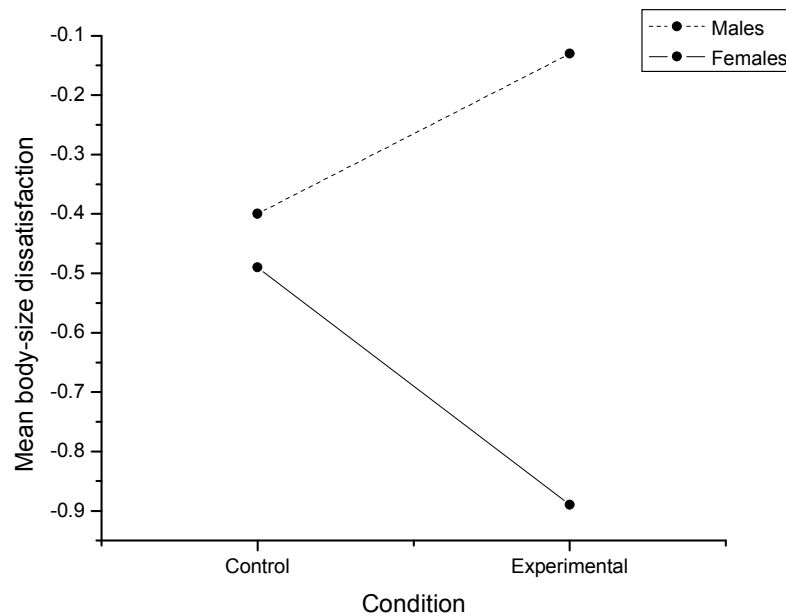
Table 2 - Mean (SD) body-shape dissatisfaction and muscle dissatisfaction scores by gender and condition

	<b>Control Condition</b> (non-appearance feature)		<b>Experimental Condition</b> (appearance-related feature)	
	Male (65)	Female (62)	Male (58)	Female (62)
<i>Body-shape dissatisfaction</i>	-0.40 (1.30)	-0.49 (1.08)	-0.13 (1.34)	-0.89 (1.07)
<i>Muscle dissatisfaction</i>	2.00 (1.16)	-0.07 (1.56)	2.01 (1.55)	-0.64 (1.84)

For muscle dissatisfaction, only a significant main effect of gender was found ( $F(1, 242) = 145.78, p < 0.001$ ). The means presented in Table 2 show that overall males perceived themselves to be less muscular than their ideals, whereas females perceived themselves to be slightly more muscular than their ideals. Mean muscle dissatisfaction

scores did not differ between conditions. To examine absolute levels of muscle dissatisfaction between the genders, female scores were inverted to return an overall positive value of muscle dissatisfaction. Muscle dissatisfaction was significantly higher in males than in females ( $t(245) = 8.46, p < 0.001$ ). Additionally, male muscle dissatisfaction was significantly higher than female body-shape dissatisfaction ( $t(245) = 8.56, p < 0.001$ ).

Figure 3 - Mean body-size dissatisfaction by condition and gender



### *Appearance-related Cognitive Bias*

Multivariate analysis for both measures of appearance-related cognitive bias revealed only a significant main effect of gender ( $F(2, 242) = 15.07, p < 0.001$ ). No main effect of condition ( $F(2, 242) = 1.76, p = 0.18$ ) or interaction between gender and condition ( $F(2, 242) = 2.02, p = 0.14$ ) were found. For each outcome variable, only a significant main effect of gender was found (word-stem completion ( $F(1, 243) = 12.75, p < 0.001$ ); sentence completion ( $F(1, 243) = 17.00, p < 0.001$ ). The means in Table 3 show that overall females completed more word-stems with appearance-related words ( $t(246) = 3.51, p = 0.001$ ) and completed more sentences negatively than males ( $t(246) = 4.15, p < 0.001$ ). Although there was a trend for females in the experimental condition

to complete more word-stems with appearance-related words and more sentences negatively than those in the control condition, neither variable was significantly affected by condition for either gender.

Table 3 - Mean (SD) number of appearance-related word-stem completions and negative sentence completions by gender and condition

	<b>Control Condition</b> (non-appearance feature)		<b>Experimental Condition</b> (appearance-related feature)	
	Male (65)	Female (63)	Male (58)	Female (62)
<i>Appearance-related word-stem completions</i>	2.68 (1.85)	3.13 (2.14)	2.55 (1.76)	4.00 (2.55)
<i>Negatively completed sentences</i>	0.92 (1.39)	1.68 (1.98)	1.04 (1.34)	2.03 (1.87)

### **Effects of Individual Vulnerabilities on Body Dissatisfaction and Cognitive Bias**

Prior to analysis of the effects of internalisation and perceived pressures on body image and cognitive bias, both subscales were divided into high and low scores by median split. As scores on both subscales were significantly different between males and females, scores were divided according to each gender group median. For internalisation the male median was 21 and the female median was 28. For perceived pressures the male median was 15 and the female median was 22. The number of participants in each category of internalisation and perceived pressures was approximately equal.

#### *Body Dissatisfaction and Internalisation*

MANCOVA for both measures of body dissatisfaction including internalisation as a factor revealed a significant main effect of gender ( $F(2, 224) = 72.83, p < 0.001$ ) and of internalisation ( $F(2, 224) = 8.65, p < 0.001$ ), and a significant interaction between gender and internalisation ( $F(2, 224) = 4.98, p < 0.01$ ). There was no main effect of condition ( $F(2, 224) = 0.83, p = 0.44$ ), interaction between gender and condition ( $F(2,$

224) = 0.83,  $p = 0.436$ ), interaction between condition and internalisation ( $F(2, 224) = 0.48$ ,  $p = 0.619$ ), or interaction between gender, condition and internalisation ( $F(2, 224) = 1.82$ ,  $p = 0.164$ ).

Table 4 - Mean (SD) body-shape dissatisfaction and muscle dissatisfaction scores by gender, condition, and level of internalisation

(n)	Control Condition (non-appearance feature)		Experimental Condition (appearance-related feature)	
	Male (59)	Female (61)	Male (56)	Female (58)
<b>Body size dissatisfaction</b>				
<i>Low internalisation</i>	-0.42 (1.41)	-0.07 (0.80)	0.01 (1.44)	-0.39 (1.13)
<i>High internalisation</i>	-0.29 (1.21)	-1.08 (1.16)	-0.28 (1.27)	-1.34 (0.82)
<b>Muscle dissatisfaction</b>				
<i>Low internalisation</i>	2.19 (1.17)	0.20 (1.39)	2.08 (1.46)	0.15 (1.32)
<i>High internalisation</i>	1.93 (1.22)	-0.39 (1.75)	2.08 (1.58)	-1.38 (2.01)

For body-shape dissatisfaction there was a significant main effect of gender ( $F(1, 225) = 9.67$ ,  $p < 0.005$ ), internalisation ( $F(1, 225) = 12.14$ ,  $p = 0.001$ ), and a significant interaction between gender and internalisation ( $F(1, 223) = 7.23$ ,  $p < 0.01$ ). The mean scores in Table 4 show that females with high levels of internalisation had higher levels of body-shape dissatisfaction than females with low levels of internalisation ( $t(117) = 5.71$ ,  $p < 0.001$ ). However, there were no significant differences in body-shape dissatisfaction between males with high and low levels of internalisation. Neither were there significant differences between condition for males or females.

For muscle dissatisfaction, there was a significant main effect of gender ( $F(1, 225) = 148.11$ ,  $p < 0.001$ ) and of internalisation ( $F(1, 225) = 8.96$ ,  $p < 0.005$ ), and a significant interaction between gender and internalisation ( $F(1, 223) = 4.89$ ,  $p < 0.05$ ). Females with high levels of internalisation had higher levels of muscle dissatisfaction than females with low internalisation ( $t(117) = 5.71$ ,  $p < 0.001$ ), perceiving themselves to be more muscular than their ideals (see Table 4). However, there were no significant

differences in muscle dissatisfaction between internalisation groups for males or between condition for either males or females.

### *Body Dissatisfaction and Perceived Pressures*

Including perceived pressures as a factor in the MANCOVA, there was a significant main effect of gender ( $F(2, 224) = 75.26, p < 0.001$ ) and of perceived pressures ( $F(2, 224) = 6.66, p < 0.005$ ). However no interaction between gender and perceived pressures was found ( $F(2, 224) = 2.61, p = 0.075$ ). There was no significant main effect of condition ( $F(2, 224) = 1.65, p = 0.194$ ), interaction between gender and condition ( $F(2, 224) = 2.94, p = 0.055$ ), interaction between condition and perceived pressures ( $F(2, 224) = 0.727, p = 0.485$ ), or interaction between gender, condition and perceived pressures ( $F(2, 224) = 1.07, p = 0.347$ ).

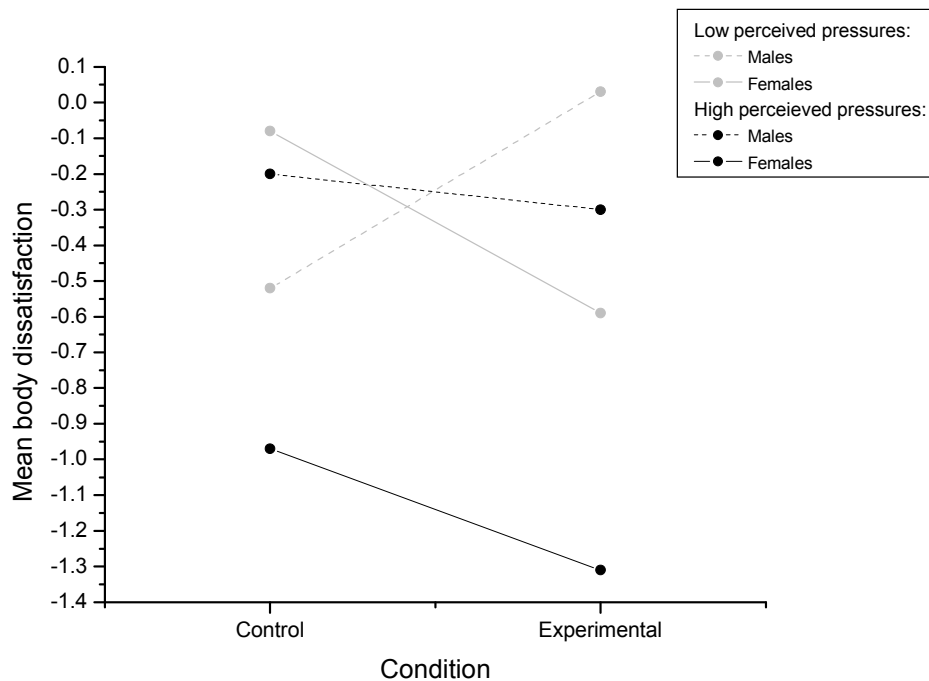
Table 5 - Mean (SD) body-shape dissatisfaction and muscle dissatisfaction scores by gender, condition, and level of perceived pressures

	<b>Control Condition</b> (non-appearance feature)		<b>Experimental Condition</b> (appearance-related feature)	
	Male (59)	Female (61)	Male (56)	Female (58)
<b>Body size dissatisfaction</b>				
<i>Low perceived pressures</i>	-0.52 (1.27)	-0.08 (0.87)	0.03 (1.51)	-0.59 (1.23)
<i>High perceived pressures</i>	-0.20 (1.35)	-0.97 (1.12)	-0.30 (1.15)	-1.31 (0.68)
<b>Muscle dissatisfaction</b>				
<i>Low perceived pressures</i>	2.21 (0.98)	0.23 (1.61)	2.32 (1.49)	-0.19 (1.57)
<i>High perceived pressures</i>	1.93 (1.36)	-0.36 (1.48)	1.78 (1.49)	-1.31 (2.07)

For body-shape dissatisfaction, there was a significant main effect of gender ( $F(1, 225) = 9.93, p < 0.005$ ) and of perceived pressures ( $F(1, 225) = 6.61, p < 0.05$ ), and an interaction between gender and perceived pressures ( $F(1, 225) = 5.05, p < 0.05$ ) and between gender and condition ( $F(1, 225) = 4.47, p < 0.05$ ). From Figure 4, and examining means in Table 5, it is evident that females with high levels of perceived

pressures had higher levels of body-shape dissatisfaction than females with low levels of perceived pressures ( $t(117) = 4.20, p < 0.001$ ), but that there was no overall effect of perceived pressures on male body dissatisfaction. Additionally, independent of the level of perceived pressures, females in the experimental condition had higher levels of body-shape dissatisfaction than females in the control condition and males in either the experimental or control conditions. The group with the highest levels of body-shape dissatisfaction was therefore females in the experimental group with high levels of perceived pressures.

Figure 4 - Mean body-shape dissatisfaction by condition, gender and level of perceived pressures



For muscle dissatisfaction, there were significant main effects of gender ( $F(1, 225) = 151.11, p < 0.001$ ) and of perceived pressures ( $F(1, 225) = 9.19, p < 0.005$ ), but no main effect of condition and no interactions between the factors. Overall, males had higher levels of muscle dissatisfaction than females, and females with high levels of perceived pressures had higher levels of muscle dissatisfaction than females with low levels of perceived pressures ( $t(117) = 2.65, p < 0.001$ ) (see Table 5). For males, this pattern appeared to be the opposite, although there were no significant differences in muscle dissatisfaction between perceived pressures group for males.

*Regression Analyses for Body-shape Dissatisfaction*

Regression analyses for body-shape dissatisfaction, including participant age, condition, gender, internalisation and all possible interactions, revealed only gender and the gender x internalisation interaction to be significant predictors. Removing the non-significant variables, the best fit model ( $F(2, 231) = 12.50, p < 0.001$ ) accounted for 10% of the variance in body-shape dissatisfaction (see Table 6 for regression coefficients). Substituting internalisation for perceived pressures in the regression analysis, gender, the gender x perceived pressures interaction, and the gender x condition interaction were significant predictors of body-shape dissatisfaction. Removing the non-significant variables, the best fit model ( $F(3, 230) = 13.13, p < 0.001$ ) accounted for 11% of the variance in body-shape dissatisfaction (see Table 6 for regression coefficients). These results confirm those of the univariate analyses with internalisation and perceived pressures as categorical variables.

Table 6 - Regression coefficients for body-shape dissatisfaction

<i>Variables</i>	B	SE B	$\beta$	t	Sig.
<b>Model with internalisation</b>					
<i>Gender</i>	0.95	0.38	0.38	2.47	< 0.05
<i>Gender x internalisation</i>	-0.05	0.01	-0.62	4.01	< 0.001
<b>Model with perceived pressures</b>					
<i>Gender</i>	0.95	0.38	0.38	2.66	< 0.01
<i>Gender x perceived pressures</i>	-0.06	0.01	-0.54	3.98	< 0.001
<i>Gender x condition</i>	-0.48	0.22	-0.17	2.22	< 0.05
<b>Forced model with internalisation and perceived pressures</b>					
<i>Gender</i>	1.08	0.39	0.45	2.82	<0.05
<i>Gender x perceived pressures</i>	-0.03	0.02	0.27	1.48	n/s $p = 0.14$
<i>Gender x internalisation</i>	-0.03	0.01	-0.41	1.96	n/s $p = 0.05$

$R^2$  for model with internalisation = 0.10;  $R^2$  for model with perceived pressures = 0.11



The regression analyses suggests that internalisation was a stronger predictor of body-shape dissatisfaction than perceived pressures ( $\beta = -0.62$  and  $-0.54$  respectively). To confirm this, regression analysis was run entering only gender, the gender x internalisation interaction and the gender x perceived pressures interaction in a forced entry model. Although neither interaction was significant (likely due to their high collinearity ( $r(234) = 0.72, p < 0.001$ ))  $\beta$  was larger for internalisation than for perceived pressures suggesting that internalisation was a stronger predictor of body-shape dissatisfaction than perceived pressures (see Table 6 for regression coefficients). The strength of the gender x internalisation interaction, in comparison to the gender x pressures interaction, could explain why condition x gender remained a significant predictor in the model including perceived pressures, but not in the model including internalisation.

#### *Appearance-related Cognitive Bias and Internalisation*

Multivariate analysis for both measures of appearance-related cognitive bias including internalisation as a factor revealed a significant main effect of gender ( $F(2, 225) = 15.35, p < 0.001$ ) and of internalisation ( $F(2, 225) = 3.31, p < 0.05$ ), and a significant interaction between gender and internalisation ( $F(2, 225) = 12.97, p < 0.001$ ) on both measures of cognitive bias. There was no main effect of condition ( $F(2, 225) = 0.42, p = 0.659$ ), interaction between gender and condition ( $F(2, 225) = 1.42, p = 0.245$ ), interaction between internalisation and condition ( $F(2, 225) = 0.88, p = 0.418$ ), or interaction between gender, condition and internalisation ( $F(2, 225) = 0.89, p = 0.412$ ).

Only a significant main effect of gender ( $F(1, 226) = 10.39, p = 0.001$ ) and a significant interaction between gender and internalisation ( $F(1, 226) = 6.28, p < 0.05$ ) was found for appearance-related word-stem completions. Mean scores in Table 7 show that females with high levels of internalisation completed more appearance-related word-stems than females with low levels of this variable, but that there was an opposite pattern for males. However, there were no significant differences in mean scores for either gender.

For the number of negative sentence completions, there were significant main effects of gender ( $F(1, 226) = 17.62, p < 0.001$ ) and of internalisation ( $F(1, 226) = 6.60, p < 0.05$ ), and a significant interaction between gender and internalisation ( $F(1, 226) = 17.57, p < 0.001$ ). Mean scores show that females with high levels of internalisation completed more sentences negatively in comparison to females with low levels of internalisation ( $t(118) = 4.46, p < 0.001$ ). However, there were no significant differences in the number of negatively completed sentences between internalisation groups for males.

Table 7 - Mean number of appearance-related word-stem completions and negative sentence completions by gender, condition and level of internalisation

(n)	Control Condition (non-appearance feature)		Experimental Condition (appearance-related feature)	
	Male (58)	Female (61)	Male (55)	Female (58)
<b>Appearance-related word-stem completions</b>				
<i>Low internalisation</i>	2.97 (1.68)	3.00 (2.36)	3.00 (1.75)	3.23 (2.30)
<i>High internalisation</i>	2.57 (2.06)	3.37 (2.02)	1.96 (1.59)	4.34 (2.46)
<b>Negatively completed sentences</b>				
<i>Low internalisation</i>	1.03 (1.43)	0.89 (1.47)	1.29 (1.35)	1.42 (1.55)
<i>High internalisation</i>	0.82 (1.39)	2.74 (2.12)	0.80 (1.32)	2.44 (2.00)

#### *Appearance-related Cognitive Bias and Perceived Pressures*

Substituting internalisation for perceived pressures in the MANCOVA, there was a significant main effect of gender ( $F(2, 225) = 15.11, p < 0.001$ ) and of perceived pressures ( $F(2, 225) = 6.20, p < 0.005$ ), and a significant interaction between gender and perceived pressures ( $F(2, 225) = 8.27, p < 0.001$ ). There was no main effect of condition ( $F(2, 225) = 0.870, p = 0.420$ ), interaction between gender and condition ( $F(2, 225) = 1.91, p = 0.151$ ), interaction between condition and perceived pressures ( $F(2,$

225) = 2.18,  $p = 0.115$ ), or interaction between gender, condition and perceived pressures ( $F(2, 225) = 1.07, p = 0.346$ ).

Univariate analyses for the number of appearance-related word-stem completions revealed only a significant main effect of gender ( $F(1, 226) = 10.76, p = 0.001$ ). Combined with mean scores in Table 8, this indicates that females completed more word-stems with appearance-related words than males, but that appearance-related word-stem completion was not affected by either perceived pressures or condition.

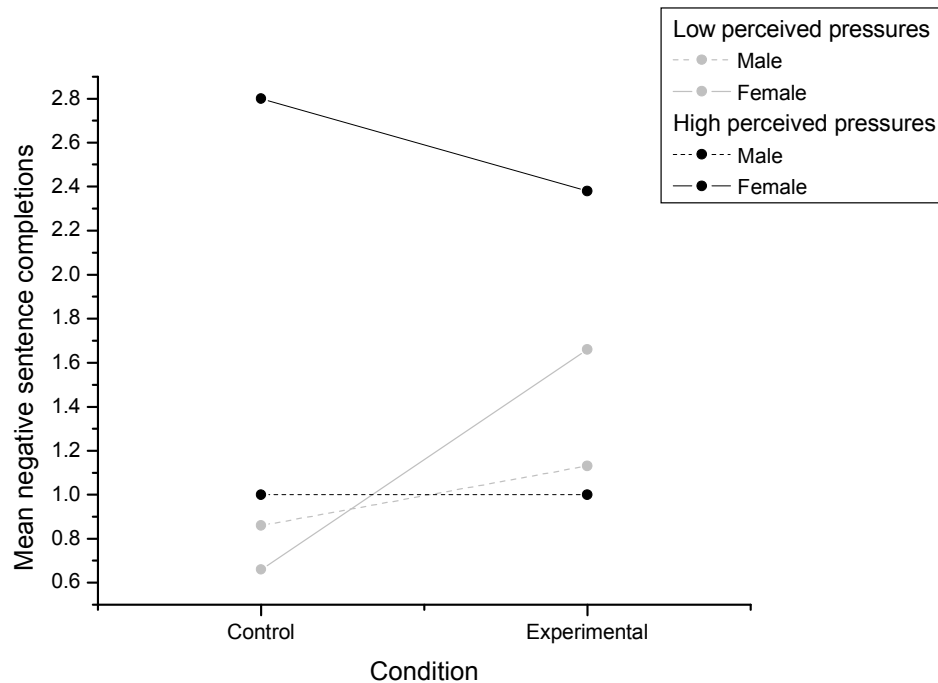
Table 8 - Mean number of appearance-related word-stem completions and negative sentence completions by gender, condition and level of perceived pressures

(n)	Control Condition (non-appearance feature)		Experimental Condition (appearance-related feature)	
	Male (58)	Female (61)	Male (55)	Female (58)
<b>Appearance-related word-stem completions</b>				
<i>Low perceived pressures</i>	3.07 (1.82)	3.00 (2.17)	3.03 (1.80)	3.66 (2.21)
<i>High perceived pressures</i>	2.52 (1.90)	3.33 (2.12)	1.92 (1.50)	4.08 (2.71)
<b>Negatively completed sentences</b>				
<i>Low perceived pressures</i>	0.86 (1.46)	0.66 (1.04)	1.13 (1.34)	1.66 (1.73)
<i>High perceived pressures</i>	1.00 (1.37)	2.80 (2.19)	1.00 (1.38)	2.38 (1.98)

For the number of negative sentence completions, there were significant main effects of gender ( $F(1, 226) = 17.62, p < 0.001$ ) and of perceived pressures ( $F(1, 226) = 11.99, p = 0.001$ ), and a significant interaction between gender and perceived pressures ( $F(1, 226) = 11.77, p = 0.001$ ) and between condition and perceived pressures ( $F(1, 226) = 4.15, p < 0.05$ ). Figure 5 shows that females with high levels of perceived pressures completed more sentences negatively than females with low levels of perceived pressures ( $t(118) = 4.41, p < 0.001$ ). There were no significant differences in the number of negative sentence completions between perceived pressures group for males. Additionally, individuals with low perceived pressures in the experimental

condition completed significantly more sentences negatively in comparison to those in the control group ( $t(121) = 2.53, p < 0.05$ ). However, there was no significant difference between conditions in individuals with high levels of perceived pressures.

Figure 5 - Mean number of negatively completed sentences by condition, gender and level of perceived pressures



#### *Regression Analyses for Negative Sentence Completions*

Regression analyses for the number of negatively completed sentences including participant age, condition, gender, perceived pressures and all possible interactions revealed only gender ( $\beta = -0.33, t = -2.56, p < 0.05$ ) and the gender x perceived pressures interaction ( $\beta = 0.65, t = 5.00, p < 0.001$ ) to be significant predictors. Removing the non-significant variables, the best model ( $F(2, 238) = 20.94, p < 0.001$ ) accounted for 39% of the variance in the number of negatively completed sentences. The regression analysis is not in accord with the result of the univariate analyses for the number of negatively completed sentences, where a significant interaction between condition and perceived pressures was found. However, it does

support the lack of interaction between perceived pressures and condition in the MANCOVA.

### **Additional Exploratory Analyses**

#### *Effects of Appearance-related Cognitive Bias on Body Dissatisfaction*

The relationship between appearance-related cognitive bias, exposure to an appearance-related magazine feature, and body dissatisfaction was explored using correlational analysis. For females, a negative relationship was found between appearance-related word-stem completions and body-shape dissatisfaction in the experimental group ( $r(62) = -0.25$ ,  $p < 0.05$ ) indicating that, in this group, individuals with higher levels of this bias also had higher levels of body-shape dissatisfaction. No relationship was observed between these two variables in the control group. For the number of negatively completed sentences, a negative relationship was observed in both the experimental ( $r(62) = -0.32$ ,  $p < 0.05$ ) and control groups ( $r(58) = -0.54$ ,  $p < 0.001$ ) for females. This indicates that females completing more sentences negatively had higher levels of body-shape dissatisfaction regardless of exposure to an appearance-related magazine feature. There was no relationship between either measure of appearance-related cognitive bias and muscle dissatisfaction for females.

For males, the only significant relationship was between the number of negative sentence completions and muscle dissatisfaction in the control group ( $r(58) = 0.26$ ,  $p < 0.05$ ) indicating that males in this group who completed more sentences negatively had higher levels of muscle dissatisfaction. Appearance-related cognitive bias was unrelated to body-shape dissatisfaction in males, and unrelated to muscle dissatisfaction in the experimental group.

As previous research has shown appearance-related cognitive bias to moderate the relationship between body dissatisfaction and exposure to an appearance-related magazine (Hargreaves & Tiggemann, 2002b), these relationships were explored further using hierarchical multiple regression. Age was controlled for by entering it into the first step of the model, in the second step condition and cognitive bias (appearance-related

word-stem completions or negative sentence completions) and in the third step, the product of condition and cognitive bias. For females, including word-stem completions in the model, there was no significant  $F_{\text{change}}$  after the second step, but after entering the product of condition and appearance-related word-stem completions, there was small but significant change ( $F_{\text{change}}(1, 119) = 4.38, p < 0.05$ ). Regression coefficients for the final model ( $F(4, 119) = 3.00, p < 0.05$ ) can be found in Table 9. This indicates that the number of word-stems completed with appearance-related words significantly moderated the relationship between condition and body-shape dissatisfaction for females so that females with high levels of this bias had higher levels of body-shape dissatisfaction following exposure to an appearance-related magazine feature in comparison to females with low levels of this bias.

Table 9 - Regression coefficients for female body-shape dissatisfaction with word-stem completions

Step	Predictors	B	SE B	$\beta$	t	Sig.
1	<i>Age</i>	-0.16	0.10	-0.14	-1.51	n/s
2	<i>Condition</i>	-0.39	0.20	-0.18	-1.99	< 0.05
	<i>Word-stem completion</i>	-0.03	0.04	-0.06	-0.63	n/s
3	<i>Condition x Word-stem completion</i>	-0.17	0.08	-0.73	-2.09	< 0.05

$R^2$  for step 1 = 0.02;  $R^2$  for step 2 = 0.06;  $R^2$  for step 3 = 0.09

For females, including negative sentence completions in the model, there was a significant  $F_{\text{change}}$  after the second step ( $F_{\text{change}}(2, 120) = 15.94, p < 0.001$ ), but no change after the third step. Regression coefficients for the final model, excluding step 3, ( $F(4, 119) = 11.57, p < 0.001$ ) can be found in Table 10. This indicates that levels of negative appearance-related cognitive content significantly predicted levels of body-shape dissatisfaction, but that this was independent of condition.

For males, neither condition, negative sentence completion nor their product predicted levels of muscle dissatisfaction indicating that neither exposure to an appearance-related magazine feature or the number of negatively completed sentences were significant predictors of muscle dissatisfaction in males.

Table 10 - Regression coefficients for female body-shape dissatisfaction with negative sentence completions

Step	Predictors	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>Sig.</i>
1	<i>Age</i>	-0.16	0.10	-0.14	-1.51	n/s
2	<i>Condition</i>	-0.31	0.18	-0.15	-1.79	n/s
	<i>Negative sentence completion</i>	-0.34	0.05	-0.42	-5.12	< 0.001

$R^2$  for step 1 = 0.01;  $R^2$  for step 2 = 0.21;

### *Word-stem and Sentence Completion Missing Responses*

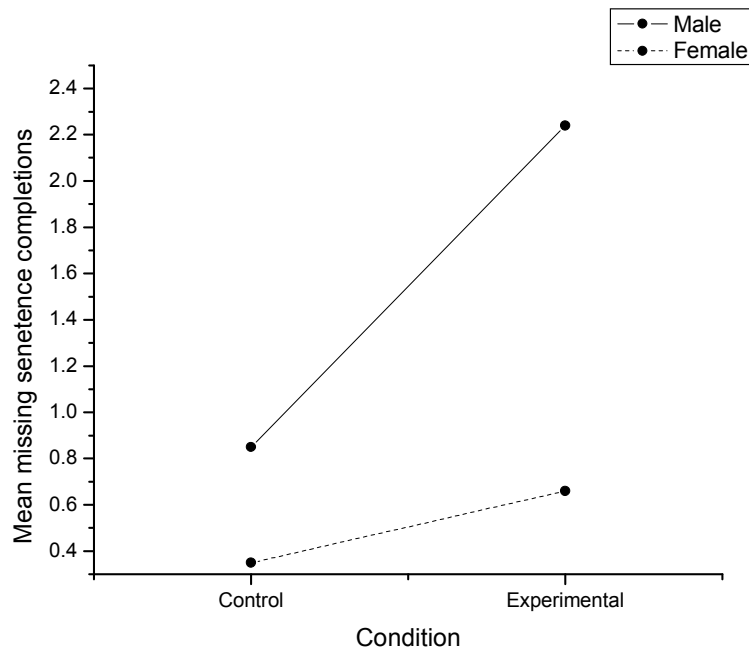
The mean number of missing responses for the whole sample on the word-stem completion task was 2.34 (SD = 4.05) and on the sentence completion task was 1 (SD = 2.26). As a proportion of the total expected responses, there were 11.7% and 11.1% of missing data for the word-stem and sentence completion tasks respectively.

Table 11 shows the mean number of missing responses on each measure for each group. Two-way ANCOVA revealed a significant main effect of condition on the number of missing responses in the word-stem completion task ( $F(1, 244) = 5.11, p < 0.05$ ). No main effect of gender ( $F(1, 244) = 1.39, p = 0.26$ ), or interaction between gender and condition was found. Means presented in Table 11 show that overall participants in the experimental condition completed fewer word-stems than participants in the control condition ( $t(246) = 2.28, p < 0.05$ ). However, this was not affected by gender. For the number of missing sentence completions, there were significant main effects of gender ( $F(1, 244) = 15.14, p < 0.001$ ) and condition ( $F(1, 244) = 9.21, p < 0.001$ ), and a significant interaction between gender and condition ( $F(1, 244) = 4.29, p < 0.05$ ). From the means presented in Table 11, and looking at Figure 6, this indicates that overall males completed fewer sentences than females ( $t(121) = 2.53, p < 0.05$ ), and that participants in the experimental condition completed fewer sentences than participants in the control condition ( $t(246) = 2.92, p < 0.005$ ), but that this effect was stronger for males than for females.

Table 11 - Mean number of missing responses on the word-stem and sentence completion tasks by gender and condition

(n)	Control Condition (non-appearance feature)		Experimental Condition (appearance-related feature)	
	Male (66)	Female (63)	Male (58)	Female (62)
<i>Word-stem completion task</i>	2.39 (4.54)	1.10 (2.18)	2.86 (4.11)	3.02 (4.63)
<i>Sentence completion task</i>	0.85 (2.32)	0.35 (0.97)	2.24 (3.28)	0.66 (1.37)

Figure 6 - Mean number of missing responses on the sentence completion task by gender and condition



There were significant correlations between age and number of missing responses on both the word-stem completion task ( $r(248) = -0.18, p < 0.005$ ) and the sentence completion task ( $r(248) = -0.22, p < 0.001$ ). This indicates that younger participants were more likely to complete fewer word-stems and sentences in comparison to older participants.



## DISCUSSION

### Discussion of Main Findings

#### *Summary of Results in Relation to Hypotheses*

This study proposed three hypotheses. Firstly, it was predicted that individuals exposed to an appearance-related magazine feature would have higher levels of state body dissatisfaction and appearance-related cognitive bias than those exposed to a neutral magazine feature. This hypothesis was partially supported in that females in the experimental condition had higher levels of state body-shape dissatisfaction than those in the control condition. However, no effect of exposure was found on female muscle dissatisfaction, male body dissatisfaction, or appearance-related cognitive bias as measured by either the word-stem completion task or the sentence completion task. Secondly, it was predicted that the effects of exposure would be greater for girls than for boys. This hypothesis was partially supported as there were no effects of exposure on body dissatisfaction in males in comparison to the effects observed in females. However, no significant gender differences in the effects of exposure on cognitive bias were found. Thirdly, it was predicted that individuals with high levels of socio-cultural ideal internalisation and perceived pressures from the media would experience significantly greater state body dissatisfaction and appearance-related cognitive bias as a result of exposure to an appearance-related magazine feature than individuals with low levels of these variables. This hypothesis was not supported; levels of socio-cultural ideal internalisation and perceived pressures from the media did not significantly affect either state body dissatisfaction or appearance-related cognitive bias for either gender.

#### *Effects of Exposure to an Appearance-related Magazine on Body Dissatisfaction*

The effects of exposure to an appearance-related magazine feature on female body dissatisfaction support findings from previous experimental studies which have shown exposure to images of women depicting the socio-cultural ideal in a variety of media to decrease body dissatisfaction in both adolescent and adult females (Catterin et al., 2000; Durkin & Paxton, 2002; Hargreaves & Tiggemann, 2004; Tiggemann &

Slater, 2003). These results extend previous findings in demonstrating the effects of exposure to a full feature sampled from a magazine targeted at adolescents.

Social Comparison Theory (Festinger, 1954), described in the introduction to this study, provides a framework for understanding these findings. Evidence that social comparison mediates the relationship between exposure to appearance-related magazine images (e.g. Keery et al., 2004; Tiggemann, Polivy, & Hargreaves, 2009; van den Berg et al., 2007) could help explain why body-shape dissatisfaction in females in the experimental group was higher than that of females in the control group. Comparing themselves to the bodies of the celebrities in the feature, typical of the socio-cultural ideal, a perceived failure to meet this ideal would have increased dissatisfaction with the girls' own bodies.

Male body dissatisfaction did not differ between the experimental and control groups in this study. This suggests that boys were not adversely affected by exposure to an appearance-related magazine feature in the same way that girls in this study were. Although methodological issues will be raised later in the discussion, it is important to highlight that the male and female magazine features were different therefore direct comparisons should be treated with caution. These results do, however, support those of studies showing adolescent boys' body dissatisfaction to be unaffected by appearance-related media exposure (Humphreys & Paxton, 2004; Kalodner, 1997) and extend these findings to include a lack of effect on adolescent boys' state muscle dissatisfaction following exposure to an original magazine feature. These findings are also consistent with those suggesting the media to be less influential in the transmission of appearance-related socio-cultural themes for adolescent boys than for adolescent girls (McCabe & Ricciardelli, 2001; Vincent & McCabe, 2000). McCabe and Ricciardelli (2003) have suggested that boys do not perceive the media to convey messages about body image that are relevant to them. This is supported by results from an interview study which found the majority of boys aged between 12 and 15 to view the media as having no effect on their body image (Ricciardelli, McCabe, & Banfield, 2000).

Differences in male and female pubertal development have been offered as an explanation for the discrepancy between the effects of the media on body dissatisfaction in girls and boys of this age. As boys enter puberty their body shape

becomes leaner and more like those of the ideal, therefore adolescent boys may view media images of idealised males and believe that they will grow to become more like these (Humphreys & Paxton, 2004). This may explain the trend towards lower body-shape dissatisfaction in boys in the experimental group which supports previous findings of an increase in adolescent boys' body-shape satisfaction following exposure to images of idealised males (Humphreys & Paxton, 2004). In contrast, as girls enter puberty, an increase in body fat and a widening of the hips lead to higher body dissatisfaction as their body shape becomes less like the female ideal in the images to which they are exposed (McCabe, Ricciardelli, & Finemore, 2002).

It has been suggested that the lack of media influence on boys' body dissatisfaction is due to a generally more positive body image which may protect against the messages of the media (Humphreys & Paxton, 2004). While boys in this study did have less body-shape dissatisfaction than females, muscle dissatisfaction in boys was higher than for girls and, interestingly, higher than girls' body-shape dissatisfaction. This supports research showing that concern about muscularity is a main feature of body dissatisfaction in males (Jones & Crawford, 2005). One explanation for the lack of effect of exposure on boys' body dissatisfaction in this study may concern the stimuli used. While methodological issues will be discussed in more detail later, in short it is possible that the males in the feature did not depict the muscular socio-cultural ideal enough to increase body dissatisfaction. Farquhar and Wasylkiw (2007) found that adolescent boys' appearance concerns were only increased following exposure to images of males that were posed, contained high levels of nudity and high levels of muscularity. In contrast, the images in the feature used in this study were naturally captured and had low levels of nudity. When images of males are not nude and muscularity is not emphasised, muscularity and body fat are less obvious and therefore less likely to induce comparisons with one's own physique and to subsequently increase body dissatisfaction. Considering evidence that images of males in the mass media have become increasingly extreme in terms of their depiction of muscularity in males (Frederick et al., 2005; Leit et al., 2001), it may be that boys are not immune from the effects of exposure to these images, despite the lack of effects in this study.

Related to social comparison tendencies, it is also possible that boys in this study did not engage in appearance comparisons with the celebrities in the feature in contrast to

girls. According to models of body dissatisfaction based on Social Comparison Theory, body dissatisfaction would therefore not have increased after exposure if no comparisons between the images and boys' own bodies would have been made in order to induce a discrepancy. Research has shown that boys engage in less appearance-related social comparisons than girls (Jones, 2001), and that social comparison is not a predictor of body dissatisfaction for adolescent boys, in contrast to that of adolescent girls (Jones et al., 2004; van den Berg et al., 2007). However, contradictory results in the level to which boys engage in social comparisons have led authors to speculate that the extent of appearance-related social comparison and their effects on body image in boys may be dependent on the target of these comparisons. So where females compare themselves to celebrity images such as those in the magazine feature used in this study, males may be more likely to compare themselves to other figures such as sports stars (van den Berg et al., 2007). Supporting this hypothesis, evidence shows that sports athletes are significantly more likely to be the target for social body comparisons for undergraduate males than men in magazines (Karazsia & Crowther, 2009). Difference in gender concept between males and females suggests function to be more important for males in terms of body image than form, whereas the reverse is true for females (Franzoi, 1995). In this case, it could be that exposure to images of males for whom physique in terms of function is important would be more likely to affect boys' body image than exposure to actors and pop stars. Future research could consider exploring the relative influence of exposure to images of male personalities for whom physical function is important (such as sports personalities) in comparison to those of celebrities (such as actors and pop-stars) on male body dissatisfaction.

#### *Cognitive-bias and Exposure to an Appearance-related Magazine Feature*

Results from this study do not support those from previous studies which have found exposure to appearance-related media to increase appearance-related cognitive bias (e.g. Hargreaves & Tiggemann, 2002b, 2003b; Tiggemann & Slater, 2003). These authors have postulated that exposure to appearance-related information activates appearance schema, which in turn produces appearance-related cognitive bias and body dissatisfaction. Although there was a trend towards higher levels of appearance-

related cognitive bias in female participants in the experimental group compared to the control group (especially as measured by the word-stem completion task), no significant differences between groups were observed and a similar trend was not observed for male participants. There are a number of possible reasons why this may have been the case. Firstly, it is important to consider the form of cognitive bias measured in this study. The word-stem completion task measures *appearance-related processing bias* in the form of responses to ambiguous word-stems. This is postulated to assess appearance schema activation (Tiggemann & Slater, 2004). On the other hand, the subsection of the SCEE used in this study (automatic thought items) measures valence specific cognitive content relevant to self (or *negative appearance-related content bias*). In this sense, the automatic thought items of the SCEE could be argued to measure trait-like attitudinal elements of body image and associated elements of eating and exercise, whereas the word-stem completion task measures appearance-related bias in cognitive processing. While the number of appearance-related word-stem completions should therefore be reactive to appearance-related magazine exposure, it may be that the trait-like attitudinal elements of body image are not malleable to brief exposure to such information (Cash, 2002a). In this case, one would not expect a difference between conditions in cognitive bias as measured by negative automatic thoughts.

Secondly, in terms of the word-stem completion task, it is possible that the magazine features in this study were not strong enough in their depiction of the socio-cultural ideal to significantly affect appearance-related cognitive bias, or in schema theory terms to activate appearance schema. That females in the experimental group did show a trend towards more appearance-related word-stem completions suggests that an effect may have been present but not strong enough to be statistically significant. As females exposed to the appearance-related feature had higher levels of body dissatisfaction, the female feature was salient enough to produce some effect.

A third possibility concerns the measures used and will be discussed in more detail later. Briefly, the word-stem completion task was originally designed for use with adults and therefore requires a certain level of vocabulary and cognitive capability. One study using the task with a sample of 13 to 15 year-old girls, did find an effect of exposure to appearance related information (Hargreaves & Tiggemann, 2003b), although no studies have employed the measure with younger children. It is therefore possible that the level

of language skill required for the task was higher than that of the target population of children aged between 11 and 14 in this study. The task may therefore have not have detected appearance-related cognitive bias in children in this study even had it been present.

*Appearance-related cognitive bias, media exposure and body dissatisfaction.*

While the results from this study did not support the causal role of schema-activation on body dissatisfaction hypothesised by cognitive processing models, a positive relationship was found between girls' body-shape dissatisfaction and word-stem completion in the experimental group. Media exposure was not found to affect appearance-related processing bias and no relationship between appearance-related word-stem completion and body-shape dissatisfaction was found in the control group. This suggests that implicit appearance-related processing bias does not affect body dissatisfaction in the absence of appearance-related stimuli. It was, however, found to moderate the relationship between exposure to an appearance-related magazine feature and body-shape dissatisfaction. That is, only after exposure did those with higher scores on the word-stem completion task have higher levels of body-shape dissatisfaction than those with lower scores. Importantly, causality can not be assumed here; it is possible that higher levels of body dissatisfaction resulted in higher levels of bias. Yet from previous literature demonstrating word-stem completion to be a mediating variable between exposure to appearance-related information and body dissatisfaction (Brown & Dittmar, 2005; Hargreaves & Tiggemann, 2002b), it is possible to infer that early-adolescent girls with high levels of appearance-related processing bias are more vulnerable to the effects of appearance-related media exposure.

Appearance-related processing bias is postulated to be indicative of appearance schema activation (Tiggemann et al., 2004). Therefore, in this study, it could be that individuals with higher levels of this bias were demonstrating higher levels of appearance schema which were already active, although experimental exposure to an appearance-related magazine feature was not the cause of this activation. According to cognitive processing models, heightened schema-activation causes individuals to selectively attend to aspects of information that are appearance-focussed, therefore

causing them to be more vulnerable to body dissatisfaction (Hargreaves & Tiggemann, 2002b; Vitousek & Hollon, 1990; Williamson et al., 2004). This could explain why, in this study, girls with higher levels of appearance-related processing bias showed raised levels of body-shape dissatisfaction in comparison to females with low levels of this bias. However, in the absence of appearance-related information on which to selectively attend there was no difference in body-shape dissatisfaction according to appearance-related processing bias. While it could be hypothesised that higher levels of appearance-related processing bias were indicative of higher appearance schematicity, because no direct measure of appearance schematicity was used, no conclusions about the relationship between appearance schematicity and body dissatisfaction can be drawn.

Unlike appearance-related processing bias, a bias towards negative appearance-related cognitive content did not interact with exposure to appearance-related information; females who completed more sentences negatively had higher levels of body-shape dissatisfaction in general. In fact, when entered into the equation with negative sentence completions, exposure to an appearance-related magazine feature had no significant effect on levels of body-shape dissatisfaction in females. This suggests that self-directed negative appearance-related cognitive content had a more stable influence on females' state body-shape dissatisfaction in comparison to the reactive influences of appearance-related processing bias. Viewing such bias as a stable trait-like element of body image, these results support those of studies which have found various measures of trait body image investment and evaluation to predict state levels of body dissatisfaction in both undergraduate and adolescent females (e.g. Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002; Hargreaves & Tiggemann, 2002a).

For boys, no relationship was found between either measure of cognitive bias and body dissatisfaction. These results support findings from previous studies which have found no relationship between appearance-related processing bias (as measured by the word-stem completion task) and male body dissatisfaction (Hargreaves & Tiggemann, 2002b) or between trait body image and male body dissatisfaction over time (Hargreaves & Tiggemann, 2002a). One explanation for this is that appearance-related cognitive bias was lower in boys than in girls. That boys did experience relatively high

levels of muscle dissatisfaction suggests that factors affecting levels of body dissatisfaction may differ between boys and girls.

### *The Influence of Socio-cultural Ideal Internalisation and Perceived Pressures*

The results of this study are inconsistent with previous research showing socio-cultural ideal internalisation to mediate the relationship between experimental exposure to appearance-related information and body dissatisfaction in young adult females (e.g. Brown & Dittmar, 2005; Dittmar et al., 2009). Similar research in adolescents is lacking, however these results do support one study, described in the introduction, which showed a lack of effect of internalisation on body dissatisfaction following exposure to thin-ideal images in 12-13 year-old girls (Durkin & Paxton, 2002). The results of the current study extend these findings to show a lack of influence of internalisation on the relationship between body dissatisfaction and media exposure in adolescent boys. The current study also provides new evidence that this relationship is also not affected by perceived pressures from the media in early-adolescent girls and boys.

This study is unique in investigating the effects of internalisation and perceived pressures on the relationship between media exposure and appearance-related cognitive bias in adolescents. The null results are inconsistent with one previously described study investigating the effects of internalisation on this relationship (Brown & Dittmar, 2005), although the sample in this study consisted of undergraduate females. These results suggest that internalisation does not affect the relationship between appearance-related media exposure and body dissatisfaction or appearance-related cognitive bias in early-adolescent girls and boys. The discrepancy between this and studies using adult samples suggests that there may be age effects regarding the impact of these variables following media exposure. As little research exists in this area using adolescent samples, future research would be beneficial to substantiate this hypothesis.



*Socio-cultural ideal internalisation, perceived pressures and body dissatisfaction.*

Support was found for socio-cultural models of body dissatisfaction previously described (Stice, 1994, 2001); girls with high levels of socio-cultural ideal internalisation and perceived pressures from the media had higher levels of body-shape dissatisfaction than girls with low levels of these variables. These results are consistent with literature discussed in the introduction demonstrating thin-ideal internalisation and perceived pressures from the media to predict levels of body dissatisfaction in adult, adolescent and pre-adolescent females (e.g. Ahern et al., 2008; Bardone-Cone et al., 2008; Cusumano & Thompson, 2000; Dittmar et al., 2009; Knauss et al., 2007; Sands & Wardle, 2003; Smolak et al., 2001). While socio-cultural ideal internalisation did not affect relationship between media exposure and body-shape dissatisfaction, because females with high levels of internalisation had higher levels of body-shape dissatisfaction in general, these individuals who were exposed to an appearance-related magazine feature had the overall highest levels of body-shape dissatisfaction. Similar results were observed regarding levels of perceived pressures. This suggests that socio-cultural ideal internalisation and perceived pressures from the media were vulnerability factors in the development of overall higher levels of body-shape dissatisfaction after exposure to appearance-related media, but did not affect the magnitude of the increase in body-shape dissatisfaction.

That the effects of exposure failed to be a significant predictor of body dissatisfaction when modelled with socio-cultural ideal internalisation suggests that this was a stronger predictor of body-shape dissatisfaction than exposure in this study. However, condition remained to be a significant predictor when modelled with perceived pressures suggesting this variable was less influential on body-shape dissatisfaction in comparison to socio-cultural ideal internalisation. The few numbers of studies investigating the effects of perceived pressures from the media on body dissatisfaction has prevented conclusive comparisons being made between this variable and socio-cultural ideal internalisation (Cafri, Yamamiya et al., 2005). This study provides evidence suggesting the influence of perceived pressures from the media to be less than that of socio-cultural ideal internalisation on body dissatisfaction in adolescent girls. Nonetheless, both of these variables appear to be more important in determining body-shape dissatisfaction than exposure to an appearance-related magazine feature.

A possible explanation as to why socio-cultural ideal internalisation and perceived pressures from the media were more important influences on body-shape dissatisfaction than exposure to an appearance-related magazine feature, and had no effect on the magnitude of the change in body dissatisfaction after exposure, may be due to the nature of the experimental stimulus. As will be discussed later, it is possible that the images were not salient enough in their depiction of the thin-ideal in order to exert a strong influence of body-shape dissatisfaction. Perhaps the type of images shown in this study (clothed, un-posed celebrities) were common to females and, while they increased body-shape dissatisfaction, habituation to such images may have reduced any additional impact on those with high levels of socio-cultural ideal internalisation and perceived pressures.

*Socio-cultural ideal internalisation, perceived pressures and appearance-related cognitive bias.*

The concepts of appearance schematicity and socio-cultural ideal internalisation are closely linked due to their emphasis on appearance as central to self evaluations. Brown and Dittmar (2005) therefore hypothesised that only individuals with high levels thin-ideal internalisation would show appearance schema activation, as measured by levels of appearance-related processing bias, following exposure to appearance-related information. This study is novel in investigating these relationships (including internalisation and perceived pressures) in adolescents and did not find support for Brown and Dittmar's hypothesis in this sample. Possible explanations for the lack of exposure effects on appearance-related cognitive bias have been offered above. In terms of cognitive processing models, the null results indicate that levels of appearance schema activation were not different in females with high internalisation or perceived pressures from the media. This result is puzzling in light of the similarities between appearance schematicity and thin-ideal internalisation. There are three possible explanations for this. The first of these concerns difficulties of using the word-stem completion task in this sample of individuals and will be discussed below in more detail. Secondly, that overall girls with high levels of internalisation had higher levels of appearance-related processing bias suggests that there may have been a relationship

but that the sample was not large enough to detect significant differences. Thirdly, it may be that appearance schema were not activated in the sample. In their integrative model, Williamson et al. (2004) hypothesise that the extent of cognitive bias is determined by vulnerabilities such as internalisation of the socio-cultural ideal, but only on activation of appearance schema. If appearance schema were not activated then, according to this model, a difference in cognitive processing bias would not be observed regardless of levels of internalisation.

Results from this study did indicate that adolescent girls with high levels of socio-cultural ideal internalisation and perceived pressures from the media had higher levels of appearance-related cognitive bias as measured by the sentence completion task. As described above, a difference in the type of bias that this measure captures could explain the discrepancy between this result and the lack of difference in appearance-related processing bias. One would expect that socio-cultural ideal internalisation, whereby self-evaluation in terms of appearance is central, would be closely linked to more trait like attitudinal elements of body image, such as those measured by the sentence completion task. Supporting these results is evidence that trait body esteem is positively correlated with thin-ideal internalisation in girls aged between 11 and 13 (Smolak et al., 2001). This study is unique in demonstrating that high levels of both socio-cultural ideal internalisation and perceived pressures from the media are associated with higher levels of negative appearance-related cognitive content in adolescent females.

*Socio-cultural ideal internalisation and perceived pressures in adolescent boys.*

Adolescent boys' body dissatisfaction was not affected by the extent to which they incorporated the socio-cultural ideal into their own appearance standards or the extent to which they perceived pressures from the media to conform to these ideals. These results do not support evidence that body dissatisfaction in adolescent boys is related to levels of internalisation and perceived pressures, despite the relationship being weaker than for females (Jones et al., 2004; Knauss et al., 2007). However, as previously described some studies have found only perceived pressures from the media, and not internalisation, to be predictive of body dissatisfaction in adult and

adolescent males (Bardone-Cone et al., 2008; Cusumano & Thompson, 2000). The assessment of body dissatisfaction offers an explanation for the discrepancy in results. While previous studies examining these relationships have used questionnaire measures which assess trait levels of body dissatisfaction such as appearance investment, this study used visual analogue scales which assess state levels of body dissatisfaction. Thompson (2004a) highlights the importance of distinguishing between different dimensions of body image and also between state and trait levels of body dissatisfaction. It is possible that internalisation and perceived pressures are more related to stable, investment orientated, aspects of body image in contrast to short-term evaluative aspects of body image. To explore this possibility, further research is needed examining the relationship between socio-cultural ideal internalisation and perceived pressures from the media and different dimensions of body image in adolescent boys.

Another possible explanation for the null findings in this study is that levels of internalisation and perceived pressures were significantly lower in boys than in girls and therefore may not have been high enough to show any relationship with body dissatisfaction. In addition, no relationship was found between these variables and levels of appearance-related cognitive bias in boys, levels of which were also lower than in girls. Three possibilities are offered regarding the low levels of internalisation and perceived pressures in boys. Firstly, it may be that adolescent boys experience less day-to-day exposure to appearance-related media information than adolescent girls. Evidence suggests that the extent of exposure to appearance-related media influences the development of socio-cultural ideal internalisation (Grabe et al., 2008) and that adolescent boys read fewer health/fitness, fashion and gossip magazines than girls (Botta, 2003). If boys have not engaged with appearance-related information to the same level as girls, then the extent to which they internalise the socio-cultural ideal and feel pressure from the media may therefore be less. It could be that higher levels of these variables develop later as exposure to appearance-related information increases, thus providing an explanation as to why studies with older adolescents and adult males have found relationships between internalisation, perceived pressures and body dissatisfaction (e.g. Bardone-Cone et al., 2008; Karazsia & Crowther, 2008, 2009). Longitudinal research examining the development of these variables in adolescent boys is needed to explore this hypothesis further.

Secondly, as previously discussed, adolescent boys may be less affected by the media in general. Supporting this hypothesis, Ata et al., (2007) found adolescent boys to report feeling more pressure from family and friends to gain muscle than from the media. Further research is needed to determine the relative influence of different socio-cultural transmitters on adolescent boys' body dissatisfaction.

Finally, it is possible that levels of internalisation and perceived pressures were low in boys because they did not report these when completing the questionnaire. Bardone-Cone et al. (2008) suggest that males may be more reluctant than females to acknowledge that they are influenced by the media. In this case, it is possible that the measure did not detect true levels of internalisation of the socio-cultural ideal and perceived pressures from the media in the sample of boys in this study.

### **Study Implications**

The effect of exposure to an appearance-related magazine feature on girls in this study has implications when considering causes of body dissatisfaction in this group of children. Early-adolescence has been argued to be a crucial period in the development of body image problems due a combination of influential aspects (Hargreaves & Tiggemann, 2003a). These include the development of self-identity (Erikson, 1968), changes in body shape and size due to puberty (McCabe et al., 2002), and an increasing concern with appearance in the social context (Harter, 1999). It is also argued to be a time when external influences such as the media, peers and family have the most affect on young peoples body image (Rosenblum & Lewis, 1999). That features in magazines targeted specifically at children of this age have the potential to increase body dissatisfaction in all girls, including those who are hypothesised to be less vulnerable, is concerning. As previously described, body dissatisfaction not only causes considerable psychological distress, but has been linked to extreme dieting practices in young girls and to the development of eating disorders (Clark & Tiggemann, 2007; Presnell, Bearman, & Stice, 2004; Shisslak et al., 1999; Thompson, 2004b). Therefore addressing the causes of body dissatisfaction in girls of this age is particularly important in attempts to prevent these negative consequences.

Media literacy programmes offer a way of encouraging critical thinking about media influences and are designed to develop skills in resisting influence from the mass media. This has been argued to be important in the prevention of body image disturbances and eating disorders (Piran, 2001). Such programmes have produced promising results in terms of reducing weight concern and body dissatisfaction in women, both in general and when viewing media ideal images (Posavac et al., 2001; Rabak-Wagener, Eickhoff-Shemek, & Kelly-Vance, 1998; Watson & Vaughn, 2006). Additionally, Durkin, Paxton, and Wertheim (2005) have found adolescent girls to rate messages typical of these programmes (e.g. 'media images are not real') as particularly persuasive.

The finding that girls with high levels of socio-cultural ideal internalisation and perceived pressures from the media had overall higher levels of body-shape dissatisfaction indicates that this group are particularly vulnerable to the development of body dissatisfaction. Exposure to appearance-related media information therefore has the potential to elevate body dissatisfaction to even higher levels in these individuals. This suggests that programmes designed at both increasing resistance to the influence from the mass media and, also decreasing the extent to which media ideals are incorporated into one's own appearance standards, could be additionally beneficial for this more vulnerable group. Media literacy programmes described above have been successful in reducing thin-ideal internalisation in both adult and adolescent females (e.g. Watson & Vaughn, 2006; Wilksch et al., 2006) and therefore offer a method of intervention to reduce body image concerns in more vulnerable individuals as well as reducing body dissatisfaction in those with lower levels of these vulnerabilities. Cognitive dissonance programmes, designed to develop contradictions in individuals' internalisation of the thin-ideal, have also produced promising results. In a meta-analytic review of intervention programmes, Stice et al. (2007) found those involving dissonance-induction produced the most promising result in terms of reduction of thin-ideal internalisation, body dissatisfaction, and eating disorder symptomatology in older-adolescent and adult females. However, evidence on the effectiveness of media literacy and cognitive dissonance programmes on younger adolescents is lacking. More research is needed to investigate the impact of these interventions on the prevention and reduction of body dissatisfaction in young girls, when the development of body image problems is particularly pertinent (Rosenblum & Lewis, 1999).

That girls with higher levels of appearance-related processing bias who viewed an appearance-related magazine feature also had higher levels of body-shape dissatisfaction could indicate this to be another vulnerability to the negative effects of media exposure. This has implications regarding more enduring aspects of body dissatisfaction. It indicates that not only is body dissatisfaction influenced by short-term appearance schema activation, as has previously been suggested (Tiggemann et al., 2004), but is influenced by general heightened appearance-related processing bias. The cumulative effects of exposure to appearance-related information on body dissatisfaction as a result of schematic processing have been demonstrated by Hargreaves and Tiggemann (2002a). If exposure to information targeted at young girls increases body dissatisfaction in individuals with already high levels of appearance-related processing bias, then these cognitive-affective consequences could be incorporated into the development of more elaborate appearance schema. This could subsequently cultivate higher levels of body dissatisfaction over time. As early adolescence is argued to be an important age in the development of appearance schema (Hargreaves & Tiggemann, 2002a), this has implications regarding interventions aimed at the prevention of body dissatisfaction. Hargreaves and Tiggemann (2002a) suggest that cognitive-behavioural or schema-focussed therapies could be profitable in reducing appearance schema and encouraging the development of adaptive self-schema. Cognitive-behavioural interventions have received substantial empirical support in the treatment of body image disturbances in adults (Farrell, Shafran, & Lee, 2006). However, further research is needed to establish the effectiveness of such interventions in reducing the negative impact of exposure to appearance-related information on adolescent girls.

Boys in this study were found to have higher levels of muscle dissatisfaction than females, overall levels of which were higher than female body-shape dissatisfaction. As highlighted in the introduction to this thesis, poor body image can have negative behavioural consequences in both adolescent and adult males. These results therefore have a number of important implications when considering body dissatisfaction in early-adolescent boys. Firstly, it points to muscle dissatisfaction being a pertinent issue for this group and suggests that future research examining body image concerns in boys should use methods appropriate for measuring this dimension. Failure to do so could result in an underestimation of the levels of body dissatisfaction in adolescent boys.

Secondly, combined with the low levels of socio-cultural ideal internalisation and perceived pressures from the media in this group, it substantiates evidence that the mass media has a relatively weak influence on body dissatisfaction in boys of this age. Whether this is due to less exposure to appearance-related information relevant to adolescent boys or to the mass media being of less importance in their self-evaluations requires further investigation. Thirdly, it indicates that influences other than the mass media may be more important in the development of body dissatisfaction in adolescent boys. As a result, interventions such as media literacy programmes are likely to have less impact on the prevention of body image concerns in this group. Research has shown media literacy interventions to have no effect on undergraduate males' body image (Rabak-Wagener et al., 1998). However, further research investigating the use of these interventions with adolescent boys would be needed to support this hypothesis.

### **Methodological Considerations**

This section will consider strengths and weaknesses of the methodology. Due to some overlap in these, the section will be structured around specific aspects of the methodology allowing the strengths and weaknesses of each aspect to be addressed together.

#### *Stimuli*

One of the major strengths of this study was the use of real features taken from magazines targeted at adolescents of the age of those sampled in this study. Arguably, these are of increased ecological validity in comparison to experimental stimuli such as male or female models in isolation, digitally altered images of women, or artificially created advertisements that have been used in previous studies investigating the effects of the media on male and female body dissatisfaction (e.g. Dittmar et al., 2009; Halliwell & Dittmar, 2004; Halliwell et al., 2005; Hausenblas et al., 2003; Posavac et al., 1998). Some studies with young adult participants have used real advertisements featuring socio-cultural ideals, these being more representative of the type of images which people view in day-to-day life, and the context in which they are seen (e.g.



Birkeland et al., 2005; Dittmar & Howard, 2004b). Studies investigating body dissatisfaction in adolescents have also used advertisement features, both real and digitally manipulated, (e.g. Durkin & Paxton, 2002; Martin & Kennedy, 1993). However, in reality magazines targeted at adolescents contain very few advertisement features, especially those including socio-cultural ideal images. Therefore features sampled from adolescents' magazines are arguably more representative of the type of images which they may view. Further, the features were sampled from magazines that were six to 12 months old when the study was carried out therefore increasing ecological validity and reducing the possibility that the features had been recently viewed. It is important to highlight that the images were sampled from magazines targeted at females. This limits the extent to which the results can be generalised to the effects on adolescent boys of appearance-related information to which they may be more typically exposed. The selection of experimental stimuli was in part due to the fact that relatively few magazines targeted specifically at adolescent boys contained images fulfilling the selection criteria for the stimuli, or were equivalent enough of images in female magazines to allow comparison between the genders. This indicates that females are more likely to be the target of appearance-focussed, body-as-object, images. Subsequently, this may provide some explanation for the lack of effect of exposure of these type of images on adolescent boys' body dissatisfaction if there is indeed some cumulative effect as described above.

Another strength of the stimuli was that they were both gender specific, featuring either images of males or females, and very similar in their layout, commentary and context therefore providing male and female equivalents of an ecologically valid stimulus. This is in contrast to some studies where stimuli have contained images of both males and females (e.g. Hargreaves & Tiggemann, 2002b), or where the images have been different in context as well as in the gender of the people in them (Hargreaves & Tiggemann, 2004). Further, the stimuli for males contained a number of celebrities ranging from the thin-ideal to the muscular ideal. Using different stimuli for males and females does, however, mean that participants did not view exactly the same feature therefore contrasts between males and females in this study should be considered in light of this.

A potential weakness of the stimuli was that perhaps the images were not salient enough in terms of depicting the socio-cultural ideal to produce the hypothesised effect on appearance-related cognitive bias or on male body dissatisfaction. In light of this, future studies should consider asking members of the target population to rate potential study stimuli for their salience in terms of the socio-cultural ideal prior to selecting them for use. Yet it is important to note that the stimuli were selected from magazines targeted at the age of the study's participant sample. Not only is this more ethically sound than using images of near naked individuals, but it is arguably more representative of what these children would more likely be exposed to.

### *Procedure, Design, and Participant Sample*

A strength of the procedure was that participants completed the study in same gender and same condition groups therefore preventing any cross-contamination of condition and reducing extraneous influence of the presence of opposite genders on body dissatisfaction. This is particularly important in the investigation of adolescent body image as early-adolescence is a time of heightened self-consciousness, especially about one's body and how the opposite gender may perceive this (Davison & McCabe, 2006).

A weakness of the design was that no pre-measures were taken of body dissatisfaction therefore it is only possible to infer the effects of exposure from the difference between experimental groups, and not from an actual change in body dissatisfaction. This also meant that it was not possible to control for pre-existing body dissatisfaction, which has been shown to predict levels of body dissatisfaction in both male and female adolescents following exposure to idealised images (Durkin & Paxton, 2002; Humphreys & Paxton, 2004). However, the design was carefully chosen not to include pre-measures of body dissatisfaction because doing so would have focussed participants' attention on their body and would have primed them towards appearance-related information therefore potentially confounding the experimental manipulation.

Another weakness of the study is that participants' body mass index (BMI) was not measured. As a result, it was not possible to control for individuals' own body size,

another factor which has been shown to predict levels of body dissatisfaction and to be a vulnerability factor in the effects of media exposure on male and female body dissatisfaction (e.g. Bearman et al., 2006; Jones & Crawford, 2005; Ricciardelli & McCabe, 2001; Sands & Wardle, 2003). Two main factors affected the decision not to measure BMI. Firstly, to do so would have required consent and it was predicted that this would dramatically reduce the numbers of pupils consenting to participate. As the study relied on high numbers of participants to gain the required power, it was felt that this could potentially increase the likelihood of a type-II error. Secondly, measuring BMI would have drawn attention to participants' own bodies which, as described above, could have confounded the experimental manipulation. Measuring BMI after the experimental procedure would have reduced this effect. However, participants would still have had to consent prior to the study therefore may have been more focussed on their bodies during the procedure, and also primed towards the appearance-related aspects of the study. An alternative to actually measuring participants' body size could have been to collect this information from school records (if such records existed). However, as well as potentially being inaccurate at the time of the study, consent to gain this information would still have been required therefore not completely eliminating the problems of priming and numbers consenting to participate already described. Considering these factors, it was decided that the costs of measuring BMI outweighed the benefits gained from being able to control for this variable.

As participants were recruited from only one school, and the sample size was relatively small for conducting independent groups, multi-factor research, the extent to which the results can be generalised to the wider population of adolescents is limited. This highlights one of the difficulties in recruiting large samples of children for experimental research. The school from which participants were recruited was a state comprehensive with a wide catchment area and no exclusion policies, yet a more representative sample of adolescent girls and boys would have been gained if participants had been recruited from a variety of schools. Although initial agreement to participate was gained from a second school, the planned period of data collection for this was during exam time which caused recruitment to be abandoned. One consideration for future research aiming to recruit large samples of children is the time of year when recruitment is arranged.

### *Outcome Measures*

A strength of this study is its use of two visual analogue scales (VASs) which distinguish between bodies increasing in size due to shape and due to muscularity. The decision to use two scales therefore allowed for the assessment of both aspects of body dissatisfaction which is particularly important in the measurement of male body image (Jones & Crawford, 2005). Thompson (2004a) highlights the benefit of using multiple measures of body image in order to allow for the detection of changes in a range of pertinent aspects of body image. This was not considered in this study as the aims were to investigate the effects of short-term experimental exposure to appearance-related information on state body dissatisfaction therefore VASs, which have been commonly used with children, (e.g. Phillips & Hill, 1998) and have good psychometric properties (e.g. Thompson & Altabe, 1991), were felt to be an appropriate measurement tool. Questionnaire measures such as the Body Image States Scale (Cash, 2002a) could have been considered. However, VASs were felt to be most suitable measure of the body dissatisfaction as they are both short and differed from the rest of the response booklet due to their pictorial nature, thus facilitating the maintenance of participants' attention to the task.

One of the difficulties with both measures of cognitive bias in this study was the higher rate of missing responses in comparison to previous studies which have employed these measures with adolescents (Barton et al., 2004; Tiggemann et al., 2004). Scoring assumed that no response to an item indicated no appearance-related bias. However, it is possible that a lack of response did not indicate a lack of appearance-related bias therefore increasing the probability of a type-II error. There are two possibilities why this may have been the case. Firstly, the mean age of participants in this study was younger than in studies which have previously employed the word-stem completion task. It is therefore possible that participants did not have the range of vocabulary or cognitive capability required given that the task was originally designed for use with adults. In one study using this task with adolescents, a higher mean number of missing response was noted in comparison to the use of the task with undergraduate males and females (Tiggemann et al., 2004). Supporting this observation, additional analysis of missing responses in this study revealed that younger participants were more likely to complete

fewer word-stems in comparison to older participants. The same was true for sentence-completions suggesting that similar age effects applied to this measure.

It may also be that missing responses did not signal a lack of bias, but a suppression effect when bias was indeed present. Again, this could have led to a type-II error in the findings of lack of effect of exposure on appearance-related cognitive bias. Additional analysis revealed that participants in the experimental group had more missing responses on both the word-stem completion task and the sentence completion task than participants in the control group. This could have been due to participants suppressing appearance-related thoughts and feelings which may have been induced by viewing appearance-related content. Previous studies have identified the suppression of feelings to be related to body dissatisfaction and eating disorder symptomatology (Buchholz et al., 2007; McLean, Miller, & Hope, 2007; Shroff & Thompson, 2006). However, these studies have focussed on self-silencing in relation to one's peers. It is possible that such self-silencing extended to the written expression of feelings in the case of the sentence completion task in this study, meaning that a lack of response on the task could actually have been an indication of cognitive-bias rather than an absence of it. In the case of the word-stem completion task, it is possible that responses where appearance-related words came to mind were not completed due to a similar suppression of feelings associated with these responses. As a result, appearance-related cognitive bias could have been underestimated in this study. Future research could consider examining the relationship between body dissatisfaction and avoidance of appearance-related thoughts and feelings to establish the existence of these possible links.

### **Future Directions**

The findings and methodological limitations of this study point to a number of avenues for further research, some of which have already been suggested throughout this discussion. Three main areas will be highlighted here. The first concerns the use of alternative appearance-related stimuli. As described, it is possible that those used in this study were relatively weak in terms of their depiction of the socio-cultural ideal. While this adds to the implications of the observed effect on girls' body dissatisfaction, it

may have resulted in the lack of effect on appearance-related cognitive bias and on male body dissatisfaction. Future research could examine the impact of features varying in the extent to which thinness and muscularity are emphasised in order to determine whether certain kinds of images impact on body dissatisfaction and appearance-related cognitive bias to a greater extent. Examining this in relation to the relative effects of socio-cultural internalisation and perceived pressures from the media would provide additional information as to the type of images which may be particularly harmful to those with pre-existing vulnerabilities. Additionally, future research should consider examining the influence of images specifically targeted at adolescent boys such as those from sports magazines, and also images of males such as sports stars which may be more likely to be the target of social comparison for boys (Karazsia & Crowther, 2009). This would allow further exploration of the type of images that could impact on boys' body dissatisfaction and the extent to which they may influence this. Given the abundance of appearance-related media, it is important to investigate what aspects of appearance-related media are more likely to have a negative impact on adolescents. This would provide further information on which to develop body dissatisfaction prevention programmes for both adolescent girls and boys.

Secondly, that muscle dissatisfaction in boys was higher than that of body-shape dissatisfaction in girls, but was not affected by exposure to an appearance-related magazine feature, suggests socio-cultural influences other than the media may be more prominent in the development of body dissatisfaction for adolescent boys. This highlights the need for further research to determine the causes of body image problems in similar samples. Correlational research has found family and peers to be influential on both girls' and boys' body dissatisfaction and had found adolescent boys to report feeling more pressure from these sources to gain muscle than from the media (Ata et al., 2007; McCabe & Ricciardelli, 2003). Further research investigating experimentally induced exposure to all three influences is needed to understand more about the relative impact of family, peers and the media on adolescents' body dissatisfaction, and potential gender differences in these.

Thirdly, future research should consider the measurement of appearance-related cognitive bias in early-adolescent girls and boys. Results from this study indicated a link between appearance-related cognitive processing bias, media exposure and body-

shape dissatisfaction in adolescent girls. However, no such relationships were found for boys and no direct link was found between appearance-related cognitive processing bias and media exposure for either males or females. As described, this could be due to limitations of the word-stem completion task. Because the task requires certain levels of vocabulary and cognitive capability, the adaptation of the task specifically for use with younger adolescents would be beneficial. This is particularly important as research investigating the relationship between media exposure, cognitive-bias and body dissatisfaction in early-adolescents is lacking. As appearance-related processing bias is postulated to be an indicator of appearance schema activation (Hargreaves & Tiggemann, 2002a), the results of this study indicate that appearance schematicity may cause early-adolescent girls to be more vulnerable to elevated levels of body dissatisfaction following exposure to appearance-related magazine features. However, as this study measured only appearance-related cognitive bias, it is not possible to make any conclusions about the relationship between appearance schematicity, media exposure and body dissatisfaction. Future research could consider utilising measures of appearance schematicity, such as the Appearance Schemas Inventory (Cash & Labarge, 1996), alongside measures of cognitive processing bias to investigate these relationships. This could inform the development of prevention and treatment programmes for young adolescents which are schema-based or cognitive-behavioural in nature.

This study was unique in examining the relationship between appearance-related cognitive bias, socio-cultural ideal internalisation, perceived pressures from the media, and media exposure in a sample of young adolescent girls and boys. While the hypothesised relationships were not observed, as described, a trend was observed in females whereby those with high levels of internalisation had higher levels of appearance-related processing bias. It would therefore be valuable to investigate these relationships further utilising larger samples, more age-appropriate measures of appearance-related cognitive processing bias and stimuli potentially more salient of the socio-cultural ideal. Doing so could provide more information on possible interactions between these vulnerabilities and their effects on body dissatisfaction following exposure to appearance-related information.

## **Conclusion**

This study has shown that exposure to a magazine feature targeted specifically at adolescent girls, and relatively weak in terms of its depiction of the ideal body, can have a negative impact on their body dissatisfaction. Additionally, results have substantiated evidence that certain individuals are more vulnerable to the development of high levels of body dissatisfaction. It was also identified that, although not affected by media exposure in this case, boys in early adolescence experience relatively high levels of muscle dissatisfaction. This study adds to the literature on the development of body dissatisfaction by highlighting these key aspects in a sample of children who are at an influential stage in the development of body image. However, despite the growing amount of literature in this area, body image concerns continue to be a significant problem for a many young people. There are clearly areas in need of further investigation to further knowledge about how such problems manifest, and in order to develop interventions to prevent their development.



## REFERENCES

- Agliata, D., & Tantleff-Dunn, S. (2004). The impact of media exposure on males' body image. *Journal of Social and Clinical Psychology, 23*, 7-22.
- Ahern, A. L., Bennett, K. M., & Hetherington, M. M. (2008). Internalization of the ultra-thin ideal: Positive implicit associations with underweight fashion models are associated with drive for thinness in young women. *Eating Disorders, 16*(4), 294-307.
- Andersen, A. E., & DiDomenico, L. (1992). Diet vs. shape content of popular male and female magazines: A dose-response relationship to the incidence of eating disorders? *International Journal of Eating Disorders, 11*, 283-287.
- Anderson-Fye, E. P., & Becker, A. E. (2004). Sociocultural aspects of eating disorders. In J. K. Thompson (Ed.), *Handbook of Eating Disorders and Obesity* (pp. 565-589). Hoboken, New Jersey: Wiley.
- Anderson, D. R., Huston, A. C., Schmitt, K. L., Linebarger, D. L., & Wright, J. C. (2001). Early childhood television viewing and adolescent behaviour: The recontact study. *Monographs of the Society for Research in Child Development, 66*, 1-146.
- Anschutz, D. J., Engels, R. C. M. E., & Strien, T. (2008). Susceptibility for thin ideal media and eating styles. *Body Image, 5*, 70-79.
- Ata, R. N., Bryant Ludden, A., & Lally, M. (2007). The effects of gender and family, friend, and media influences on eating behaviors and body image during adolescence. *Journal of Youth and Adolescence, 36*, 1024-1037.
- Bardone-Cone, A. M., Cass, K. M., & Ford, J. A. (2008). Examining body dissatisfaction in young men within a biopsychosocial framework. *Body Image, 5*, 183-184.
- Bartlett, C. P., Vowels, C. L., & Saucier, D. A. (2008). Meta-analyses of the effects of media images on men's body-image concerns. *Journal of Social and Clinical Psychology, 27*(3), 279-310.
- Barton, S. B., Walker, L. L. M., Lambert, G., Gately, P. J., & Hill, A. J. (2004). Cognitive change in obese adolescents losing weight. *Obesity Research, 12*, 313-319.
- Bearman, S. K., Presnell, K., Martinez, E., & Stice, E. (2006). The skinny on body dissatisfaction: A longitudinal study of adolescent girls and boys. *Journal of Youth and Adolescence, 35*(2), 229-241.
- Beato-Fernández, L., Rodríguez-Cano, T., Belmonte-Llario, A., & Martínez-Delgado, C. (2004). Risk factors for eating disorders in adolescents: A Spanish community-based longitudinal study. *European Child and Adolescent Psychiatry, 13*, 287-294.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive Therapy of Depression*. New York: Guilford Press.
- Birkeland, R., Thompson, J. K., Herbozo, S., Roehrig, M., Cafri, G., & van den Berg, P. (2005). Media exposure, mood, and body image dissatisfaction: An experimental test of person versus product priming. *Body Image, 2*, 53-61.
- Bissel, K. L., & Zhou, P. (2004). Must see TV or ESPN: Entertainment and sports media exposure and body-image distortion in college women. *The Journal of Communication, 54*(1), 5-21.

- Blond, A. (2008). Impacts of exposure to images of ideal bodies on male body dissatisfaction: A review. *Body Image, 5*, 244-250.
- Botta, R. A. (2003). For your health? The relationship between magazine reading and adolescents' body image and eating disturbances. *Sex Roles, 48*, 389-399.
- Brower, K. J. (1992). Anabolic steroids: Addictive, psychiatric, and medical consequences. *American Journal of Addictions, 1*(2), 100-114.
- Brown, A., & Dittmar, H. (2005). Think thin and feel bad: the role of appearance schema activation, attention level, and thin-ideal internalization for young women's responses to ultra-thin media ideals. *Journal of Social and Clinical Psychology, 24*(8), 1088-1113.
- Bruch, J. (1962). Perceptual and conceptual disturbances in anorexia nervosa. *Canadian Journal of Psychiatry, 26*, 187-194.
- Buchholz, A., Henderson, K. A., Hounsell, A., Wagner, A., Norris, M., & Spettigue, W. (2007). Self-silencing in a clinical sample of female adolescents with eating disorders. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 16*(4), 158-163.
- Cafri, G., Thompson, J. K., Ricciardelli, L. A., McCabe, M. P., Smolak, L., & Yesalis, C. (2005). Pursuit of the muscular ideal: Physical and psychological consequences and putative risk factors. *Clinical Psychology Review, 25*, 215-239.
- Cafri, G., Yamamiya, Y., Brannick, M., & Thompson, J. K. (2005). The influence of sociocultural factors on body image: A meta analysis. *Clinical Psychology: Science and Practice, 12*(4), 421-433.
- Cash, T. F. (2002a). Beyond traits: Assessing body image states. In T. F. Cash & T. Pruzinsky (Eds.), *Body Image: A Handbook of Theory, Research, and Clinical Practice*. (pp. 163-170). New York: Guilford Press.
- Cash, T. F. (2002b). A "negative body image:" Evaluating epidemiological evidence. In T. F. Cash & T. Pruzinsky (Eds.), *Body Image: A Handbook of Theory and Research* (pp. 269-276). New York: Guilford Press.
- Cash, T. F., Fleming, E. C., Alindogan, J., Steadman, L., & Whitehead, A. (2002). Beyond body image as a trait: The development and validation of the Body Image States Scale. *Eating Disorders, 10*(2), 103-113.
- Cash, T. F., & Labarge, A. S. (1996). Development of the appearance schemas inventory: A new cognitive body image assessment. *Cognitive Therapy and Research, 20*, 37-50.
- Cash, T. F., Melynck, S. E., & Hrabosky, J. I. (2004). The assessment of body image investment: An extensive revision of the Appearance Schemas Inventory. *International Journal of Eating Disorders, 35*, 305-316.
- Cash, T. F., Morrow, J. A., Hrabosky, J. I., & Perry, A. A. (2004). How has body image changes? A cross-sectional investigation of college women and men from 1983 to 2001. *Journal of Consulting and Clinical Psychology, 72*(6), 1081-1089.
- Cash, T. F., & Pruzinsky, T. (Eds.). (2002). *Body Image: A Handbook of Theory, Research and Assessment*. New York: Guilford Press.
- Cash, T. F., & Szymanski, M. L. (1995). The development and validation of the Body-Image Ideals Questionnaire. *Journal of Personality Assessment, 64*(3), 466-477.
- Cassin, S. E., von Ranson, K. M., & Whiteford, S. (2008). Cognitive processing of body and appearance related words as a function of thin-ideal internalisation and schematic activation. *Body Image, 5*, 271-278.

- Catterin, J., Williams, R., Thomas, C. M., & Thompson, J. K. (2000). Body image, mood, and televised images of attractiveness: The role of social comparison. *Journal of Social and Clinical Psychology, 19*, 220-239.
- Clark, L., & Tiggemann, M. (2007). Sociocultural influences and body image in 9- to 12-year-old girls: The role of appearance schemas. *Journal of Clinical and Adolescent Psychology, 36*(1), 76-86.
- Cohane, G. H., & Pope, H. G. (2001). Body image in boys: A review of the literature. *International Journal of Eating Disorders, 29*(4), 373-379.
- Cohn, L. D., Adler, N. E., Irwin, C. E., Jr., Millstein, S. G., Kegeles, S. M., & Stone, G. (1987). Body figure preferences in male and female adolescents. *Journal of Abnormal Psychology, 96*(3), 276-279.
- Cooper, M. (1997). Cognitive theory in anorexia nervosa and bulimia nervosa: A review. *Behavioural and Cognitive Psychotherapy, 25*, 113-145.
- Cosgrave, B. (2006). Skeletons on the runway: The "Size-zero Debate". Retrieved 21st April, 2010, from <http://www.britannica.com/blogs/2006/11/skeletons-on-the-runway-the-size-zero-debate/>
- Cross-Government Obesity Unit. (2010). The National Child Measurement Programme: Guidance for PCTs 2010/2011. London: Department of Health.
- Cross-Government Obesity Unit, Department of Health, and Department of Children, Schools and Families. (2008). Healthy Weight, Healthy Lives: A Cross-Government Strategy for England. London: Department of Health.
- Cusumano, D. L., & Thompson, J. K. (1997). Body image and body shape ideals in magazines: Exposure, awareness and internalization. *Sex Roles, 37*(9/10), 701-721.
- Cusumano, D. L., & Thompson, J. K. (2000). Media influence and body image in 8-11-year-old boys and girls: A preliminary report on the multidimensional media influence scale. *International Journal of Eating Disorders, 29*, 37-44.
- Davison, T. E., & McCabe, M. P. (2006). Adolescent body image and psychosocial functioning. *The Journal of Social Psychology, 146*(1), 15-30.
- Dittmar, H. (2009). How do "body perfect" ideals in the media have a negative impact on body image and behaviors? Factors and processes related to self-identity. *Journal of Social and Clinical Psychology, 28*(1), 1-8.
- Dittmar, H., Halliwell, E., & Stirling, E. (2009). Understanding the impact of thin media models on women's body-focused affect: The roles of thin-ideal internalization and weight-related self-discrepancy activation in experimental exposure effects. *Journal of Social and Clinical Psychology, 28*(1), 43-72.
- Dittmar, H., & Howard, S. (2004a). Thin-ideal internalization and social comparison tendency as a moderator of media models' impact on women's body-focused anxiety. *Journal of Social and Clinical Psychology, 23*, 768-791.
- Dittmar, H., & Howard, S. (2004b). Professional hazards? The impact of model's body size on advertising effectiveness and women's body-focused anxiety in professions that do and do not emphasize the cultural ideal of thinness. *British Journal of Social Psychology, 43*, 1-33.
- Dobson, K. S., & Dozois, D. J. A. (2004). Attentional biases in eating disorders: A meta-analytic review of Stroop performance. *Clinical Psychology Review, 23*, 1001-1022.

- Dohnt, H. K., & Tiggemann, M. (2006). Body image concerns in young girls: The role of peers and media prior to adolescence. *Journal of Youth and Adolescence*, 35(2), 141-151.
- Drewnowski, A., & Yee, D. K. (1987). Men and body image: Are males satisfied with their body weight? *Psychosomatic Medicine*, 49, 626-634.
- Durkin, S. J., & Paxton, S. J. (2002). Predictors of vulnerability to reduced body image satisfaction and psychological wellbeing in response to exposure to idealized female media images in adolescent girls. *Journal of Psychosomatic Research*, 53, 995-1005.
- Durkin, S. J., Paxton, S. J., & Wertheim, E. H. (2005). How do adolescent girls evaluate body dissatisfaction prevention messages? *Journal of Adolescent Health*, 37, 381-390.
- Erikson, E. H. (1968). *Identity, Youth, and Crisis*. London: Faber.
- Farquhar, J. C., & Wasylkiw, L. (2007). Media images of men: Trends and consequences of body conceptualization. *Psychology of Men & Masculinity*, 8(3), 145-160.
- Farrell, C., Shafran, R., & Lee, M. (2006). Empirically evaluated treatments for body image disturbance: A review. *European Eating Disorders Review*, 14(5), 289-300.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117-140.
- Folk, L., Pederson, J., & Cullari, S. (1993). Body satisfaction and self-concept of third- and sixth-grade students. *Perceptual and Motor Skills*, 76, 547-553.
- Franko, D. L., & Keel, P. (2006). Suicidality in eating disorders: Occurrence, correlates, and clinical implications. *Clinical Psychology Review*, 26, 769-782.
- Franko, D. L., & Striegel-Moore, R. H. (2007). Psychosocial risk for eating disorders: What's new? In S. Wonderlich, J. E. Mitchell, M. de Zwaan & H. Steiger (Eds.), *Annual Review of Eating Disorders: Part 1 - 2007* (pp. 51-62). Oxford: Radcliffe Publishing Ltd.
- Franzoi, S. L. (1995). The body-as-object versus the body-as process: Gender differences and gender considerations. *Sex Roles*, 33, 417-437.
- Frederick, D. A., Buchanan, G. M., Sadehgi-Azar, L., Peplau, L. A., Haselton, M. G., Berezovskaya, A., et al. (2007). Desiring the muscular ideal: Men's body satisfaction in the United States, Ukraine, and Ghana *Psychology of Men & Masculinity*, 8(2), 103-117.
- Frederick, D. A., Fessler, D. M. T., & Haselton, M. G. (2005). Do representations of male muscularity differ in men's and women's magazines? *Body Image*, 2, 81-86.
- Frederick, D. A., Peplau, L. A., & Lever, J. (2006). The swimsuit issue: Correlates of body image in a sample of 52,677 heterosexual adults *Body Image*, 4, 413-419.
- Furnham, A., & Baguma, P. (1994). Cross-cultural differences in the evaluation of male and female body shapes. *International Journal of Eating Disorders*, 15, 81-89.
- Furnham, A., & Calnan, A. (1998). Eating disturbance, self-esteem, reasons for exercising and body weight dissatisfaction in adolescent males. *European Eating Disorders Review*, 6, 58-72.

- Gardner, R. M., Freidman, B. N., Stark, K., & Jackson, N. A. (1999). Body size estimations in children six through fourteen: A longitudinal study. *Perceptual and Motor Skills, 88*, 541-555.
- Gardner, R. M., Stark, K., Freidman, B. N., & Jackson, N. A. (2000). Predictors of eating disorder scores in children ages 6 through 14: A longitudinal study. *Journal of Psychosomatic Research, 49*, 199-205.
- Garner, D. M. (1991). *Eating disorders Inventory-2: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Garner, D. M. (1997). The 1997 body image survey results. Retrieved 15/01/2009, from <http://www.psychologytoday.com/articles/index.php?term=19970201-000023&page=3>
- Garner, D. M., Garfinkle, P. E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. *Psychological Reports, 47*, 483-491.
- Gerbner, G., Gross, L., & Morgan, M. (2002). Growing up with television: Cultivation processes. In J. Bryant & D. Zillman (Eds.), *Media Effects: Advances in Theory and Research*. (2nd ed., pp. 43-67). Mahwah, NJ: Erlbaum.
- Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin, 134*(3), 460-476.
- Grammas, D. L., & Schwartz, J. P. (2009). Internalization of messages from society and perfectionism as predictors of male body image. *Body Image, 6*, 31-36.
- Grimmett, C., Croker, H., Carnell, S., & Wardle, J. (2008) Telling parents their child's weight status: Psychological impact of a weight-screening program. *Pediatrics, 122*, 682-688.
- Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders, 31*, 1-16.
- Grogan, S. (2008). *Body Image: Understanding Body Dissatisfaction in Men, Women and Children* (2nd ed.). Hove, UK: Routledge.
- Halliwel, E., & Dittmar, H. (2004). Does size matter? The impact of model's body size on women's body-focused anxiety and advertising effectiveness. *Journal of Social and Clinical Psychology, 23*(1), 104-122.
- Halliwel, E., Dittmar, H., & Howe, J. (2005). The impact of advertisements featuring ultra-thin or average-size models on women with a history of eating disorders. *Journal of Community and Applied Social Psychology, 15*(5), 406-413.
- Halliwel, E., & Harvey, M. (2006). Examination of a sociocultural model of disordered eating among male and female adolescents. *British Journal of Health Psychology, 11*, 235-248.
- Hargreaves, D., & Tiggemann, M. (2002a). The role of appearance schematicity in the development of adolescent body dissatisfaction. *Cognitive Therapy and Research, 26*(6), 691-700.
- Hargreaves, D., & Tiggemann, M. (2002b). The effect of television commercials on mood and body dissatisfaction: The role of appearance-schema. *Journal of Social and Clinical Psychology, 21*(3), 287-308.
- Hargreaves, D., & Tiggemann, M. (2003a). Longer-term implications of responsiveness to 'thin-ideal' television: Support for a cumulative hypothesis of body image disturbance? *European Eating Disorders Review, 11*, 465-477.

- Hargreaves, D., & Tiggemann, M. (2003b). The effect of "thin ideal" television commercials on body dissatisfaction and schema activation during adolescence. *Journal of Youth and Adolescence*, *32*(5), 367-373.
- Hargreaves, D., & Tiggemann, M. (2004). Idealized media images and adolescent body image: "Comparing" boys and girls. *Body Image*, *1*, 351-361.
- Harter, S. (1999). *The Construction of the Self: A Developmental Perspective*. New York: Guilford Press.
- Hatoum, I. J., & Belle, D. (2004). Mags and abs: Media consumption and bodily concerns in men. *Sex Roles*, *51*(7/8), 397-407.
- Hausenblas, H. A., Janelle, C. M., Gardner, R. E., & Hagan, A. L. (2003). Affective responses of high and low body satisfied men to viewing physique slides. *Eating Disorders*, *11*(2), 101-113.
- Heatherton, T. F., Mahamedi, F., Striipe, M., Field, A. E., & Keel, P. (1997). A 10-year longitudinal study of body weight, dieting and eating disorder symptoms. *Journal of Abnormal Psychology*, *106*, 117-125.
- Heinberg, L. J., & Thompson, J. K. (1995). Body image and televised images of thinness and attractiveness: A controlled laboratory investigation. *Journal of Social and Clinical Psychology*, *14*(4), 325-338.
- Heinberg, L. J., Thompson, J. K., & Storer, S. M. (1995). The development and validation of the Sociocultural Attitude Towards Appearance Questionnaire (SATAQ). *International Journal of Eating Disorders*, *17*, 81-89.
- Hermans, D., Pieters, G., & Eelen, P. (1998). Implicit and explicit memory for shape, body, weight and food-related words in patients with anorexia nervosa and non-dieting controls. *Journal of Abnormal Psychology*, *107*, 193-202.
- Herzog, D. B., Greenwood, D. N., Dorer, D. J., Flores, A. T., Ekeblad, E. R., Richards, A., et al. (2000). Mortality in eating disorders: A descriptive study. *International Journal of Eating Disorders*, *28*(1), 20-26.
- Hewig, J., Cooper, S., Trippe, R. H., Hecht, H., Straube, T., & Miltner, W. H. R. (2008). Drive for thinness and attention towards specific body parts in a nonclinical sample. *Psychosomatic Medicine*, *70*, 729-736.
- Hildebrandt, T., Langenbacher, J., & Schlundt, D. G. (2004). Muscularity concerns among men: development of attitudinal and perceptual measures. *Body Image*, *1*, 164-181.
- Hobza, C. L., & Rochlen, A. B. (2009). Gender role conflict, drive for muscularity, and the impact of ideal media portrayals on men. *Psychology of Men & Masculinity*, *10*(2), 120-130.
- Hoek, H. W. (2006). Incidence, prevalence and mortality of anorexia nervosa and other eating disorders. *Current Opinion in Psychiatry*, *19*, 389-394.
- Hoek, H. W., & van Hoeken, D. (2003). Review of the prevalence and incidence of eating disorders. *International Journal of Eating Disorders*, *34*, 383-396.
- Hofshire, L. J., & Greenberg, B. S. (2002). Media's impact on adolescents' body dissatisfaction. In J. D. Brown, J. R. Steele & K. W. Walsh-Childers (Eds.), *Sexual Teens, Sexual Media: Investigating Media's Influence on Adolescent Sexuality* (pp. 125-152). New Jersey: Erlbaum.
- Hudson, J., Hiripi, E., Pope, H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey replication. *Biological Psychiatry*, *61*(3), 348-358.

- Humphreys, P., & Paxton, S. J. (2004). Impact of exposure to idealised male images on adolescent boys' body image. *Body Image, 1*, 253-266.
- Hunt, J., & Cooper, M. (2001). Selective memory bias in women with bulimia nervosa and women with depression. *Behavioural and Cognitive Psychotherapy, 29*, 93-102.
- Irving, L., Wall, M., Neumark-Sztainer, D., & Story, M. (2002). Steroid use among adolescents: Findings from project EAT. *Journal of Adolescent Health, 30*, 243-252.
- Johansson, L., Ghaderi, A., & Andersson, G. (2005). Stroop interference for food- and body-related words: A meta-analysis. *Eating Behaviors, 6*, 271-281.
- Johnson, F., & Wardle, J. (2005). Dietary restraint, body dissatisfaction, and psychological distress: A prospective analysis. *Journal of Abnormal Psychology, 114*(1), 119-125.
- Johnson, P. J., Mills, J. S., & McCreary, D. R. (2007). Effects of exposure to objectified male and female media images on men's psychological well-being. *Psychology of Men & Masculinity, 8*(2), 95-102.
- Jones, D. C. (2001). Social comparison and body image: Attractiveness comparison to models and peers among adolescent girls and boys. *Sex Roles, 45*, 645-664.
- Jones, D. C. & Crawford, J. K. (2005). Adolescent boys and body image: Weight and muscularity concerns as dual pathways to body dissatisfaction. *Journal of Youth and Adolescence, 34*(6), 629-636.
- Jones, D. C., Vigfusdottir, T. H., & Lee, Y. (2004). Body image and the appearance culture among adolescent girls and boys: An examination of friend conversations, peer criticism, appearance magazines, and internalisation of appearance ideals. *Journal of Adolescent Research, 19*(3), 329-339.
- Kalodner, C. R. (1997). Media influences on male and female non-eating-disordered college students: A significant issue. *Eating Disorders, 5*(1), 47-57.
- Karazsia, B. T., & Crowther, J. H. (2008). Psychological and behavioural correlates of the SATAQ-3 with males. *Body Image, 5*, 109-115.
- Karazsia, B. T., & Crowther, J. H. (2009). Social body comparison and internalization: Mediators of social influences on men's muscularity-oriented body dissatisfaction. *Body Image, 6*, 105-112.
- Keel, P. K., Fulkerson, J. A., & Leon, G. R. (1997). Disordered eating precursors in pre- and early adolescent girls and boys. *Journal of Youth and Adolescence, 26*, 203-216.
- Keery, H., van den Berg, P., & Thompson, J. K. (2004). An evaluation of the Tripartite Influence Model of body dissatisfaction and eating disturbance with adolescent girls. *Body Image, 1*, 237-251.
- Klein, H., & Shiffman, K. S. (2005). Thin is 'in' and stout is 'out': What animated cartoons tell viewers about body weight. *Eating and Weight Disorders, 10*, 107-116.
- Knauss, C., Paxton, S. J., & Alsaker, F. D. (2007). Relationships amongst body dissatisfaction, internalisation of the media body ideal and perceived pressure from media in adolescent girls and boys. *Body Image, 4*, 353-360.
- Labarge, A. S., Cash, T. F., & Brown, T. A. (1998). Use of a modified Stroop task to examine appearance-schematic information processing in college women. *Cognitive Therapy and Research, 22*(2), 179-190.

- Leit, R. A., Gray, J. J., & Pope, H. G. (2002). The media's representation of the ideal male body: A cause for muscle dysmorphia? *International Journal of Eating Disorders*, *31*, 334-338.
- Leit, R. A., Pope, H. G., & Gray, J. J. (2001). Cultural expectations of muscularity in men: An evolution of playgirl centrefolds. *International Journal of Eating Disorders*, *29*, 90-93.
- Leon, G. R., Fulkerson, J. A., Perry, C. L., & Early-Zald, M. B. (1995). Prospective analysis of personality and behavioural vulnerabilities and gender influence in the later development of disordered eating. *Journal of Abnormal Psychology*, *1995*(104), 140-149.
- Lipsey, Z., Barton, S. B., Hulley, A., & Hill, A. J. (2006). "After a workout..." Beliefs about exercise, eating and appearance in female exercisers with and without eating disorder features. *Psychology of Sport and Exercise*, *7*, 425-436.
- Lopez, E., Blix, G. G., & Blix, A. G. (1995). Body image of Latinas compared to body image of non-Latina White women. *The Journal of Health Behavior, Education & Promotion*, *19*(6), 301.
- Luff, G. M., & Gray, J. J. (2009). Complex messages regarding a thin ideal appearing in teenage girls' magazines from 1956 to 2005. *Body Image*, *6*, 133-136.
- Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, *35*, 63-78.
- Martin, M. C., & Kennedy, P. F. (1993). Advertising and social comparison: consequences for female preadolescents and adolescents. *Psychology & Marketing*, *10*, 513-530.
- McCabe, M. P., & Ricciardelli, L. A. (2001). Parent, peer and media influences on body image and strategies to both increase and decrease body size among adolescent boys and girls. *Adolescence*, *36*(142), 225-231.
- McCabe, M. P., & Ricciardelli, L. A. (2003). Sociocultural influences on body image and body change among adolescent boys and girls. *The Journal of Social Psychology*, *143*(1), 5-26.
- McCabe, M. P., & Ricciardelli, L. A. (2004). Body image dissatisfaction among males accross the lifespan: A review of past literature. *Journal of Psychosomatic Research*, *56*, 675-685.
- McCabe, M. P., Ricciardelli, L. A., & Finemore, J. (2002). The role of puberty, media and popularity with peers on strategies to increase weight, decrease weight and increase muscle tone among adolescent boys and girls. *Journal of Psychosomatic Research*, *52*, 145-153.
- McCreary, D. R., & Sasse, D. K. (2000). An exploration of the drive for muscularity in adolescent boys and girls. *Journal of American College Health*, *48*(6), 297-304.
- McLean, C. P., Miller, N. A., & Hope, D. A. (2007). Mediating social anxiety and disordered eating: The role of expressive suppression. *Eating Disorders*, *15*(1), 41-54.
- McVeigh, T. (2010, 16th May). Skinny male models and new fashions fuel eating disorders among men. *The Observer*.
- Morris, A., Cooper, T., & Cooper, P. J. (1989). The changing shape of female fashion models. *International Journal of Eating Disorders*, *8*, 593-596.
- Muth, J. L., & Cash, T. F. (1997). Body image attitudes: What difference does gender make? *Journal of Applied Social Psychology*, *27*, 1438-1452.



- National Collaborating Centre for Mental Health. (2004). *Eating disorders: core interventions in the treatment and management of anorexia nervosa, bulimia nervosa and related eating disorders*. London: National Institute for Clinical Excellence.
- Neighbors, L. A., & Sobal, J. (2007). Prevalence and magnitude of body weight and shape dissatisfaction among university students. *Eating Behaviors, 8*, 429-439.
- Nemeroff, C. J., Stein, R. I., Diehl, N. S., & Smilack, K. M. (1994). From the Cleavers to the Clintons: Role choices and body orientation as reflected in magazine article content. *International Journal of Eating Disorders, 16*, 167-176.
- Neumark-Sztainer, D., Paxton, S. J., Hannan, P. J., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviours in adolescent females and males. *Journal of Adolescent Health, 39*(2), 244-251.
- Newman, D. L., Moffitt, T. E., Caspi, A., Magdol, L., Silva, P. A., & Stanton, W. R. (1996). Psychiatric disorder in a birth cohort of young adults: Prevalence, comorbidity, clinical significance, and new case incidence from ages 11 to 21. *Journal of Consulting and Clinical Psychology, 64*, 552-562.
- Ogden, J., & Munday, K. (1996). The effect of the media on body satisfaction: The role of gender and size. *European Eating Disorders Review, 4*(3), 171-182.
- Ohring, R., Graber, J. A., & Brooks-Gunn, J. (2002). Girls' recurrent and concurrent body dissatisfaction: Correlates and consequences over 8 years. *International Journal of Eating Disorders, 31*(4), 404-415.
- Olins, A. (2008, 13th August). Fashion capitals end London's plan to ban size zero. *The Times*.
- Olivardia, R. (2002). Body image and muscularity. In T. F. Cash & T. Pruzinsky (Eds.), *Body Image: A Handbook of Theory, Research, and Clinical Practice*. New York: Guilford Press.
- Olivardia, R., Pope, H. G., Borowiecki, J., & Cohane, G. H. (2004). Biceps and body image: The relationship between muscularity and self-esteem, depression, and eating disorder symptoms. *Psychology of Men & Masculinity, 5*(2), 112-120.
- Paxton, S. J., Eisenberg, M. E., & Neumark-Sztainer, D. (2006). Prospective predictors of body dissatisfaction in adolescent girls and boys: A five-year longitudinal study. *Developmental Psychology, 42*(888-899).
- Paxton, S. J., & Franko, D. L. (2009). Body image and eating disorders In M. A. Cucciare & K. R. Weingardt (Eds.), *Using Technology to Support Evidence-Based Behavioral Health Practices: A Clinician's Guide* (pp. 151-167). New York: Routledge.
- Peters, M. A., & Phelps, L. (2001). Body image dissatisfaction and distortion, steroid use, and sex differences in college age bodybuilders. *Psychology in the Schools, 38*(3), 283-289.
- Phillips, R. G., & Hill, A. J. (1998). Fat, plain, but not friendless: Self-esteem and peer acceptance of obese pre-adolescent girls. *International Journal of Obesity, 22*(4), 287-293.
- Piran, N. (2001). Re-inhabiting the body from the inside out: Girls transform their school environment. In D. L. Tolman & M. Brydon-Miller (Eds.), *From Subjects to Subjectives: A Handbook of Interpretative and Participatory Methods* (pp. 218-238). New York: New York University Press.

- Polce-Lynch, M., Myers, B. J., Kilmartin, C. T., Forssmann-Flack, R., & Kliewer, W. (1998). Gender and age patterns in emotional expression, body image, and self-esteem: A qualitative analysis. *Sex Roles, 28*, 1025-1041.
- Polivy, J., & Herman, C. P. (1985). Dieting and bingeing: A causal analysis. *American Psychologist, 40*, 193-201.
- Polivy, J., & Herman, C. P. (1987). The diagnosis and treatment of normal eating. *Journal of Consulting and Clinical Psychology, 55*, 635-644.
- Polivy, J., & Herman, C. P. (2002). Causes of eating disorders. *Annual Review of Psychology, 53*, 187-213.
- Pope, H. G., Olivardia, R., Borowiecki, J. J., & Cohane, G. H. (2001). The growing commercial value of the male body: A longitudinal survey of advertising in women's magazines. *Psychotherapy and Psychosomatics, 70*, 189-192.
- Pope, H. G., Olivardia, R., Gruber, A., & Borowiecki, J. J. (1999). Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorders, 26*, 65-72.
- Pope, H. G., Phillips, K. A., & Olivardia, R. (2000). *The Adonis Complex: The Secret Crisis of Male Body Obsession*. New York: Free Press.
- Posavac, H. D., Posavac, S. S., & Posavac, E. J. (1998). Exposure to media images of female attractiveness and concern with body weight among young women. *Sex Roles, 38*(3-4), 187-201.
- Posavac, H. D., Posavac, S. S., & Weigel, R. G. (2001). Reducing the impact of media images on women at risk for body image disturbance: Three targeted interventions. *Journal of Social and Clinical Psychology, 20*, 324-340.
- Presnell, K., Bearman, S. K., & Stice, E. (2004). Risk factors for body dissatisfaction in adolescent girls and boys: A prospective study. *International Journal of Eating Disorders, 36*(4), 389-401.
- Rabak-Wagener, J., Eickhoff-Shemek, J., & Kelly-Vance, L. (1998). The effect of media analysis on attitudes and behaviors regarding body image among college students. *Journal of American College Health, 47*(29-35).
- Ricciardelli, L. A., & McCabe, M. P. (2001). Self-esteem and negative affect as moderators of sociocultural influences on body dissatisfaction, strategies to decrease weight, and strategies to increase muscle among adolescent boys and girls. *Sex Roles, 44*(3/4), 189-207.
- Ricciardelli, L. A., & McCabe, M. P. (2004). A biopsychosocial model of disordered eating and the pursuit of muscularity in adolescent boys. *Psychological Bulletin, 130*(2), 179-205.
- Ricciardelli, L. A., McCabe, M. P., & Banfield, S. (2000). Body image and body change methods in adolescent boys: Role of parents, friends, and the media. *Journal of Psychosomatic Research, 49*, 189-197.
- Rintala, M., & Mustajoki, P. (1992). Could mannequins menstruate? *British Medical Journal, 305*, 1575-1576.
- Rodin, J., Silberstein, L., & Striegel-Moore, R. (1985). Women and weight: A normative discontent. In T. B. Sondereregger (Ed.), *Psychology and Gender*. Lincoln, NB: University of Nebraska Press.
- Rosenblum, G. D., & Lewis, M. (1999). The relations among body image, physical attractiveness, and body mass in adolescence. *Child Development, 70*, 50-64.

- Rosser, B. A., Moss, T., & Rumsey, N. (2010). Attentional and interpretative biases in appearance concern: An investigation of biases in appearance-related information processing. *Body Image, Article in press*.
- Sands, E. R., & Wardle, J. (2003). Internalization of ideal body shapes in 9-12 year-old girls. *International Journal of Eating Disorders, 33*, 193-204.
- Sands, R., Tricker, J., Sherman, C., Armatas, C., & Maschette, W. (1997). Disordered eating patterns, body image, self-esteem, and physical activity in preadolescent children. *International Journal of Eating Disorders, 21*, 159-166.
- Schur, E. A., Sanders, M., & Steiner, H. (2000). Body dissatisfaction and dieting in young children. *International Journal of Eating Disorders, 27*, 74-82.
- Segal, Z. V., & Vella, D. D. (1990). Self-schema in major depression: Replication and extension of a priming methodology. *Cognitive Therapy and Research, 14*(2), 161-176.
- Shafran, R., Lee, M., Cooper, Z., Palmer, R. L., & Fairburn, C. G. (2007). Attentional bias in eating disorders. *International Journal of Eating Disorders, 40*(4), 369-380.
- Sherman, D. K., Iacono, W. G., & Donnelly, J. M. (1995). Development and validation of body rating scales for adolescent females. *International Journal of Eating Disorders, 18*(4), 327-333.
- Shisslak, C. M., Renger, R., Sharpe, T., Crago, M., McKnight, K. M., Gray, N., et al. (1999). Development and evaluation of the McKnight Risk Factor survey for assessing potential Risk and protective factors for disordered eating in preadolescent and adolescent girls. *International Journal of Eating Disorders, 25*(5), 195-214.
- Shroff, H., & Thompson, J. K. (2006). Peer influences, body-image dissatisfaction, eating dysfunction and self-esteem in adolescent girls. *Journal of Health Psychology, 11*, 533-551.
- Silverstein, B., Perdue, L., Peterson, B., & Kelly, E. (1986). The role of the mass media in promoting a thin standard of bodily attractiveness for women. *Sex Roles, 14*, 519-532.
- Sinton, M. M., & Birch, L. L. (2006). Individual and sociocultural influences on pre-adolescent girls' appearance schemas and body dissatisfaction. *Journal of Youth and Adolescence, 35*(2), 165-175.
- Smolak, L. (2004). Body image in children and adolescents: Where do we go from here? *Body Image, 1*, 15-28.
- Smolak, L., Levine, M. P., & Thompson, J. K. (2001). The use of the Sociocultural Attitudes Towards Appearance Questionnaire with Middle School Boys and Girls. *International Journal of Eating Disorders, 29*, 216-223.
- Smolak, L., Murnen, S. K., & Thompson, J. K. (2005). Sociocultural influences and muscle building techniques in adolescent boys. *Psychology of Men & Masculinity, 6*(4), 227-239.
- Spitzer, B., Henderson, K. A., & Zivian, M. T. (1999). Gender differences in population versus media body sizes: A comparison over four decades. *Sex Roles, 40*, 545-565.
- Steinhausen, H. C., Seidel, R., & Metzke, C. W. (2000). Evaluation of treatment and intermediate and long-term outcome of adolescent eating disorders. *Psychological Medicine, 30*(5), 1089-1098.

- Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. *Clinical Psychology Review, 14*, 633-661.
- Stice, E. (2000). Negative affect moderates the relation between dieting and binge eating. *International Journal of Eating Disorders, 27*, 218-229.
- Stice, E. (2001). A prospective test of the dual pathway model of bulimic pathology: Mediating effects of dieting and negative affect. *Journal of Abnormal Psychology, 110*, 124-135.
- Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin, 128*(5), 825-848.
- Stice, E., & Agras, W. S. (1998). Predicting onset and cessation of bulimic behaviors during adolescence: a longitudinal grouping analysis. *Behavior Therapy, 29*, 257-276.
- Stice, E., Chase, A., Stormer, S., & Appel, A. (2001). A randomized trial of a dissonance-based eating disorder prevention program. *International Journal of Eating Disorders, 29*(3), 247-262.
- Stice, E., Maxfield, J., & Wells, T. (2003). Adverse effects of social pressure to be thin on young women: An experimental investigation of "fat talk". *International Journal of Eating Disorders, 34*(1), 108-117.
- Stice, E., Schupak-Neuberg, E., Shaw, H. E., & Stein, R. I. (1994). Relation of media exposure and eating disorder symptomatology: An examination of mediating mechanisms. *Journal of Abnormal Psychology, 103*(4), 836-840.
- Stice, E., Shaw, H. E., & Marti, C. N. (2007). A meta-analytic review of eating disorder prevention programs: Encouraging findings. *Annual Review of Clinical Psychology, 3*, 207-231.
- Stice, E., Spangler, D., & Agras, W. S. (2001). Exposure to media-portrayed thin-ideal images adversely affects vulnerable girls: A longitudinal experiment. *Journal of Social and Clinical Psychology, 20*(3), 270-288.
- Stice, E., & Whitenton, K. (2002). Risk factors for body dissatisfaction in adolescent girls: A longitudinal investigation. *Developmental Psychology, 38*(5), 669-678.
- Stunkard, A. J., Sorensen, T., & Schulsinger, F. (1983). Use of the Danish adoption register for the study of obesity and thinness. In S. Kety (Ed.), *The Genetics of Neurological and Psychiatric Disorders*. New York: Raven Press.
- Sullivan, P. F. (2002). Course and outcome of anorexia nervosa and bulimia nervosa. In C. G. Fairburn & K. D. Brownell (Eds.), *Eating Disorders and Obesity: A Comprehensive Handbook (2nd Ed.)* (pp. 226-232). New York: Guilford Press.
- Swami, V., Knight, D., Tovée, M. J., Davies, P., & Furnham, A. (2007). Preferences for female body size in Britain and the South Pacific. *Body Image, 4*, 219-223.
- Sypeck, M. F., Gray, J. J., & Ahrens, A. H. (2004). No longer just a pretty face: Fashion magazine's depiction of ideal female beauty from 1959 to 1999. *International Journal of Eating Disorders, 36*(3), 342-347.
- Thompson, J. K. (2004a). The (mis)measurement of body image: ten strategies to improve assessment for applied and research purposes. *Body Image, 1*, 7-14.
- Thompson, J. K. (Ed.). (2004b). *Handbook of Eating Disorders and Obesity*. New York: Wiley.
- Thompson, J. K., & Altabe, M. N. (1991). Psychometric qualities of the Figure Rating Scale. *International Journal of Eating Disorders, 10*(5), 615-619.

- Thompson, J. K., Heinberg, L. J., Altabe, M. N., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. Washington, DC: American Psychological Association.
- Thompson, J. K., & Stice, E. (2001). Thin-ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science*, *10*(5), 181-183.
- Thompson, J. K., van den Berg, P., Roehrig, M., Guarda, A. S., & Heinberg, L. J. (2004). The Sociocultural Attitudes Towards Appearance Scale-3: Development and validation. *International Journal of Eating Disorders*, *35*, 293-304.
- Tiggemann, M. (2003). Media exposure, body dissatisfaction and disordered eating: television and magazines are not the same! *European Eating Disorders Review*, *11*, 418-430.
- Tiggemann, M., Hargreaves, D., Polivy, J., & McFarlane, T. (2004). A word-stem completion task to assess implicit processing of appearance-related information. *Journal of Psychosomatic Research*, *57*, 73-78.
- Tiggemann, M., & Pickering, A. S. (1996). Role of television in adolescent women's body dissatisfaction and drive for thinness. *International Journal of Eating Disorders*, *20*(2), 199-203.
- Tiggemann, M., Polivy, J., & Hargreaves, D. (2009). The processing of thin ideals in fashion magazines: a source of social comparison or fantasy? *Journal of Social and Clinical Psychology*, *28*(1), 73-93.
- Tiggemann, M., & Slater, A. (2003). Thin ideals in music television: A source of social comparison and body dissatisfaction. *International Journal of Eating Disorders*, *35*, 48-58.
- Tiggemann, M., & Slater, A. (2004). Thin ideals in music television: A source of social comparison and body dissatisfaction. *International Journal of Eating Disorders*, *35*, 48-58.
- Tiggemann, M., & Wilson-Barrett, E. (1998). Children's figure ratings: Relationship to self-esteem and negative stereotyping. *International Journal of Eating Disorders*, *23*(1), 83-88.
- Tovée, M. J., Swami, V., Furnham, A., & Mangalparsad, R. (2006). Changing perceptions of attractiveness as observers are exposed to a different culture. *Evolution and Human Behaviour*, *27*, 443-456.
- van den Berg, P., Paxton, S. J., Keery, H., Wall, M., Guo, J., & Neumark-Sztainer, D. (2007). Body dissatisfaction and body comparison with media images in males and females. *Body Image*, *4*, 257-268.
- Vincent, M. A., & McCabe, M. P. (2000). Gender differences among adolescents in family and peers influences on body dissatisfaction, weight loss, and binge eating behaviors. *Journal of Youth and Adolescence*, *29*, 205-221.
- Vitousek, K. B., & Hollon, S. D. (1990). The investigation of schematic content and processing in eating disorders. *Cognitive Therapy and Research*, *14*(2), 191-214.
- Voracek, M., & Fisher, M. L. (2002). Shapely centrefold? Temporal change in body measures: Trend analysis. *British Medical Journal*, *325*, 1447-1448.
- Want, S. C. (2009). Meta-analytic moderators of experimental exposure to media portrayals of women on female appearance satisfaction: Social comparisons as automatic processes. *Body Image*, *6*, 257-269.

- Watson, R., & Vaughn, L. M. (2006). Limiting the effects of the media on body image: Does the length of the intervention make a difference? *Eating Disorders: The Journal of Treatment and Prevention, 14*, 385-400.
- Wetsman, A., & Marlowe, F. (1999). How universal are preferences for female waist-to-hip ratios? Evidence from the Hazda of Tanzania. *Evolution and Human Behaviour, 20*, 219-228.
- Wilksch, S. M., Tiggemann, M., & Wade, T. D. (2006). Impact of interactive school-based media literacy lessons for reducing internalization of media ideals in young adolescent girls and boys. *International Journal of Eating Disorders, 39*, 385-393.
- Williamson, D. A., Stewart, T. M., White, M. A., & York-Crowe, E. (2004). An information-processing perspective on body image. In T. F. Cash & T. Pruzinsky (Eds.), *Body Image: A Handbook of Theory, Research and Clinical Practice* (pp. 47-54). New York: Guilford Publications Inc.
- Wilson, D. T., Heffernan, K., & Black, C. M. (1996). Eating disorders. In E. J. Mash & R. A. Barkley (Eds.), *Child Psychopathology* (pp. 541-571). New York: Guilford Press.
- Wiseman, C. V., Gray, J. J., Mosimann, J. E., & Ahrens, A. H. (1992). Cultural expectations of thinness in women: An update. *International Journal of Eating Disorders, 11*(1), 85-89.
- Yamamiya, Y., Cash, T. F., Melynck, S. E., Posavac, H. D., & Posavac, S. S. (2005). Women's exposure to thin-and-beautiful media images: Body image effects of media-ideal internalization and impact-reduction interventions. *Body Image, 2*, 74-80.

**APPENDICES****Appendix A: Information pack for parents and pupils**

(headed paper)

(Date)

Dear Parent,

Our school and the University of Leeds are collaborating to carry out a research project entitled "*Looking at Teenage Magazine Features*". Your son/daughter is eligible for participation, but can only do so with your consent.

Enclosed you will find an information sheet explaining the research project in more detail. You should read this carefully before making a decision. We hope that you will be able to consent to your son/daughter participating as the project should provide some valuable information.

To give your consent, please complete the enclosed consent form with your son/daughter and return it to the school as soon as possible and by the ***return date*** at the latest.

If you would like more information on the project, you may contact either the school or the University of Leeds using the information given below.

Yours Sincerely,

NAME OF HEAD OF YEAR

Hannah George  
Psychologist in Clinical Training

**Pupil Information Sheet:**  
**Looking at Teenage Magazine Features**

We are asking if you would take part in a research project to find out more about how looking at magazine features can affect how young people think and feel. Before you decide if you want to join in it's important to understand why the research is being done and what it will involve for you. So please consider this leaflet carefully. Talk about it with your family, friends, or teachers if you want to. We also need your parents/guardians to agree to you taking part so they have also been given an information sheet about the project.

**Why are we doing this research?**

Many young people read magazines. We want to know more about how some types of magazine features can affect how you think and feel. We also want to find out more about what young people think about the people that are often pictured in magazines. What we find will be written up as part of the researcher's psychology training and we would also hope to publish the results in a scientific journal.

**Why have I been chosen to take part?**

We are particularly interested in studying young people aged between 11 and 14. This is because we know that young people of your age often read magazines and that their thoughts and feelings about this are important. We hope to involve about 300-400 girls and boys of your age so your friends/classmates will also have been invited to take part. There are also several other schools involved in the research project.

**Do I have to take part?**

No. It's up to you. Because the research will take place during your usual PSE lesson, if you don't take part then you will have other work to be getting on with. If you do want to join in, you and your parents will be asked to sign a form giving your consent. You will also be able to stop taking part at any time during the research without giving a reason. If you decide to stop, this will not affect you in anyway.



**What will happen to me if I take part?**

You will be given a booklet and asked to write your name and age on the front sheet. It will contain a magazine feature like one that you would usually find in magazines for people of your age. You will also be asked to answer some questions about your thoughts and feelings and to tell us how old you are. You will be asked to work on your own. It will take place in a classroom with the researcher and your teacher, and some other people from your class who are also taking part. It should take about 45 minutes.

**Is there anything to worry about if I take part?**

We have worked hard to make sure that the study is not difficult and will not upset you. The magazine features that you will look at will be similar to the ones you have probably seen before so it won't be strange for you. You can stop taking part at any time without giving a reason and without this affecting you. If you want help during or after the study then you can talk to the researcher or to your teacher who will do their best to help you. You can also talk to your parents/guardians who have an information sheet about who to contact if you want to talk to somebody about the research and your thoughts and feelings about it.

**Will information be kept confidential?**

Yes, when you hand in your answers, the information sheet with your name and age on it will be removed so that knows one will know which answers you gave. Only the researcher will see your answers. When the results are written up, everybody's answers will be grouped together so that no one's answers will be able to be identified.

**Who is organising the research?**

The project is being organised by the University of Leeds.

**Who has checked the study?**

Before any research project starts it has to be checked by a Research Ethics Committee. This is a group of people who are not connected to the research and who make sure that

the research is okay to do. This project has been checked by a Research Ethics Committee who have said that it is fine to do.

**How can I find out more?**

If you want to know more about the research project you can ask your teachers or your parents/guardians. They will be able to contact the researcher (her name is Hannah George) who will try and answer your questions.

**Thank you very much for reading this.**

**If you want to take part and your parents/guardians agree that it is okay for you to do so, please complete the 'Consent Form' with them and return it to school.**

**Parent/Guardian Information Sheet:  
Looking at Teenage Magazine Features**

Your son/daughter is being invited to take part in a research project conducted by the University of Leeds and in collaboration with *name of school*. Because he/she is under 16 we need you to provide consent in order for he/she to take part. Before you make a decision it is important that you understand why the research is being done and what it will involve. Please take time to read the following information sheet carefully and talk to others about it if you wish.

Please note that should you provide consent, we will only involve your son/daughter if she/he agrees to take part.

**What is the purpose of the study and what are the benefits?**

This study hopes to further information on the subtle emotional effects of viewing features from magazines targeted at young people of your son/daughter's age.

Frequently young people look at such features so it is important that we clarify what effects this may have on them. This knowledge could potentially inform ways to reduce these effects. The results will be written up as part of the researcher's doctoral training in clinical psychology. We also hope to publish the results in a relevant peer reviewed journal.

**Why has my son/daughter been invited and does he/she have to take part?**

We are particularly interested in the effects on young people aged between 11 and 14. This is because this age is an important stage in the development of children's self-identity.

The decision to take part is *entirely voluntary*. This information sheet will tell you more about the project. We will then ask you to sign a consent form to show you have agreed for your son/daughter to take part. You are free to withdraw your consent at any time,

without giving a reason. If your son/daughter does not take part, other activities will be arranged.

**What will happen if my son/daughter takes part?**

Your son/daughter will be given a booklet containing a magazine feature typical of those found in magazines targeted at young people of your son/daughter's age. The booklet will also contain a cover sheet on which they will be asked to write their name and age, and also a number of questionnaires. Participants will be asked to look at a magazine feature and then to answer some written questions relating to the feature and about their thoughts and feelings. This will take about 45 minutes. Your son/daughter will be asked to work alone on the task in a room in the presence of the researcher and the teacher and also a small group of other participating young people from your son/daughter's class.

**What are the potential disadvantages and risks of taking part?**

Care has been taken to ensure that the potential disadvantages of taking part have been minimised. The features have been taken from widely available magazines targeted at young people of your son/daughter's age therefore should not cause undue distress. Your son/daughter can withdraw from the study at any time with no repercussions. Myself and the teacher will be available both during and after the study should your son/daughter require support.

**What if there is a problem?**

[In the unlikely event that your son/daughter is harmed by taking part in the research there are no compensation arrangements. If they are harmed due to someone's negligence then you may have grounds for legal action against my sponsor, the University of Leeds. However, you may have to pay for this.]

If you have any concerns or complaints about the study you should ask to speak to the researcher (see below for details) who will do their best to answer your questions.

**Will information be kept confidential?**

All information collected during the course of the research will remain strictly confidential. Only the researcher will have access to the information and all information will be kept securely. The information sheet containing your son/daughter's name and age will be removed from the rest of the booklet once the information has been collected. No identifiable information will be included in any resulting publications.

**Who is organising and funding the research?**

The research is funded by The Leeds Institute of Health Sciences (IHS), University of Leeds.

**Who has reviewed the study?**

All research in the University of Leeds is looked at by independent group of people, called a Research Ethics Committee to protect participants' safety, rights, wellbeing and dignity. This study has been reviewed and given favourable opinion by the University of Leeds joint IHS/Leeds Institute of Health, Genetics and Therapeutics Research Ethics Committee.

**Who should I contact for further information about the study?**

If you have any further questions about the study please contact the researcher: Hannah George, Psychologist in Clinical Training, The Leeds Institute of Health Sciences, University of Leeds, Charles Thackrah Building, 101 Clarendon Road, Leeds, LS2 9LJ. (contact details).

**Thank you very much for taking the time to read this information sheet.**

**If you are happy for your son/daughter to participate, you should keep this information sheet and sign (with your son/daughter) and return the permission slip.**

(Form to be on headed paper)

**CONSENT FORM**

*Looking at Teenage Magazine Features*

Researcher: Hannah George, Leeds Institute of Health Sciences, University of Leeds.

**Pupil name:** .....

*Parents/Guardians*

		Please initial box
1.	I confirm that I have read and understand the parent/guardian information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	<input type="checkbox"/>
2.	I understand that my child's participation is voluntary and that he/she is free to withdraw at any time without giving any reason and with no repercussions.	<input type="checkbox"/>
3.	I agree for my child to take part in the above study.	<input type="checkbox"/>
<hr/>		
Name	Date	Signature

		Please initial box
1.	I confirm that I have read and understand the pupil information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	<input type="checkbox"/>
2.	I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and with no repercussions.	<input type="checkbox"/>
3.	I agree to take part in the above study.	<input type="checkbox"/>
<hr/>		
Name	Date	Signature

### Appendix B: SATAQ-3 subscales

Subscale	Item
<i>Information</i>	<ul style="list-style-type: none"> <li>• TV programs are an important source of information about fashion and “being attractive”</li> <li>• TV commercials are an important source of information about fashion and “being attractive”</li> <li>• Music videos on TV are an important source of information about fashion and “being attractive”</li> <li>• Magazine articles are an important source of information about fashion and “being attractive”</li> <li>• Magazine advertisements are an important source of information about fashion and “being attractive”</li> <li>• Pictures in magazines are an important source of information about fashion and “being attractive”</li> <li>• Movies are an important source of information about fashion and “being attractive”</li> <li>• Movie stars are an important source of information about fashion and “being attractive”</li> <li>• Famous people are an important source of information about fashion and “being attractive”</li> </ul>
<i>Perceived Pressures</i>	<ul style="list-style-type: none"> <li>• I’ve felt pressure from TV or magazines to lose weight</li> <li>• I’ve felt pressure from TV or magazines to look pretty/muscular</li> <li>• I’ve felt pressure from TV and magazines to be thin/muscular</li> <li>• I’ve felt pressure from TV or magazines to have a perfect body</li> <li>• I’ve felt pressure from TV or magazines to diet</li> <li>• I’ve felt pressure from TV or magazines to exercise</li> <li>• I’ve felt pressure from TV or magazines to change my appearance</li> </ul>
<i>Internalisation-General</i>	<ul style="list-style-type: none"> <li>• I would like my body to look like the people who are on TV</li> <li>• I compare my body to the bodies of TV and movie stars</li> <li>• I would like my body to look like the [male] models who appear in magazines</li> <li>• I wish I looked like the [male] models in music videos</li> <li>• I compare my appearance to the appearance of TV and movie stars</li> <li>• I would like my body to look like the people who are in the movies</li> <li>• I compare my body to the bodies of people who appear in magazines</li> <li>• I compare my appearance to the appearance of people in magazines</li> <li>• I try to look like the people on TV</li> </ul>
<i>Internalisation-Athlete</i>	<ul style="list-style-type: none"> <li>• I wish I looked as athletic as people in magazines</li> <li>• I compare my body to that of people in “good shape”</li> <li>• I wish I looked as athletic as sports stars</li> <li>• I compare my body to that of people who are athletic</li> <li>• I try to look like sports athletes</li> </ul>

## Appendix C: Control stimuli

**COMPETITION**

# Win It!

£500 worth of phone perfection...

- Let's get straight to the point — the **Nokia N96** is the must-have phone for 2009 and we've got one on pay-as-you-go (WORTH £500!) to give away to a lucky reader!
- All our fave celebs have one and we know you'd do almost *anything* to get your hands on one... but the good news is, all you have to do is enter this comp — it's as easy as that!
- The **N96** has a stunning 2.8" high resolution display which means DVD quality video! You can even connect the phone to a TV so you can watch your videos on a big screen!
- If that's not enough, there's also: a 5 mega-pixel camera, 16GB memory — think 6000 songs in your pocket — Bluetooth, quadband, a stereo FM radio and much more!
- We've got the shiny, gorgeous (PAYG!) **N96** sitting here in the *Shout* office waiting to be sent out — it doesn't get any better than this!



**ALL ENTRIES  
MUST BE  
RECEIVED BY  
WEDNESDAY  
FEBRUARY 11<sup>TH</sup>**

**GOOD LUCK!**

## TO ENTER

*For your chance to win, just answer this easy question...*

**Q.** Backgrounds on mobile phones are called?

**A.** Wallpaper  
**B.** Newspaper  
**C.** Wrapping paper

## IT'S SIMPLE!

Text **SHOUT A, B or C** and your name and address to **83070** or call **09010 105 084**.

Calls should cost no more than 50p. Calls from mobiles may cost more. Texts cost 50p plus your standard operator rate. Remember to get the bill-payer's permission before calling.

15





Appendix E: Male experimental stimuli

**Lookin' Hot!...**  
Check out our pick of the fortnight!

**Yum!**

Satiric bling's soya!

Woo! Hold up, wait a minute! We fancy a guy... wearing checked trousers! **Chris** is looking hot to hot here in fresher-than-fresh white!

Lads in shades — Ooh la la!

Nothing works quite as well as a white tee and denim. This combo's a timeless classic, and **Zac** knows it! We're particularly loving his casual beanie!

What's going on? When did the Pot get hot? Hubba! hubba! Check out Harry Potter love **Derek** working his laid-back London-look...

**Joe** **Joe** wears red knowing that it makes us think of love, flirting, kissing... oops, we got carried away! He's a clever celeb that **Joe** — we're in love!

Smart in his waistcoat but still adding a touch of bad boy with his baggy jeans, **Justin** has his style bang on. He looks relaxed and happy — perfect!

CELEB STYLE

Okay, okay, so he's an ex **Big Bro** guy — but do you see what we're seeing?! There's an air of felicity about **Big Bro's** look and we're loving it!

83

**Appendix F: Response booklet for female experimental group**

Name .....

Date of birth .....

Form .....

Firstly, we'd like to know a bit about what you thought of the feature. Please fill out the boxes below.

On a scale of 0 to 10 (0 being least, 10 being most) how much did you like the feature?  
(please circle)

1	2	3	4	5	6	7	8	9	10
Not at all									Liked a lot

How did the feature make you feel? (please tick any that apply)

Happy	<input type="checkbox"/>
Bored	<input type="checkbox"/>
Miserable	<input type="checkbox"/>
Confident	<input type="checkbox"/>
Interested	<input type="checkbox"/>
Excited	<input type="checkbox"/>
Jealous	<input type="checkbox"/>
Self-conscious	<input type="checkbox"/>
Sad	<input type="checkbox"/>
Angry	<input type="checkbox"/>
Confused	<input type="checkbox"/>

Other \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

In a word or two, what do you think the feature was mostly about?

\_\_\_\_\_

Now that you've told us what you think of the feature, we're interested in what words pop into your head.

All you have to do is to add to the letters below to make a word. The word has to be a real word. For example:

Fre..... → Free*ze*..... or Free.....

- |              |              |
|--------------|--------------|
| 1) Sta.....  | 11) Ski..... |
| 2) Cal.....  | 12) Gre..... |
| 3) Bin.....  | 13) Fla..... |
| 4) Chu.....  | 14) Gro..... |
| 5) Lea.....  | 15) Obe..... |
| 6) Die.....  | 16) Hea..... |
| 7) Thi.....  | 17) Che..... |
| 8) Sle.....  | 18) Wei..... |
| 9) Plu.....  | 19) Mus..... |
| 10) Sli..... | 20) Wai..... |

Now we'd like to ask you a few specific questions about the feature. Remember you can look back at the feature if you want to.

1) Was the main title of the feature: "Feelin' Hot" or "Lookin' Hot"?

.....

2) Who was wearing a t-shirt with a skull and crossbones on it?

.....

3) In the picture captions, the celebrity's names were highlighted in which colour?

.....

4) Was Eva Longoria's wearing shoes or boots?

.....

5) How many of the women were wearing sunglasses?

.....

We've asked you some questions about the advert, now we'd like you to find out a bit more about you. Below are the beginnings of some sentences which we'd like you to finish in your own words. Write the first thought that comes to mind even if it doesn't seem an important one. You don't have to write more than a few words for each.

For me, eating.....  
.....  
.....

I think.....  
.....  
.....

Physical activity makes me  
feel.....  
.....

I feel that my weight.....  
.....  
.....

I have.....  
.....  
.....

I feel that my appearance.....  
.....  
.....

After eating a meal.....  
.....  
.....

I feel that my shape.....  
.....  
.....

For me, exercising.....  
.....  
.....

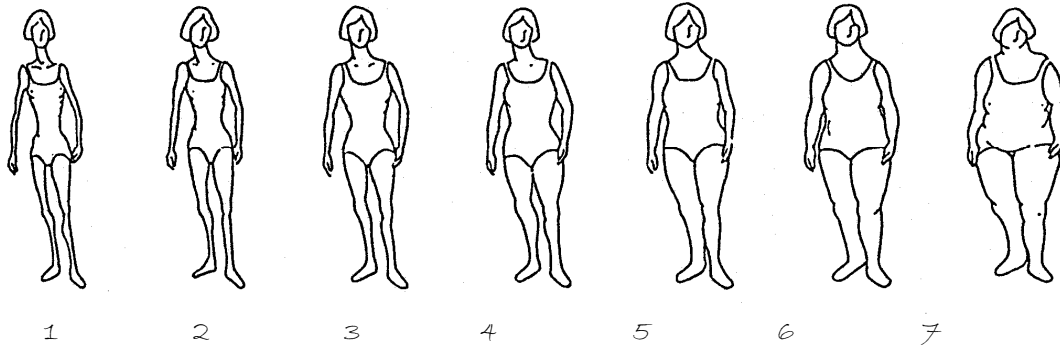
Eating makes me feel.....  
.....  
.....

I feel.....  
.....  
.....

For me, going to the gym.....  
.....  
.....

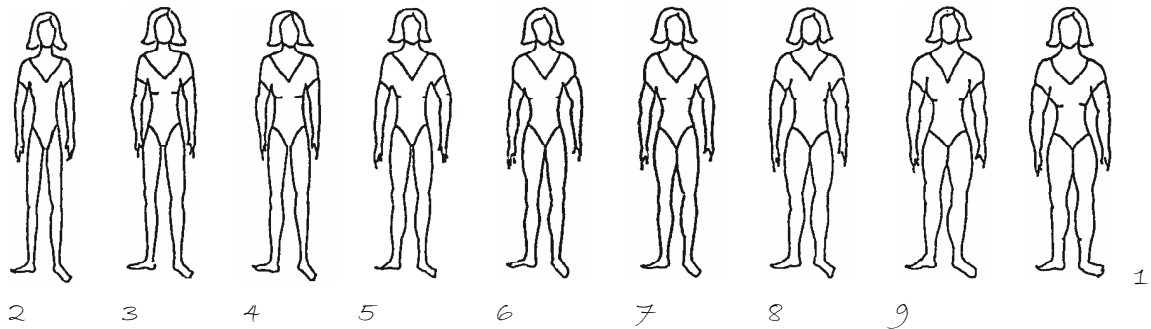
We'd also like to know how you feel about your appearance. Below are drawings of different sized females. Have a look at them and choose:

- a) Which figure you would most like to look like - number \_\_\_\_
- b) Which figure is most like you now - number \_\_\_\_
- c) Which figure is most like the females in magazines - number \_\_\_\_



Now do the same with the drawings below:

- a) Which figure you would most like to look like - number \_\_\_\_
- b) Which figure is most like you now - number \_\_\_\_
- c) Which figure is most like the females in magazines - number \_\_\_\_





We've asked you to think a bit about the magazine article that you saw and to think a bit about yourself. Finally, we want to ask you a bit about more about our society and people's looks. Read each statement and circle the number to show how much you agree with it.

	<i>Definitely disagree</i>	<i>Disagree somewhat</i>	<i>Neither agree nor disagree</i>	<i>Agree somewhat</i>	<i>Definitely agree</i>
TV programs are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to lose weight	1	2	3	4	5
I would like my body to look like the people who are on TV	1	2	3	4	5
I compare my body to the bodies of TV and film stars	1	2	3	4	5
TV adverts are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to look pretty	1	2	3	4	5
I would like my body to look like the models who appear in magazines	1	2	3	4	5
I compare my appearance to the appearance of TV and film stars	1	2	3	4	5
Music videos on TV are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV and magazines to be thin	1	2	3	4	5
I would like my body to look like the people who are in films	1	2	3	4	5
I compare my body to the bodies of people who appear in magazines	1	2	3	4	5
Magazine articles are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to have a perfect body	1	2	3	4	5
I compare my appearance to the appearance of people in magazines	1	2	3	4	5
I wish I looked like the models in music videos	1	2	3	4	5
Magazine advertisements are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to diet	1	2	3	4	5
I wish I looked as athletic as the people in magazines	1	2	3	4	5
I compare my body to that of people who are in "good shape"	1	2	3	4	5
Pictures in magazine are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to exercise	1	2	3	4	5
I wish I looked as athletic as sports stars	1	2	3	4	5
I compare my body to that of people who are athletic	1	2	3	4	5
Films are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to change my appearance	1	2	3	4	5
I try to look like the people on TV	1	2	3	4	5
Film stars are an important source of information about fashion and "being attractive"	1	2	3	4	5
Famous people are an important source of information about fashion and "being attractive"	1	2	3	4	5
I try to look like a sports athlete	1	2	3	4	5

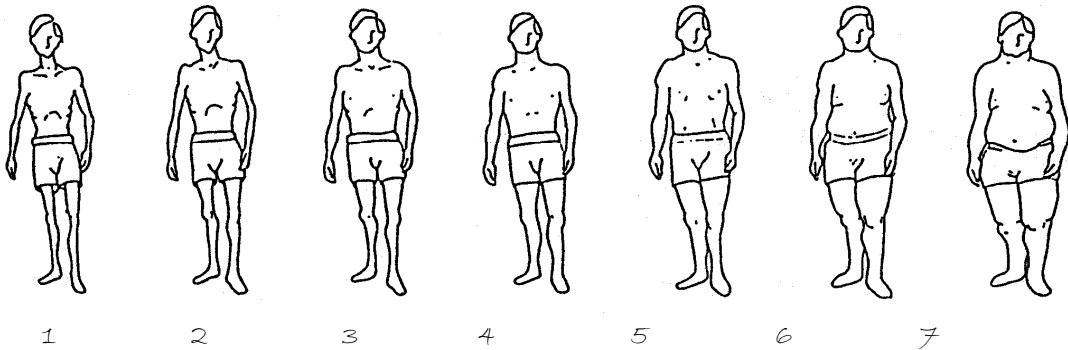


If you would like to ask any questions, or if you have any worries or concerns, please come and see me at the end and I'll be happy to talk to you alone.

### Appendix G: Male equivalents of VASs and SATAQ-3

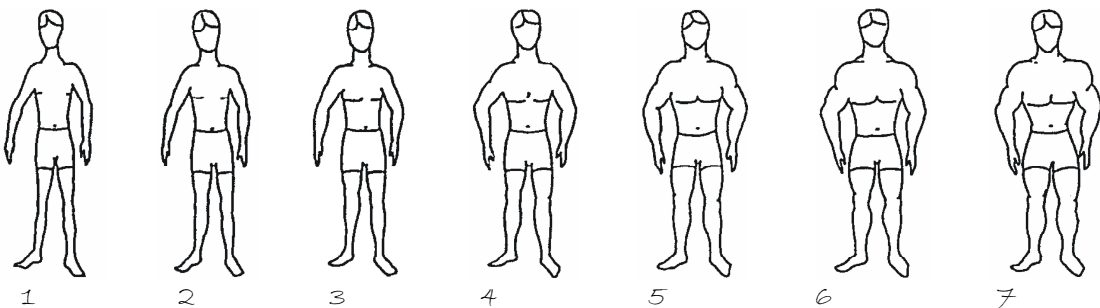
We'd also like to know how you feel about your appearance. Below are drawings of different sized males. Have a look at them and choose:

- a) Which figure you would most like to look like - number \_\_\_\_
- b) Which figure is most like you now - number \_\_\_\_
- c) Which figure is most like the male models in magazines - number \_\_\_\_



Now do the same with the drawings below:

- a) Which figure you would most like to look like - number \_\_\_\_
- b) Which figure is most like you now - number \_\_\_\_
- c) Which figure is most like the males in magazines - number \_\_\_\_



We've asked you to think a bit about the magazine article that you saw and to think a bit about yourself. Finally, we want to ask you a bit about more about our society and people's looks. Read each statement and circle the number to show how much you agree with it.

	<i>Definitely disagree</i>	<i>Disagree somewhat</i>	<i>Neither agree nor disagree</i>	<i>Agree somewhat</i>	<i>Definitely agree</i>
TV programs are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to lose weight	1	2	3	4	5
I would like my body to look like the people who are on TV	1	2	3	4	5
I compare my body to the bodies of TV and film stars	1	2	3	4	5
TV adverts are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to look good	1	2	3	4	5
I would like my body to look like the male models who appear in magazines	1	2	3	4	5
I compare my appearance to the appearance of TV and film stars	1	2	3	4	5
Music videos on TV are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV and magazines to be muscular	1	2	3	4	5
I would like my body to look like the people who are in films	1	2	3	4	5
I compare my body to the bodies of people who appear in magazines	1	2	3	4	5
Magazine articles are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to have a perfect body	1	2	3	4	5
I compare my appearance to the appearance of people in magazines	1	2	3	4	5
I wish I looked like the male models in music videos	1	2	3	4	5
Magazine advertisements are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to diet	1	2	3	4	5
I wish I looked as athletic as the people in magazines	1	2	3	4	5
I compare my body to that of people who are in "good shape"	1	2	3	4	5
Pictures in magazine are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to exercise	1	2	3	4	5
I wish I looked as athletic as sports stars	1	2	3	4	5
I compare my body to that of people who are athletic	1	2	3	4	5
Films are an important source of information about fashion and "being attractive"	1	2	3	4	5
I've felt pressure from TV or magazines to change my appearance	1	2	3	4	5
I try to look like the people on TV	1	2	3	4	5
Film stars are an important source of information about fashion and "being attractive"	1	2	3	4	5
Famous people are an important source of information about fashion and "being attractive"	1	2	3	4	5
I try to look like a sports athlete	1	2	3	4	5

**Appendix H: Questions for male experimental feature**

1) Was the main title of the feature: "Feelin' Hot" or "Lookin' Hot"?

.....

2) Who was wearing a tie?

.....

3) In the picture captions, the celebrity's names were highlighted in which colour?

.....

4) Was Daniel Radcliffe wearing shoes or trainers?

.....

5) How many of the men were wearing sunglasses?

.....

**Appendix I: Questions for control feature**

1) Was the main title of the feature: "Grab it!" or "Win it!"?

.....

2) What make was the phone in the feature?

.....

3) In the feature, the phone's name was highlighted in which colour?

.....

4) Did the phone have a silver casing on the back or a black casing on the back?

.....

5) What date did entries have to be received by?

.....

## Appendix J: Protocol and standardised instructions

Meet with teachers of forms selected for participation prior to assembly. Confirm arrangements for pupils taking part in that session to be taken to designated classrooms by a teacher.

After assembly, pupils to be brought to designated classroom. All pupils not taking part in the session, or without consent, to remain with form tutor.

Participants to be seated with only a pen on their desk.

*Hi, my name is Hannah and I am from the University of Leeds. I am here to do some research about how different types of magazine features can affect how people of your age think and feel. I am also interested in what young people think about the media in general. You might remember that a few weeks ago you and your parents received an information pack about this study (show them a copy of the information sheet and consent form to remind them). You should be here because both you and your parents signed the consent form agreeing for you to take part. Can I just check that everyone remembers this and is still happy to take part?*

If anyone says they don't remember, ask the teacher to check the consent forms while explaining the rest of the study. If the consent form is not present, or the pupil no longer wants to take part, they can rejoin the rest of their form for the session.

*Ok, great. In a moment I will hand out each of you a folder. Inside this folder is a feature taken from a magazine for people of your age and a questionnaire booklet. You all have the same magazine article and the same questionnaire booklet. Firstly, right your name, date of birth and form/class on the front of the questionnaire booklet. Then take a look at the magazine feature for a few minutes, it's important that you do this before starting the questionnaire booklet. After you've had a good look at it, you can start working through the questions in the booklet, it is important that you do this from start to finish. Firstly you'll be asked a bit about what you thought of the feature, then you'll be asked to do a word game. Then you'll be asked some specific questions about the feature, so make sure you've had a good look at it! Finally, you be asked a few things about how you think and feel about yourself.*

*You'll have the rest of this lesson to complete it and there is a bit to get through so don't think too hard or worry too much about the answers, **remember that it is not a test!** Try and make sure you fill in all the answers and don't leave any gaps. If you really struggle to find an answer then move on because it's important that you try and get to the end. It is important that you **work on your own**, it is your opinions that matter, not your friends. When you have finished, put the magazine feature and questionnaire booklet back in the folder and leave it on your desk until everyone is finished. Does anybody want to ask any questions about what they have to do?*

*Great! Now, it's important that I let you know that **your answers are completely anonymous**. Nobody will see your answers apart from me and even then, the sheets with your name on will be detached from the rest of the questionnaire booklet so your answers won't be identifiable to you. Its also okay if you decide that you don't want to*

*finish the research. Mrs.... will take you back to your class. Does anybody have any questions about that?*

*Okay, I'm going to hand out the folders now. Please wait until I say to open them. I'll give you a reminder when we're half way through. If you have any questions as your going through the booklet, please put your hand up and try not to disturb anyone else.*

Hand out the booklets and indicate to start. Indicate when half way through. When everyone has finished collect in the booklets thank the group and hand out the de-brief letter.

*Thank you all for taking part, your contribution to this research is really important. I'm going to hand out a letter to you all now explaining a little more about the research. If any one has any further questions then please feel free to get in contact with me, or catch me at the end of this session.*



**Appendix K: Participant debrief letter**

Hannah George  
Psychologist in Clinical Training  
Charles Thackrah Building  
University of Leeds  
Leeds LS2 9LJ  
Tel: 0113 343732

Dear Student,

Thank you very much for taking part in this study.

As explained in the information sheet that you received before doing the study, the aim of this research was to find out about how different people see different types of magazine features and how they can affect how you think and feel. We also want to find out more about what young people think about the media in general.

You may have noticed that you were asked a bit about how you feel about your body and about your thoughts and feelings about appearance in general. This is because we are particularly interested in how different types of magazine features can affect how young people think and feel about their appearance.

We know that it can sometimes be hard for people to think about these things and we hope you haven't found it too difficult or upsetting. If you would like to talk to somebody about how you feel, or would like to ask some more questions about the study, then you can either talk to you teacher or you can contact me directly. My contact details are above.

Once again, thank you very much; your contribution is very valuable and much appreciated.

Yours sincerely,

Hannah George