The Development and Validation of a Multidimensional Measure of Male Body Dissatisfaction and its Preliminary use in Exploring the Relationship between Body Dissatisfaction and Exercise.

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Abstract

Historically, research has focused predominately on female experience of body dissatisfaction (BD). More recently there has been an increased focus upon BD in men. The current literature review indicates that research in BD in men is its infancy compared to BD in females and the review highlights the differences between the experience of BD in men and women and the difficulties in applying evidence that has been found in female samples to males. In line with this, tools used to assess females may not be appropriate to assess males. It is therefore important to develop an instrument that accurately assesses BD in males to identify those who may be at risk. The literature review also pays attention to the coping strategies that men may engage in with a particular focus on exercise and its potential role as both a protective and risk factor.

The purpose of the empirical paper was to explore the structure of a new measure: The Male Body Dissatisfaction Inventory (M-BoDI). A Principal Components Analysis revealed a four-component structure. The study provided evidence of concurrent validity for the M-BoDI and good internal reliability and the scores on the M-BoDI were stable over a 4-week period. A significant relationship was found between negative reasons for exercising and BD as measured by the M-BoDI, and negative reasons for exercising were also linked to core excessive exercise features. Implications of the current findings and ideas for further research are discussed.

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Literature Review

Body Dissatisfaction in Men: A Critical Review of the Literature.

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Body Dissatisfaction in Men: A Critical Review of the Literature.

Abstract

Historically, research has focused predominantly on female experiences of body dissatisfaction (BD). More recently there has been an increased focus upon BD in men. The early part of this paper reviews literature regarding the nature and prevalence of BD in men, the “ideal” male body, the influence of media pressure and the “double bind” that many men face alongside this increasing pressure, in relation to discussing their concerns. The paper considers theories that have been applied to understand the development and maintenance of BD and explores coping strategies that men may engage in, particularly focusing on exercise and its potential role as both a protective and risk factor. As the literature on male BD remains in its infancy in comparison to the research on BD in females, the review explores the difficulties in applying evidence that has been found in female samples to males, and directions for future research are suggested.

1. Introduction

The purpose of this paper is to critically review the literature on body dissatisfaction (BD) in men. The paper will explore the experience of BD in men and how it differs to that of women as well as the implications of this, and will highlight specific issues and needs with regards to BD in men.

1.1 Current Perspective

There is a shared consensus in the literature that body image is multidimensional and includes physiological, psychological and sociocultural components (Cash, 1994). Researchers consistently agree that body image in general is constructed through two components: attitudinal (e.g. thoughts and feelings about the body) and perceptual (e.g. estimation of body size). Dysfunction can occur in either component, as an attitudinal dissatisfaction or perceptual distortion (Skrzypek, Wehmeier, & Remschmidt, 2001). Thompson (1990) argues that in addition to the perceptual and subjective (affect and cognition) domains there is a behavioural (situational avoidance) dimension.

As satisfaction and dissatisfaction are cognitively based, body dissatisfaction (BD) is more accurately associated with dysfunction that occurs in the attitudinal domain (Cash, Morrow, Hrabosky, & Perry, 2004). Evidence suggests the attitudinal domain is itself constructed from different dimensions. In line with this, Cash (1994) examined the attitudinal body image construct through factor analysis of data collected from a sample of 279 women who completed a battery of BD measures. The results

supported a distinction between two independent dimensions: evaluation and investment. In addition, Cash (1994) reported the evaluation domain encompasses both affect and cognitive appraisal (not too dissimilar to Thompson's, 1990 subjective dimension), whilst Cash's investment domain incorporates the importance of appearance to the individual as well as invested thoughts and appearance managing behaviours, and has been found to be more inclusive than the behavioural dimension Thompson (1990) described.

Cash and Pruzinsky (1990, 2002) argue that body image investment describes the cognitive, behavioural and emotional importance that people attribute to their bodies and appearance. On the other hand, body image evaluation describes the degree to which individuals are satisfied or dissatisfied with their bodies and appearance (Cash, 2002). The current review will explore both evaluative dissatisfaction and factors relevant to investment. In support of Cash's evaluation and investment distinction Tiggemann, Martins, and Churchett (2008) found that the body parts that male participants were most dissatisfied with (or would like to change) were not necessarily those they valued as most important. Muth and Cash (1997) argue that in order to gain a full understanding of BD it is essential that all facets including evaluation, affect and investment are examined. Cash and Pruzinsky (1990) argue "body image is body images" (Cash & Pruzinsky, 1990, p. xi) as "it encompasses one's body-related self-perceptions and self-attitudes, including thoughts, beliefs, feelings, and behaviors (sic)" (Cash, 2004, pp. 1-2).

Within both dimensions (evaluation and investment), reliable gender differences have been reported. On average females report greater investment in their bodies (Brown, Cash, & Mikulka, 1990; Cash, Melnyk, & Hrabosky, 2004) and lower levels of satisfaction compared to males (Muth & Cash, 1997; Thomas, Ricciardelli, & Williams, 2000). This gender discrepancy has historically led to a greater focus on BD in females, however more recently; research has increasingly begun to focus on the prevalence and nature of BD in men.

2. Prevalence and Nature of Body Dissatisfaction in Men

The majority of previous research has focused on BD in females and the desire to become thinner which is typically reported by females (McCabe & Ricciardelli, 2004). The extensive focus on female BD in the literature has perhaps been justified by its association with eating disorders. Historically, the literature has reported men to be generally more satisfied with their bodies and to have less discrepancy between their actual and ideal bodies (actual-ideal body discrepancy) compared to women, whom studies have consistently demonstrated desire to lose weight (Fallon & Rozin, 1985; Cohane & Pope, 2001). A survey carried out by Berscheid, Walster, and Bohrnstedt (1973) found a greater proportion of women expressed some appearance related dissatisfaction (23%) than did men (15%). Despite this being a large sample (n=2000), Berscheid et al. (1973) failed to report whether the differences were statistically significant. Fallon and Rozin (1985) reported that females rated their current body shape as significantly larger then their ideal whilst on the

contrary, males reported no significant discrepancy. Similarly, Hoyt and Kogan (2001) found 91% of college-aged men were satisfied with their bodily appearance, and that women were significantly more dissatisfied with their weight than men. However, the generalisability of these findings are questionable as they were based on a college-aged sample and the results may differ in a non-educational setting and across the life span. Whilst evidence has therefore reported men being more satisfied overall, Hoyt and Kogan (2001) note that men in their sample were more focused on their appearance than men have typically been found to be in the past, suggesting the prevalence of BD in men may be on the rise. In support of this, surveys have suggested the numbers of men that are dissatisfied with their bodies are increasing. For example, the results of a survey of Psychology Today readers found an increase in males reporting BD, (Garner, 1997). However, these findings are limited: Firstly, the sample may not be representative of the general population and secondly, data collection that is self-selected may generate misrepresentations for prevalence rates as the study may have attracted participants with greater body concerns who may be over represented within the sample.

In spite of these limitations, evidence from survey-based research does appear to point towards an increase over time in BD in men. In addition, there is evidence suggesting that measures traditionally used as BD assessment tools may have led to an underestimation of the problem in male samples. In a sample of 231 first year college students, Drewnowski and Yee (1987) found that 85% of females wanted to lose weight compared to only 45% of males. However, in addition they noted

that 40% of males wanted to gain weight and taking this into consideration, the proportion of males experiencing BD became comparable to that of females. Similar findings have been reported by Silberstein, Striegel-Moore, Timko, and Rodkin (1988) and Furnham and Calnan (1998). Whilst the results from both studies were found in a sample of college-aged men and may not be generalised to the male population, a similar pattern of findings has been replicated in adolescents (Furnham, Badmin, & Sneade, 2002). Although these studies consistently report a desire amongst some men to increase their weight, the distinction between increasing body fat or wanting to increase muscle was not made (McCabe & Ricciardelli, 2004). This highlights the need for an assessment tool that measures BD that is tailored to the unique needs of men, and not adapted from measures generated with a female population in mind.

2.1 Summary

The evidence suggests that the nature of BD in men is not as clear as it is in women (McCabe & Ricciardelli, 2004) and may be more complex than originally hypothesised. Consistently research demonstrates that women of all age groups typically wish to be thinner regardless of their existing Body Mass Index (BMI). In contrast, men are divided between those who wish to gain weight and those who wish to lose weight (Drewnowski & Yee, 1987; Furnham et al., 2002; Furnham & Calnan, 1998*;* Pope, Phillips, & Olivardia, 2000; Silberstein et al., 1988). Additionally, men's desire to gain weight appears to be explained by the

desire to increase muscle. In light of these findings the interest into male BD has led to further investigation of the unique experience of male BD.

3. A New Focus

Alongside evidence of increased prevalence of BD in men, research has focused increasingly over recent years on the experience of male body image (Grogan, 2008; McCabe & Ricciardelli, 2004). In parallel with the increased focus in research there has been a rise of the portrayal of males with muscular physiques in the media in Western culture (Pope et al., 2000). In addition, the focus on men's appearance in magazines has escalated over the last 10 years (Boni, 2002) and in the last 30 years there has been an increased focus on health and fitness in today's Western world (Tiggemann & Williamson, 2000). This has been promoted through magazines, television advertisements and programmes and an increased number of gyms and health clubs have been established in the last three decades (Wiseman, Gray, Mosimann, & Ahrens, 1992). The health and self-help books that once targeted the female population are now also focusing on male related health issues and encourage males to take responsibility for their own well being (De Souza & Ciclitira, 2005). In addition to this there is evidence that men have increased investment into their appearance: Statistics reported by Pope et al. (2000) showed that in the USA in 1997 more then 3.5 billion dollars were spent on men's beauty products.

3.1 The 'ideal' body

In line with the increased prevalence of male BD and the increased interest across society, the male 'ideal' has altered over time. The current Western male ideal body shape for men is that of a muscular mesomorphic "v" shape physique (Abell & Richards 1996; McCabe & Ricciardelli, 2004). A mesomorphic "v" shape physique is described as broad shoulders, greater chest muscularity, "six pack" (abdominal muscles) and a slim waist (Kimmel & Mahilik, 2004). Participants in Grogan and Richards' (2002) exploratory study reported pressure to achieve the ideal, and described feelings of confidence associated with increased muscularity. Grogan and Richards (2002) noted that participants wished to attain this ideal figure even if it was far removed from their current physique. Whilst evidence suggests that the ideals for men and women are different, both describe the need to be 'lean' (Hoyt & Kogan, 2001). Studies in America on undergraduate students have found that over 70% of male participants wanted a more muscular body (Hatoum & Belle, 2004; Morrison, Morrison, Hopkins, & Rowan, 2004; Vartanian, Giant, & Passino, 2001). Similarly, in a sample of 154 American undergraduate students, Olivardia, Pope, Borowiecki, and Cohane (2004) found on average male participants chose a preferred ideal body shape weighing 8 pounds lower in body fat and 25 pounds higher in muscularity than their own current physique. They concluded that there is "a striking gulf between men's actual and desired muscularity" (p. 117). Within Western culture, evidence suggests there is an extreme negative stereotype towards overweight people (Thompson, Heinberg, Altabe, &

Tantleff-Duff, 1999). Furthermore, it appears that different traits are attributed to different physiques, for example, the ideal body shape is associated with positive qualities such as bravery, health, attractiveness and strength which in turn may offer additional incentives for men to strive towards achieving the muscular ideal (Ryckman, Butler, Thornton, & Lindner, 1997). If these traits are perceived as particularly important to some men, they may be more invested in their appearance, and consequently engage in behavioural strategies to strive towards achieving the ideal.

Not only is the ideal body shape muscular, which has been demonstrated in the literature (Morrison et al., 2004; Tiggemann, Martins, & Kirkbride, 2007; Yelland & Tiggemann, 2003) but evidence suggests over time it is becoming increasingly muscular. Males in “Playgirl” magazine centre-folds have become more muscular over the years (Leit, Pope, & Gray, 2001) and “action man” toys have also depicted a more muscular physique (Pope, Olivardia, Gruber, & Borowiecki, 1999). The increased focus on male body image has ignited research on the impact of the media on males (Farquhar & Wasylkiw, 2007) particularly as males are being subjected to images of a cultural ideal that is becoming increasingly unattainable (Bardone-Cone, Cass, & Ford, 2008). The increasing discrepancy between actual and ideal body shape may underpin the rise in male BD in Western society, and help to explain the frequent desire of men to gain weight.

The muscular mesomorphic physique has become commonly cited as the ideal and in the context of these ever-increasing standards, Pope et

al. (2000) have coined the term “Adonis Complex” to describe the phenomenon of male BD. As societal pressures change for women and they progress into positions that were stereotypically perceived as male roles, men’s self worth may be increasingly associated with this muscular body ideal. Cloud (2000) argues that in today’s society, attempts to achieve a muscular body can help a man maintain his masculinity. Thus, increased gender equality in Western society may offer an explanation of men’s increased interest in their bodies. Mishkind, Rodin, Silberstein, and Striegel-Moore (1986) suggest that men who experience a sense of failure more generally may displace it onto their bodies. However, the male ideal body shape is hard to achieve naturally, and is becoming increasingly difficult, which may explain the growing amount of money that is spent by men on home exercise equipment, gym memberships, supplements and steroids (Cloud, 2000). Researchers have investigated BD in other cultures to see if the results are comparable to findings in Western culture. Frederick et al. (2007) investigated men’s body satisfaction in the US, Ukraine, and Ghana and found in the US, 90% of their male sample wanted to be more muscular, in comparison to 69% in the Ukraine and 49% in Ghana. Frederick et al. (2007) note that Ghanian men were typically more muscular than men in the US so had already achieved the muscular ideal, possibly explaining the findings. An alternative explanation could be related to gender equality: Men in other cultures may maintain a sense of difference to their female counterparts in ways other than appearance, by having a distinct gender role in other domains, and therefore maintaining their masculine role. However, Edman and Yates

(2005) found that Filipino males residing in Hawaii reported higher levels of BD and a higher drive for thinness than Caucasian males. This finding may be explained by cultural differences in body ideals. Alternatively, the authors noted a high prevalence rate of obesity amongst Filipino males, which could have confounded the results. However, any wider conclusions regarding male BD are limited even within this cultural group, as the sample was composed of a small number of educated college students and may not be representative of the general population. Furthermore, the measure used to assess BD did not take into account muscularity, and this is a factor that is well documented in association with male BD. In addition to the type of ideal men are exposed to, differences in degree of exposure may influence the experience of BD. In a sample of Taiwanese men, Yang, Gray, and Pope (2005) discovered that in comparison to their counterparts in Western society, Taiwanese men reported significantly less BD. Interestingly, Yang et al. (2005) noted that American magazines portray undressed men frequently in comparison to Taiwanese magazines that portray undressed Asian men rarely. Very few studies to date have looked at the influence of Western cultural ideals on the development of BD in male ethnic minorities, and further research is warranted (Warren, 2008). As there may be some discrepancy between values held in different cultures regarding male BD, an interesting area to research further would be the differences in the same culture where mixed marriages have taken place or people from other cultures have relocated to new cultures and the impact of this upon BD. This would be particularly worthy in the context of an increasingly multi-cultural society.

3.2 The influence of the media

The desire to achieve the ideal physique in Western culture is perhaps not surprising given the promotion of the ideal body in toys, advertisements, films and music videos (Olivardia et al., 2004). The desire for increased muscularity in males in Western culture is clearly evident in the literature (Lorenzen, Grieve, & Thomas, 2004). It is unclear whether the focus on the male body within the media is a cause, or reflection of increasing male BD. Despite evidence that the ideal body shape is being depicted more frequently in the media, there remains a debate whether males are affected by such exposure. The limited literature in this area reports equivocal results.

Evidence suggests men, like women, are subject to media influence (Agliata & Tantleff- Duff, 2004; Leit, Gray, & Pope, 2002; Lorenzen et al., 2004). Leit et al. (2002) compared responses of male college students exposed to advertisements of muscular male models with those who viewed neutral advertisements. Males having viewed advertisements with muscular models displayed significantly greater discrepancies between their own perceived muscularity (actual self) and the level of muscularity they wanted (ideal self), suggesting that even brief exposure affected body satisfaction. Lorenzen et al. (2004) reported similar findings using fewer images and shorter exposure time, suggesting that the media has the potential to have a significant impact when we consider the number of images individuals are exposed to on a daily basis. Leit et al. (2002) have argued, in line with this, that the impact demonstrated in studies may underestimate the true impact of the media. However, the studies

described were limited by their samples as they were each based on college-aged men and were therefore only representative of this age group. However, the age of the men in each of these studies ranged from 18-32 years, which is a prime age for development of Muscle Dysmorphia (MD[1]; Olivardia, 2001), a specific form of Body Dysmorphic Disorder (BDD)[2]. Men in this age group may be more susceptible to the presentation of ideal images than other males, thus perhaps being more vulnerable to BD than younger or older men. However this may not be the case for all men aged between 18-32 years. Other risk factors such as the importance of appearance to an individual's self worth would also need to be considered. In addition, these studies do not indicate how long the effects lasted. In spite of criticisms these findings are important. Whilst brief exposure studies may lack ecological validity, the effects noted are significant, which suggests that effects of exposure to muscular ideals may be comparable to the effects of exposure to thin ideals on women, for example lowered self-esteem, depression, guilt, stress, insecurity, shame, and BD. In support of this, Vartanian et al. (2001) found the media can have an equally negative impact on male and female undergraduates'

[1] Once known by the term "Reverse Anorexia Nervosa" (Pope, Katz & Hudson, 1993). This has since been changed to "Muscle Dysmorphia" (MD) (Pope et al., 2000) as it was felt that men with this condition do not have an eating disorder as implied by the term anorexia nervosa, rather MD represents a misperception or obsession about degree of muscularity (Pope et al., 2000). Many men with this syndrome are worried they are too small even though they are actually muscular, many exercise compulsively and some take anabolic steroids. Use of the word "dysmorphia" signifies that men with MD present with a special type of the condition that is already recognised by psychiatry called "Body Dysmorphic Disorder" (Pope et al., 2000). The specific preoccupation with being inadequately muscular and the behaviours associated with this distinguish a diagnosis of MD from a diagnosis of BDD (Pope et al., 2000).

[2] BDD is defined as "a preoccupation with an imagined defect in one's appearance. Alternatively, where there is a slight anomaly, then the person's concern is markedly excessive. The preoccupation is associated with many time consuming rituals such as mirror gazing and constant comparing" (p. 67, Veale, 2004).

body satisfaction. In addition, Agliata and Tantleff-Dunn (2004) exposed 158 males to television adverts that contained male ideal or neutral images. Males exposed to the ideal images not only reported significantly higher levels of muscle dissatisfaction but also became significantly more depressed. This raises concern as it has been reported that the media has the most influence in creating and strengthening stereotypical cultural ideals (Andersen & DiDomenico, 1992). Furthermore, males have been found to find visual stimuli more suggestive than females (Barthel, 1992). Taking this into account, Andersen and DiDomenico (1992) suggest that men are being "bombarded" with muscular images in adverts just as women are "bombarded" with images of the thin female ideal, and fear this potentially could result in higher levels of BD in men just as it has been associated with "normative discontent" in women (Brownell & Rodin, 1994).

Research suggests that media exposure to muscular ideals impacts on BD and mood in college-aged men. However, the findings cannot be generalised across the life span, and it has been argued that older men may be less susceptible to media pressure as they tend to base their self-worth on more than appearance (Lynch & Zellner, 1999). Barlett, Vowels, and Saucier (2008) carried out a meta-analysis to determine the degree to which pressure from the media to conform to the ideal muscular body affects men's body satisfaction. Results from correlation and experimental studies showed that exposure to muscular ideals in the media was related to body satisfaction and behavioural outcomes (e.g. excessive exercise). Overall the findings strongly suggested that exposure to ideal images

made men feel worse about their bodies. In addition, Barlett et al. (2008) note that participants' age moderated the relationship between exposure and body satisfaction; in particular there was a stronger relationship in college-aged males than in adolescent males. This is an important finding as much of the evidence generated about male BD has stemmed from college-aged samples and therefore cannot automatically be generalised to all men.

In addition to age, recent research has identified exercise as a potential moderating factor in the relationship between media pressure and BD. Halliwell, Dittmar, and Orsborn (2007) examined the effects of exposure to the muscular ideal on body-focused negative affect amongst male gym users and male non-exercisers. Their findings demonstrated that the degree of impact of the exposure was dependent on exercise status. Regular gym users showed significantly lower levels of body-focused negative affect after exposure than did non-exercisers. The authors note further that the motivation behind regular gym attendance moderated this relationship; hence men who reported exercising to increase strength and muscularity described greater self-enhancement after exposure to the muscular ideal. The results are limited as the researchers failed to collect data on specific exercise activities, duration of sessions or intensity of sessions, all of which could have been confounding variables. A further confounding variable could have been muscularity; the researchers controlled for Body Mass Index, but did not distinguish between levels of muscularity. Regular gym attendees may have been more muscular, and therefore less discrepant from the ideal in reality. This

may have explained their reason for being less dissatisfied after exposure. Furthermore, the classification of exercise behaviour was rudimentary, with sixteen of the participants exercising less than three times a week, which is below the recommended amount of exercise (World Health Organisation, 2009); therefore it is unclear whether these participants can be classified as regular exercisers. In spite of the limitations, Halliwell et al. (2007) propose that their findings suggest that some men may achieve self-enhancement through upward comparison, and the moderation effect that was found amongst gym users offers support for this. Additionally, it is possible that the more men are using exercise to achieve ideal body shapes the more they aspire to media models for self-improvement and begin to believe that the ideal muscular male body can be achieved (Myers & Biocca, 1992). Hence, if men are exercising, perhaps this serves to temporarily decrease the current-ideal discrepancy. On the other hand, this has potentially dangerous implications for men's health, as it is well documented that the ideals promoted in society are becoming more unobtainable. In addition, as evidence suggests men may be reluctant to disclose body image concerns (Pope et al., 2000), this may make men particularly vulnerable to their difficulties remaining undetected.

Whilst a number of studies have demonstrated that media exposure has a negative effect on BD, evidence also exists to suggest that this is not the case in all male groups. Evidence amongst adolescent boys suggests the media has no strong influence. This was demonstrated by Ricciardelli, McCabe and Banfield (2000) who found that over half of the adolescent boys in their sample reported that the media had no effect, and 27.5%

stated a positive effect on their body image. Studies conducted by Andersen and Holman (1997) and Vincent and McCabe (2000) both note that the media is less significant in conveying sociocultural messages of body ideals to boys than it is to girls. Furthermore, Murnen, Smolak, Mills, and Good (2003) found that although some boys in their sample had internalised the muscular ideal, their responses to images of muscular ideals were either inconsistent or unrelated to concerns about their bodies. In a study exposing boys to television advertisements showing images of the muscular ideal, Hargreaves and Tiggemann (2006) found that boys' levels of BD were not altered even amongst those who were highly invested in their appearance. In addition, Hargreaves and Tiggemann (2006) state the boys reported that they did not compare themselves to celebrities, but some of the boys' responses suggested that their body image concerns were stronger than they were willing to admit, which Pope et al. (2000) have speculated may be true for men in general. In line with this, it is possible that previous research with adolescent boys might underestimate the effect of the media, as boys (and men) may be reluctant to discuss BD for the fear of sounding "gay", "feminine" or "narcissistic" (Hargreaves & Tiggemann, 2006). Despite being divided into small discussion groups in the study the boys potentially could still experience these feelings. Hargreaves and Tiggemann (2006) argue that future research would benefit from overcoming the reluctance of boys and men not wanting to discuss BD honestly and openly.

3.3 Summary

Despite the equivocal findings, research appears to point in the direction that the media can negatively affect male BD. It is well evidenced that exposure to ideals through the media plays a role in female BD (Groesz, Levine, & Murnen, 2002) and it can be argued that the evidence suggests a parallel situation for males. However, the findings demonstrate that the media appears to have greater influence in college-aged men compared to adolescents, and emerging evidence suggests age and exercise could moderate this relationship. In spite of the findings, research investigating the effects of exposure to ideal male models on male BD remains in its infancy compared to studies carried out on female samples, which highlights the need for further research (Halliwell et al., 2007). Hargreaves and Tiggemann (2006) argue that men's apparent reluctance to admit to dissatisfaction about their bodies may explain why there is not a clear link between media influence and male BD.

4. The Double Bind Theory

Rodin, Silberstein, and Streigel-Moore (1985) argue that for women BD has become a "normative discontent" and therefore acceptable within society (Tylka, 2004). Females have "permission" within society not only to experience discontent but also to voice their discontent when a discrepancy is perceived between their actual bodies and the ideal that is portrayed in the media (Maine, 2000). Pope et al. (2000) argue that the case is not the same for men and it is less acceptable for men to admit to BD as society often portrays BD as a feminine issue experienced only by

women (Andersen, Cohn, & Holbrook, 2000). Pope et al. (2000) suggest it is possibly harder for males to acknowledge BD for the fear they will be stereotyped as feminine. Tylka, Bergeron, and Schwartz (2005) argue that it may only be the males who are currently preoccupied with the shape of their body that concurrently acknowledge BD. Men are under increasing pressure to achieve particular ideals, but disclosing body image concern seems to be prohibited for males in Western society, thus, Pope et al. (2000) have concluded that men face a "double bind" in relation to BD. In line with this, Adams, Turner, and Bucks (2005) note from their qualitative study that whilst men reported a "pressure to be perfect" (Adams et al., 2005, p. 277), discontent was deemed inappropriate. In keeping with this, Frith and Gleeson (2004) suggest there may be a pressure to conform to ideals but there is also a pressure on men not to appear to care about their appearance and consequently not to discuss their concerns. In addition, Hargreaves and Tiggemann (2006) noted that some adolescents in their study who denied that they would engage in behaviours to increase muscularity were known to attend local gymnasiums to lift weights. This may suggest the "double bind" described by Pope et al. (2000) exists for adolescent groups as well, with social constraints on disclosure of concern becoming established prior to adulthood. It may be possible that willingness to disclose body image concerns may vary across sub-groups. Pope et al. (2000) suggest that gay men are more willing than other men to disclose body image concerns. One explanation for this may be that disclosure of BD may be deemed more acceptable within gay communities (Adams et al., 2005). However, studies also suggest that levels of BD in

gay men are actually higher (Levesque & Vichesky, 2006; Morrison, Morrison & Sager, 2004) and that willingness to disclose cannot entirely account for this**.** In addition, research may be required to investigate how acceptable the disclosure of BD is in different cultures, as perhaps differences in willingness to disclose BD may play a role in the different degrees of BD reported in different cultural groups. Pope et al's argument has not been examined empirically (Frith & Gleeson, 2004), but if confirmed it may have critical implications for how research with males in this area is designed, and how BD is measured in this population (Hargreaves & Tiggemann, 2006). In addition, if men are not disclosing their concerns, this may influence detection and assessment, meaning that prevalence rates reported may be inaccurate.

The accurate measurement and assessment of BD in males is imperative due to its links with mental health problems and behaviours that are harmful to health (for in depth reviews see Labre, 2002; McCabe & Ricciardelli, 2004). Negative consequences include; the increased risk of eating disorders, (Andersen, 2001; McCabe & Ricciardelli, 2005), poor psychological adjustment, (McCabe & Ricciardelli, 2004), depression, OCD and social phobia (Phillips, 2002) and low self-esteem and eating pathology (Olivardia et al., 2004).

Evidence suggests that the desired muscular body shape does not come naturally to most men and is sometimes far removed from the reality of what men may actually be able to achieve (Morrison & Morrison, 2006). Therefore men may engage in behaviours such as excessive exercise (Cafri et al., 2005), possibly even become exercise dependent (McCabe &

Ricciardelli, 2004), or use dieting to achieve their desired ideal body (Grogan, 2008). It has also been suggested that the use of anabolic steroids (Halliwell et al, 2007; Labre, 2002; McCabe & Ricciardelli, 2004) and performance enhancing substances (PES; Olivardia et al., 2004) has increased, following the muscular trends portrayed in the media. Olivardia et al. (2004) studied male college students and found that 27% reported using anabolic steroids or bodybuilding substances to build muscle and lose fat. Hatoum and Belle (2004) found similar results: 30% reported using dietary supplements to build muscle and 56% used weightlifting to increase muscle size.

With the ideal becoming increasingly muscular, there is also the risk of males developing MD (Pope, Gruber, Choi, Olivardia, & Phillips, 1997). According to Pope et al. (1997) sufferers of the disorder become "… pathologically preoccupied with their degree of muscularity, which may cause them to suffer severe subjective distress, impaired social and occupational functioning, and abuse of steroids and other substances" (p. 548). Pope et al. (2000) suggest an increase in the prevalence of MD, which highlights that the desire for increased muscle could be as dangerous to men as the anorexic ideal is to women (Leit et al., 2002).

In addition to developing MD men may be more likely to seek cosmetic surgery, treatment for eating disorders or develop orthopaedic difficulties from excessive exercise. As men may be less likely to report such symptoms, Olivardia et al. (2004) suggest that consequences such as these may go unrecognised. In view of the increase of BD, the fear men may have about being open about their experiences is a concern.

4.1 Summary

Whilst research into male BD remains in its infancy, the literature overall suggests men do experience dissatisfaction and that this is increasing. In addition, there are possible social constraints on the disclosure of BD and as there are a number of negative clinical outcomes that may be associated with BD for men, it is critical that the phenomenon is understood. A number of theories have been put forward to explain the development and maintenance of BD and these will be explored in more detail in the following section (Conceptualisation).

5. Conceptualisation

Many theories have been applied to explain how BD develops and is maintained, including sociocultural, social comparison, cognitive behavioural, and self-discrepancy. Each of these will be considered in turn.

5.1 Sociocultural Theory

Sociocultural theories have been applied to BD. The Tripartite Influence model (Shroff & Thompson 2006; Smolak, Murnen, & Thompson, 2005) suggests that an individual's attitude towards their body can be influenced by significant others in their life (e.g. family, peers and the media), which can directly play a role in the development of BD. In testing this model, Smolak et al. (2005) found that all three sources of influence (family, peers and the media) predict BD in men. These factors may lead to BD indirectly through internalisation of the attitudes and values of others (social reinforcement), unfavourable comparison to peers or media

images, or by the modelling of dissatisfied behaviours by others. At present the media culture is promoting unrealistic, unnatural and unobtainable muscular ideals for men which have been linked to the development of BD in males (McCabe & Ricciardelli, 2005). Strong evidence emerged from Barlett et al's. (2008) meta-analysis in support of a strong link between sociocultural factors (particularly the media) and negative self image concerns. However, for an individual to be influenced by the media, a comparison (e.g. to the image) must occur. Social Comparison Theory (Festinger, 1954) suggests that people seek to compare themselves to others they perceive as similar to themselves; this serves the function to determine one's own ability levels and successes. A social comparison "represents the evaluative process that involves both seeking information and making judgements about the self relative to others" (Jones, 2004, p. 823). In the context of BD, a social comparison occurs when an individual compares his or her own body with that of another. Research suggests that peers and media images are the targets most frequently used for this comparison to take place (Schutzt, Paxton, & Wertheim, 2002). As previously discussed, there is evidence that the media has a negative impact on male BD. Festinger (1954) describes two main types of social comparison; downward social comparison and upward social comparison, the former occurring when individuals compare themselves to people they perceive as less fortunate in some field, which usually enhances feelings of self worth and mood (Wills, 1981). The latter offers comparison to others that individuals perceive to be more fortunate than one's self, which can threaten self-evaluation and lead to negative

mood (Wheeler & Miyake, 1992). When discrepancies upon comparison occur, upwards comparison can motivate people into self-improvement to enhance the self to attempt to achieve the comparison standard (Higgins, 1987).

There is evidence to suggest that as a result of men being exposed to such images they experience heightened BD or negative affect (Agliata & Tantleff-Dunn, 2004; Leit at al., 2002; Lorenzen et al., 2004; Vartanian et al., 2001). However, pressure from the media may not influence all subgroups of men in the same way. Evidence exists that adolescent boys seem less influenced by media messages (Hargreaves & Tiggemann, 2006; Murnen et al., 2003; Ricciardelli et al., 2000; Vincent & McCabe, 2000) and that age moderates the relationship between exposure to the ideal body images and negative self-image (Barlett et al., 2008). In addition, as discussed, gym attendees may also be a sub-group that are less influenced by the media as Halliwell et al. (2007) found that exercisers used the upward comparison model for self-enhancement. However, very little is known about how the impact of the media differs across different sub-groups of men. Strong, Williamson, Netmeyer, and Greer (2000) suggest that gay men appear to be more susceptible than heterosexual men to media images promoting thinness, however it would be interesting to further investigate whether sexuality moderates the relationship between exposure to ideal images and BD. Highlighted previously in this review, there is evidence to suggest that gay men have higher levels of BD. Whilst one explanation for this is that discussion of body image concern in this group is more acceptable so gay men are more willing to

disclose BD, another possible explanation is the emphasis on appearance within gay subculture. Evidence suggests that gay male culture emphasises physical appearance more than heterosexual culture (Williamson, 1999). This may be explained by the need to attract men, who value physical appearance more strongly than women (Feingold, 1990). In line with this, Siever (1994) suggests that Objectification theory offers an explanation.

In individuals who wish to be sexually appealing to men, BD may arise as a response to conform to the perceived sexual preference of men for a slim and muscular sexual partner. This may explain why dissatisfaction was lowest amongst lesbians and heterosexual men, who do not aim to be sexually attractive to men. However, whilst Objectification theory may explain the findings for some individuals, it is possibly an over-generalisation to suggest that all lesbians, heterosexual men and women, and gay men hold the same values and experience the same pressures.

5.2 Cognitive Behavioural Theory

Whilst Objectification theory provides one possible explanation for increased levels of BD within gay male groups, sociocultural theories are limited more generally by their failure to explain why some individuals are more influenced by the media than others (Agliata & Tantleff-Dunn, 2004). Cognitive behavioural theories of BD have been proposed which originate from Markus's (1977) self-schema theory to address this. Cognitive behavioural theory suggests if individuals' schemata (particularly those who have a strong investment in their appearance) are activated by

internal (e.g. mood) or external (e.g. media) triggers, this can lead to BD (Cash, 2002; Cash & Labarge, 1996). This offers a reason why some individuals are more influenced by sociocultural factors than others (Cash, 1994; Lavin & Cash, 2001). Hargreaves and Tiggemann (2002) suggest that schema-activation increases an individual's vigilance for additional schema-related information leading to negative affect and increased BD. Everybody has schemata related to appearance, however the importance of appearance to the self seems to be heightened in those individuals with BD, referred to as "appearance-schematic" (Labarge, Cash, & Brown, 1998). Appearance schematic individuals will be attentive to appearance-related aspects of any presented material. Humphreys and Paxton (2004) explored BD development in males as a consequence of appearance schema activation. The results suggested that males with unstable self-concept and pre-existing BD were at an increased risk of heightened levels of BD after schema activation by viewing ideal body images. This is in line with Cash's (1994) proposal of investment and evaluation dimensions to BD and how they are both important in the understanding of BD. Appearance schematics are highly invested in their appearance, and in turn, internalise the ideals and indeed evaluate their appearance against the ideals that are presented, hence the more invested (i.e. the more important appearance is to them) the heightened the BD.

5.3 Self Discrepancy Theory

Sociocultural and social comparison theories explain the processes by which individuals may internalise cultural standards, and evaluate

themselves against these ideals. Self-discrepancy theory (Higgins, 1987) has been applied to BD, to explain the perceived conflict between one's 'actual' self (attributes that the individual believes they possess), one's 'ideal' self (attributes that the individual would like to possess) and the 'ought' self (attributes that the individual believe they need to possess) that occurs during this evaluative process. The ideal and ought self are evaluative standards and a perceived discrepancy between these may lead to a negative emotional state (Higgins, 1987). Various types of emotional distress have been linked to high levels of self-discrepancy (Higgins, 1989) including BD (Strauman, Vookles, Berestein, Chaiken, & Higgins, 1991). The greater perceived difference between one's actual self and one's ideal or ought self, increases one's risk of BD. Self-discrepancy theory may explain empirical findings such as Leit et al's. (2002) study which found exposure to the male ideal body shape significantly widened the discrepancy between participants' actual and ideal muscularity. Bessenoff (2006) discovered that self-discrepancy in body image may act as a moderator in social comparison when females are exposed to media promoting the thin ideal. Thus it appears women who have high levels of body image discrepancy have an increased risk of experiencing negative outcomes from exposure to thin ideals in the media. It would be interesting if these results were replicated in males following exposure to the muscular ideal. It has been found that males compare themselves more to celebrities whereas females are more likely to use their peers (Heinberg & Thompson, 1992). As a strong ideal for men exists and is heavily promoted by the media, it may be that if males are actively comparing

themselves to these media images, a similar effect of self-discrepancy could be expected in males. Furthermore, as the ideals portrayed in the media are far from being attainable for most men the actual-ideal discrepancy is likely to widen, thereby increasing the risk that BD may affect more men as it creates a discrepancy for almost all males. If the discrepancy already exists, then the media portrayal may reinforce this gap. There is currently little evidence that has looked at the moderating relationship within a male sample.

5.4 Summary

The theories applied to BD do not appear to stand in isolation. They complement each other by building on the understanding of the experience of BD in males. For example, schema theories suggest mechanisms to explain why sociocultural factors may impact on some men more than on others. In addition, Bardone-Cone et al. (2008) suggest that a range of biological (e.g. BMI), psychological (e.g. perfectionism) and social (e.g. history of weight teasing) factors are likely to be relevant to the development of BD, and argue that a biopsychosocial framework may be best suited to understanding BD.

The majority of the evidence base has been derived from the study of females and adapted to explain BD in men. The assessment tools used hamper research in the area of male BD as these have often been developed on the basis of BD in females. In addition, it must be noted that males appear more reluctant to discuss BD and it is subsequently more difficult to investigate this phenomenon in men. Bardone-Cone et al.

(2008) suggest research regarding men and BD is in its youth in comparison to the evidence base in females and there is potential scope for further research.

6. Coping Strategies

The cognitive behavioural model of BD (Cash, 1994, 2002) predicts that activation of schemata stemming from an unfavourable evaluative process will result in negative affect. In order to cope with this, individuals may engage in compensatory or coping behaviours, which may function to reduce discrepancy between current and ideal body shape. With the evidence suggesting that the cultural ideal male body is increasingly unattainable, but highly promoted in the media, current-ideal discrepancies are likely to be increasing, consequently increasing the risk of heightened BD in men.

Appearance schema activation influences the implementation of behavioural and cognitive strategies to cope with BD (Grogan & Richards, 2002). Some of these strategies may be adaptive and enhance coping, whilst others are likely to maintain BD. Research shows that some cognitive strategies, such as choosing alternative social comparison or cognitive refocusing to increase self acceptance may be adaptive, whereas other responses such as selectively attending to perceived flaws can maintain distress (Fawkner & McMurray, 2002). There are also behavioural strategies, which potentially risk maintaining BD, for example avoidance (e.g. avoid visiting the beach or going swimming), compensatory strategies (e.g. wearing baggy clothes) and checking

behaviours (e.g. looking in the mirror regularly; Fairburn, Shafran & Cooper, 1998). Cash, Santos and Williams (2005) divided such coping strategies into three categories: “Positive rational acceptance” (acceptance of the situation, positive self-care or rational self-talk), “Avoidance” (attempts to escape from the stressful body image situation) and “Appearance fixing” (attempts to alter appearance by camouflage or correcting the perceived flaw). Cash et al. (2005) suggest coping strategies that include problem solving directed at managing, modifying or actively dealing with the source of stress are associated with better psychological functioning, and emotional responses and avoidance (denial or cognitive diversion) are associated with poorer adaptation.

Research into BD in general has focused greatly on weight and shape dissatisfaction, and in line with this, exercise and diet are the most commonly researched compensatory strategies. Dieting and exercise (“Appearance fixing”) are seen as the primary strategies for altering one’s body shape in Western culture (Furnham et al., 2002). Research suggests gender differences in the methods used to combat BD. Men are more likely to use exercise than diet to alter their body shape (Davis & Cowles, 1991; Hausenblas & Fallon, 2006; Middleman, Vazquez, & Devant, 1998) and use exercise to increase their body size (McCabe & Ricciardelli, 2001). It is argued that men are less likely to diet as dieting takes them further away from the muscular ideal body shape (McCabe & Ricciardelli, 2001). Magazines aimed at males and females both print exercises that can be used to tone the stomach, hips and thighs for females, and improve chest, arm and muscle size for men. These may promote the message

that dissatisfaction with specific parts of the body can be changed through simple exercises (Hoyt & Kogan, 2001).

Exercise remains the preferred method to attempt to change body shape whether men want to lose or gain weight (Drewnowski, Kurth, & Krahn, 1995). Further to this, it has been suggested that individuals who exercise for reasons of controlling their weight have higher levels of BD (Silberstein et al., 1988). Sociocultural theory suggests social pressures (e.g. media, friends and family) act as catalysts for people to conform to unrealistic physical standards. These are difficult to achieve without dieting or exercise or both (Thompson et al., 1999). It is not then surprising that body image management is a strong motivator for participating in exercise (McDonald & Thompson, 1992).

There is a growing body of evidence investigating the motivations behind exercise. It is well known that exercise is promoted for its health benefits and positive associations. However, exercising for body tone, weight control and appearance reasons has been associated with disturbed eating (Furnham et al., 2002; McDonald & Thompson, 1992) and BD (Silberstein, et al., 1988). Furnham et al. (2002) identified positive (mood, health, enjoyment and fitness) and negative reasons (weight control, tone and attractiveness) for exercise. In support of this, McDonald and Thompson (1992) replicated Silberstein et al's. (1988) study. For men in particular, exercising for health and fitness reasons is less associated with eating disturbance and associated with greater self-esteem. Similar findings from Furnham et al's. (2002) study in a sample of adolescents offer further support for this hypothesis. In addition they note that boys

tended to exercise for fitness, and girls exercised for negative reasons more often than boys.

Evidence suggests men are less likely to exercise for appearance related reasons than women (Silberstein et al, 1988; Tiggemann & Williamson, 2000), and historically this finding is not surprising as women were typically reported as being more preoccupied with their appearance. However, evidence exists that men are becoming increasingly preoccupied with their appearance and experiencing BD (Strelan & Hargreaves, 2005). Men's reluctance to discuss BD (Pope et al., 2000) potentially may play a role in the inconsistency.

7. Exercise

Engaging in physical activity can move people closer to the ideal body shape that is perceived culturally acceptable (Loland, 2000). Literature has now increasingly investigated the negative relationship that appears to exist between regular exercising behaviours and body image disturbances (Loland, 2000). In line with this, Hausenblas and Fallon (2006) compiled a meta-analysis of the relationship between exercise and body image and compared moderating factors. The results demonstrated that exercisers had less BD than non-exercisers. An explanation for this could be that exercisers, due to their activity levels, are closer to the ideal body shape than their non exercising counterparts (Thompson et al., 1999) and exercise is associated with increased psychological well being related to positive body image (Landers, Arent, & Lutz, 2001). Although the meta-analysis revealed that exercise improved body image across all ages, one

limitation of the study was that the effect size of the studies included, varied across the design. In addition, reasons why people exercise were not examined as part of the meta-analysis. The authors argue the findings could suggest that exercise may be a viable method to improve individuals' body image. However, the authors note that it would be important to determine the exercise motivation for individuals, as excessive exercise has been used as a compensatory strategy in eating disorders (American Psychiatric Association, 1994). This may be further complicated for males, who may not be willing to admit to exercising for appearance related reasons, as this is typically associated with women. Hausenblas and Fallon (2006) further suggest that the relationship between exercise and body image may be dependent on attitudes towards exercise and that further research in this area is warranted.

7.1 Exercise: Protective or risk factor?

Labre (2002) suggests that men who participate in sports requiring specific builds or those who engage in large amounts of exercise may be at potential risk of experiencing BD. In particular, subgroups of exercisers including bodybuilders, gymnasts, footballers, wrestlers and runners may be vulnerable as these are athletic pursuits where weight control is important (Labre, 2002). Braun, Sunday, Huang, and Halmi (1999) found that athletes (runners in particular due to the drive for a low body weight) are potentially at risk of developing an eating disorder. On the other hand, it is not only men who engage in low weight sports who may be at risk. For example, in a study comparing male and female weightlifters and

runners to a non-exercising control group, Pasman and Thompson (1988) found that male weightlifters and runners had significantly higher scores on BD measures than the control group. Mangweth et al. (2001) suggest that body builders are at risk of elevated BD due to the drive for decreased body fat and increased muscle bulk. In support of this Blouin and Goldfield (1995) reported that body builders had higher levels of BD than runners and martial artists. However, the results are inconsistent: Boroughs and Thompson (2002) found that on a global measure of body image, body builders reported they were more satisfied with specific body parts than runners, or non-exercising controls. Similarly, Pickett, Lewis, and Cash (2004) compared competitive bodybuilders, non-competitive weight lifters and athletically active controls, and found relative to the exercising controls, the body builders reported being significantly more satisfied with their overall appearance. In addition, the authors note that the competitive bodybuilders and the non-competitive weightlifters reported significantly more investment in their appearance than active controls. On the other hand men who competed in public competitions had no more investment than non-competitive weight trainers. The latter may be surprising, as one may hypothesise that the competing bodybuilders may have had more investment in their build to win the competitions then consequently feel satisfied. However, it does suggest that men who lift weights to build muscle may be motivated partly by their investment in their appearance. In addition, the authors note they did not use a measure that tapped into maladaptive investment for example, these men may simply be taking pride in their appearance and not defining their self-worth by investment

into their appearance (Pickett et al., 2004). In spite of this, the findings are limited as drive for muscularity was not measured, as tools designed to measure this were not available at the time of data collection. Furthermore, the results may also be limited by the self-selected sample; some of the potential sample may have avoided the study process because they found the topic of BD too distressing. In line with this, Pickett et al. (2004) note that it would be useful in future research to find out why people decline to participate e.g. lack of time, lack of interest, or due to distress. Pickett et al. (2004) concluded that as they did not find overall greater body disturbances in body builders as predicted it is crucial to discriminate between the men who body build to self enhance from those who body build due to a preoccupation with building muscle.

Regardless of reported differences in prevalence of BD in weightlifters and body builders, evidence suggests individuals who participate in certain physical activities requiring specific builds may be at risk of developing BD. Many of the empirical studies use cross sectional designs and causality cannot be confirmed. It is possible that individuals with pre-existing BD may engage in regular exercise as a coping strategy to tackle BD or it may be the case that exercise increases the likelihood of BD. On the other hand, individuals may also be drawn to sporting activities where their physique is already most suited. In support, Parks and Read (1997) noted that adolescent males with a mesomorphic physique typically tended to select football as their chosen sport to participate in. Men may affiliate to certain sports if the physique needed is close to their actual body shape to reduce actual-ideal discrepancies and make them feel

good, as their body is functional for that particular sport. Bardone-Cone et al. (2008) comment that if sport focuses on the body as functional rather than aesthetic, participating in sports may be protective. In spite of this, as it appears that BD varies across different groups of exercisers, further research is warranted in this area to investigate subgroups of exercisers in order to fully establish the prevalence and severity of BD in possible vulnerable populations, and to understand more fully the reasons why BD may vary across different groups. For example, it would be particularly interesting to see if men who are involved in sports that emphasise ability in defence are equally dissatisfied. Blouin and Goldfield (1995) found bodybuilders reported significantly higher levels of BD than runners and martial artists; however the reasons for this discrepancy remain unclear. It is possible that sports such as martial arts, where the function of the body is emphasised, may confer some protection, compared to sports such as bodybuilding, where there is more emphasis on the aesthetic, which may increase vulnerability. It would be interesting to explore further, with research, whether this is indeed a factor that influences BD.

7.2 The language of sport

Researchers have posed the argument that men may find it difficult to discuss BD. Evidence has emerged that the context of sport may provide men with a language in which they feel comfortable discussing BD. In support of this, Ricciardelli, McCabe, and Ridge (2006) carried out semi-structured interviews with 40 adolescent boys investigating the construction of the adolescent male body and found that many of the boys

were reluctant to discuss concerns regarding their bodies openly outside of the exercise context. The boys were also reluctant to admit that they were changing their bodies for appearance related reasons but felt safer to discuss BD in relation to the function of their bodies in a sporting context. A major strength of this study is that the boys were not asked specific questions about sport, instead sport spontaneously provided a context that was acceptable and non threatening for them to openly discuss BD, body change strategies and functionality (Ricciardelli et al., 2006). Ricciardelli et al's. (2006) findings suggest that specific body parts that were liked were linked to being successful in the boys' chosen sport. The authors noted that the boys placed more emphasis on the function of their body rather than appearance and posed the hypothesis that boys with BD may gravitate towards sports that place emphasis on the body. Further research is needed to investigate this. Whilst these findings are interesting, there are limitations to this study. Firstly, findings generated from an adolescent sample may not be generalised to older men. Secondly, the methods have been criticised as the sample was collected through volunteers and snowballing methods: Attempts were not made to target boys who were primarily interested in and engaged in sport, and no attempt was made to obtain a sample that was representative of different sports and only two of the boys were not interested in sport (Ricciardelli et al. 2006). The authors suggested that future studies are needed to investigate the views of boys not interested in sport. Notwithstanding these limitations, the idea that sport and exercise may offer a language for men to discuss BD comfortably would coincide with findings that it is more

difficult for men to share body image concerns in a more direct way. Grogan and Richards (2002) ran a focus group with preadolescent, adolescent and adult males and found that in all age groups the men found it more acceptable to talk about muscularity within the context of masculinity when associated with fitness and athleticism. Although many of the males gave cosmetic reasons for wanting to be to be lean and more muscular, they spent more time discussing bodies in relation to fitness, health and function rather than discussing bodies as objects of aesthetic interest. Adams et al. (2005) also note that the men they interviewed were more likely to relate concern about their bodies to health or functional ability rather than aesthetics.

8. Conclusion

In conclusion, there is evidence to suggest that the prevalence of BD in men may have been underestimated and that male BD is actually increasing. Currently the nature of BD in men is not as fully understood as it is in women and due to its association with a range of negative clinical outcomes, this needs to be addressed. The evidence suggests that BD in males is a unique phenomenon however research in the area is in its infancy. Research has shown that BD in men is different to that of females in a number of ways: It is consistently reported that females typically want to lose weight whereas males are divided by the desire to lose weight and the desire to gain weight, which may be explained by the desire to increase muscularity. In addition to differing in the content of their concern, males may differ in terms of the mechanisms by which BD is

triggered and experienced (e.g. how the media, peers and family may influence different sub groups of men); the different pressures men may face in their reluctance to disclose BD; the difference in their use of coping strategies, and the unique role that exercise might play for men in acting as a protective or risk factor. These differences suggest there is a need to consider men as a group in their own right. The review has highlighted issues that may have hampered attempts to research BD in men. Many of the assessment tools that are used have been designed with female issues in mind, and due to the differences of BD in men and women, they may not fully capture the unique experience related to BD in men. It is apparent that new measures are needed to assess BD in males and further research needs to be carried out in order to effectively conceptualise BD in this group. Additionally, the lack of research about BD in men may not only be due to the inappropriate use of measures developed on female samples, but that men may be reluctant to discuss BD, therefore new measures may need to take into account men's reluctance and to be able to assist men to feel more comfortable to discuss concerns without feeling stereotyped or judged. A new argument that has emerged is that sport could offer a potential context to discuss BD, and this is an area that warrants further investigation.

8.1 Clinical Implications

The review has highlighted issues that have direct clinical implications. As discussed in the review, there are adverse clinical outcomes associated with BD (e.g. excessive exercise or exercise-

dependency, dieting, use of anabolic steroids, and MD). This has implications for assessment due to the possible difficulty that men have in disclosing such problems. Clinicians need to be aware of such difficulties and have the correct assessment tools; such tools not only need to be tailored to the unique needs of men but research also suggests they need to tap into both the evaluation and investment components of BD to ensure a thorough assessment.

Professionals within community mental health teams may need educating in order to raise awareness, and aid the detection of BD in men who present with secondary diagnoses, such as depression, as men may be reluctant to discuss BD. There is perhaps a role for the education of professionals on a wider level including GPs who may have contact with vulnerable populations, and who play an important role in early detection. There may even be a role for a campaign normalising such concerns for men, to educate younger males and encourage them to seek help and support if they have BD concerns.

References

Abell, S. C., & Richards, M. H. (1996). The relationship between body shape satisfaction and self-esteem: An investigation of gender and class differences. *Journal of Youth and Adolescence, 25*(5), 691-703.

Adams, G., Turner, H., & Bucks, R. (2005). The experience of body dissatisfaction in men. *Body Image, 2*(3), 271-283.

Agliata, D., & Tantleff-Dunn, S. (2004). The impact of media exposure on males' body image. *Journal of Social & Clinical Psychology, 23*(1), 7-22.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.

Andersen, A. E. (2001). Progress in Eating Disorders Research. *American Journal of Psychiatry, 158(4),* 515-517.

Andersen, A., Cohn, L., Holbrook, T. (2000). *Making weight: Men's conflicts with food, weight, shape and appearance.* Carlsbad, CA: Gurze Books.

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*(3), 283-287.

Andersen, A. E., & Holman, J. E. (1997). Males with eating disorders: Challenges for treatment and research. *Psychopharmacology Bulletin, 33*(3), 391-397.

Bardone-Cone, A. M., Cass, K. M., & Ford, J. A. (2008). Examining body dissatisfaction in young men within a biopsychosocial framework. *Body Image, 5*(2), 183-194.

Barlett, 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 & Clinical Psychology, 27*(3), 279-310.

Barthel, D. (1992). When men put on appearances: Advertising and the social construction of masculinity. In S.Craig (Ed.), *Men, masculinity, and the media: Vol. 1: Research on men and masculinity series.* Thousand Oaks, CA: Sage Publications.

Berscheid, E., Walster, E., & Bohrnstedt, G. (1973). The happy American body: A survey report. *Psychology Today, 7*(6), 119-131.

Bessenoff, G. R. (2006). Can the media affect us? Social comparison, self-discrepancy, and the thin ideal. *Psychology of Women Quarterly, 30*(3), 239-251.

Blouin, A. G., & Goldfield, G. S. (1995). Body image and steroid use in male bodybuilders. *International Journal of Eating Disorders, 18*(2), 159-165.

Boni, F. (2002). Framing media masculinities: Men's lifestyle magazines and the biopolitics of the male body. *European Journal of Communication, 17*(4), 465-478.

Boroughs, M., & Thompson, J. K. (2002). Exercise status and sexual orientation as moderators of body image disturbance and eating disorders in males. *International Journal of Eating Disorders, 31*(3), 307-311.

Braun, D. L., Sunday, S. R., Huang, A., & Halmi, K. A. (1999). More males seek treatment for eating disorders. *International Journal of Eating Disorders, 25*(4), 415-424.

Brown, T. A., Cash, T. F., & Mikulka, P. J. (1990). Attitudinal body-image assessment: Factor analysis of the Body-Self Relations Questionnaire. *Journal of Personality Assessment, 55*(1), 135-144.

Brownell, K. D., & Rodin, J. (1994). The dieting maelstrom: Is it possible and advisable to lose weight? *American Psychologist, 49*(9), 781-791.

Cafri, G., Thompson, J. K., Ricciardelli, L., McCabe, M., Smolak, L., & Yesalis, C. (2005). Pursuit of the muscular ideal: Physical and psychological consequences and putative risk factors. *Clinical Psychology Review, 25*(2), 215-239.

Cash, T. F. (1994). Body-image attitudes: Evaluation, investment, and affect. *Perceptual and Motor Skills, 78*(3), 1168-1170.

Cash, T.F. (2002). The Situational Inventory of Body-image Dysphoria: Psychometric evidence and development of a short form. *International Journal of Eating Disorders, 32,* 362-366.

Cash, T. F. (2004). Body image: Past, present, and future. *Body Image, 1*(1), 1-5.

Cash, T. F., & Labarge, A. S. (1996). Development of the Appearance Schemas Inventory: A new cognitive body-image assessment. *Cognitive Therapy and Research, 20*(1), 37-50.

Cash, T. F., Melnyk, 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*(3), 305-316.

Cash, T. F., Morrow, J. A., Hrabosky, J. I., & Perry, A. A. (2004). How has body image changed? 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. (1990). *Body images: Development, deviance, and change*. New York: Guilford Press.

Cash, T. F., & Pruzinsky, T. (Eds.). (2002). *Body image: A handbook of theory, research, and clinical practice.* New York: Guildford Press.

Cash, T.F., Santos, M.T., & Williams, E.F. (2005). Coping with body-image threats and challenges: Validation of the Body Image Coping Strategies Inventory. *Journal of Psychosomatic Research, 58,* 191-199.

Cloud, J. (2000). Never too buff. *Time, 155,* 64-68

Cohane, G. H., & Pope, H. G., Jr. (2001). Body image in boys: A review of the literature. *International Journal of Eating Disorders, 29*(4), 373-379.

Davis, C., & Cowles, M. (1991). Body image and exercise: A study of relationships and comparisons between physically active men and women. *Sex Roles, 25*(1), 33-44.

De Souza, P., & Ciclitira, K. E. (2005). Men and dieting: A qualitative analysis. *Journal of Health Psychology, 10*(6), 793-804.

Drewnowski, A., Kurth, C. L., & Krahn, D. D. (1995). Effects of body image on dieting, exercise, and anabolic steroid use in adolescent males. *International Journal of Eating Disorders, 17*(4), 381-386.

Drewnowski, A., & Yee, D. K. (1987). Men and body image: Are males satisfied with their body weight? *Psychosomatic Medicine, 49*(6), 626-634.

Edman, J. L., & Yates, A. (2005). A cross-cultural study of disordered eating attitudes among Filipino and Caucasian Americans. *Eating Disorders: The Journal of Treatment & Prevention, 13*(3), 279-289.

Fairburn, C.G., Shafran, R., & Cooper, Z. (1998). A cognitive behavioural theory of anorexia nervosa. *Behaviour Research and Therapy, 37,* 1-13.

Fallon, A. E., & Rozin, P. (1985). Sex differences in perceptions of desirable body shape. *Journal of Abnormal Psychology, 94*(1), 102-105.

Farquhar, J. C., & Wasylkiw, L. (2007). Media images of men: Trends and consequences of body conceptualisation. *Psychology of Men & Masculinity, 8*(3), 145-160.

Fawkner, H. J., & McMurray, N. E. (2002). Body image in men: Self-reported thoughts, feelings, and behaviors in response to media images. *International Journal of Men's Health, 1*(2), 137-161.

Feingold, A. (1990). Gender differences in effects of physical attractiveness on romantic attraction: A comparison across five research paradigms. *Journal of Personality and Social Psychology, 59*(5), 981-993.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117-140.

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.

Frith, H., & Gleeson, K. (2004). Clothing and embodiment: Men managing body image and appearance. *Psychology of Men & Masculinity, 5*(1), 40-48.

Furnham, A., Badmin, N., & Sneade, I. (2002). Body image dissatisfaction: Gender differences in eating attitudes, self-esteem, and reasons for exercise. *Journal of Psychology: Interdisciplinary and Applied, 136*(6), 581-596.

Furnham, A., & Calnan, A. (1998). Eating disturbance, self-esteem, reasons for exercising and body weight dissatisfaction in adolescent males. *European Eating Disorders Review, 6*(1), 58-72.

Garner, D.M. (1997). *The 1997 body image survey results.* Retrieved April 25th, 2008, from http://www.psychologytoday.com/articles/pto-19970201-000023.html

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), 1-16.

Grogan, S. (2008). *Body image: Understanding body dissatisfaction in men, women and children (2nd ed.)*. New York: Routledge/Taylor & Francis Group.

Grogan, S., & Richards, H. (2002). Body image: Focus groups with boys and men. *Men and Masculinities, 4*(3), 219-232.

Halliwell, E., Dittmar, H., & Orsborn, A. (2007). The effects of exposure to muscular male models among men: Exploring the moderating role of gym use and exercise motivation. *Body Image, 4*(3), 278-287.

Hargreaves, D., & Tiggemann, M. (2002). The effect of television commercials on mood and body dissatisfaction: The role of appearance-schema activation. *Journal of Social & Clinical Psychology, 21*(3), 287-308.

Hargreaves, D. A., & Tiggemann, M. (2006). 'Body image is for girls': A qualitative study of boys' body image. *Journal of Health Psychology, 11*(4), 567-576.

Hatoum, I. J., & Belle, D. (2004). Mags and abs: Media consumption and bodily concerns in men. *Sex Roles, 51*(7), 397-407.

Hausenblas, H. A., & Fallon, E. A. (2006). Exercise and body image: A meta-analysis. *Psychology & Health, 21*(1), 33-47.

Heinberg, L. J., & Thompson, J. K. (1992). Social comparison: Gender, target importance ratings, and relation to body image disturbance. *Journal of Social Behavior & Personality, 7*(2), 335-344.

Higgins, E.T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 94,* 319-340.

Higgins, E. T. (1989). Continuities and discontinuities in self-regulatory and self-evaluative processes: A developmental theory relating self and affect. *Journal of Personality, 57*(2), 407-444.

Hoyt, W. D., & Kogan, L. R. (2001). Satisfaction with body image and peer relationships for males and females in a college environment. *Sex Roles, 45*(3), 199-215.

Humphreys, P., & Paxton, S. J. (2004). Impact of exposure to idealised male images on adolescent boys' body image. *Body Image, 1*(3), 253-266.

Jones, D. (2004). Body image among adolescent girls and boys: A longitudinal study. *Developmental Psychology, 40*(5), 823-835.

Kimmel, S. B., & Mahalik, J. R. (2004). Measuring masculine body ideal distress: Development of a measure. *International Journal of Men's Health, 3*(1), 1-10.

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.

Labre, M. P. (2002). Adolescent boys and the muscular male body ideal. *Journal of Adolescent Health, 30*(4), 233-242.

Landers, D. M., Arent, S. M., & Lutz, R. S. (2001). Affect and cognitive performance in high school wrestlers undergoing rapid weight loss. *Journal of Sport & Exercise Psychology, 23*(4), 307-316.

Lavin, M. A., & Cash, T. F. (2001). Effects of exposure to information about appearance stereotyping and discrimination on women's body images. *International Journal of Eating Disorders, 29*(1), 51-58.

Leit, R. A., Gray, J. J., & Pope, H. G., Jr. (2002). The media's representation of the ideal male body: A cause for muscle dysmorphia? *International Journal of Eating Disorders, 31*(3), 334-338.

Leit, R. A., Pope, H. G., Jr., & Gray, J. J. (2001). Cultural expectations of muscularity in men: The evolution of Playgirl centerfolds. *International Journal of Eating Disorders, 29*(1), 90-93.

Levesque, M.J., & Vichesky, D.R. (2006). Raising the bar on body beautiful: An analysis of body image concerns of homosexual men. *Body Image, 3,* 45-55.

Loland, N.W. (2000). The aging body: Attitudes toward bodily appearance among physically active and inactive women and men of different ages. *Journal of Aging and Physical Activity, 8,* 197-213.

Lorenzen, L. A., Grieve, F. G., & Thomas, A. (2004). Exposure to muscular male models decreases men's body satisfaction. *Sex Roles, 51*(11), 743-748.

Lynch, S. M., & Zellner, D. A. (1999). Figure preferences in two generations of men: The use of figure drawings illustrating differences in muscle mass. *Sex Roles, 40*(9), 833-843.

Maine, M. (2000). *Body wars: Making peace with women's bodies.* Carlsbad, CA: Gurze Books.

Mangweth, M.E., Pope, H.G., Jr., Kemmler, G., Ebenbichler, C., Hausmann, A., de Col C., et al. (2001). Body image and psychopathology in male bodybuilders. *Psychotherapy and Psychosomatics, 70 (1),* 38-43.

Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology, 35*(2), 63-78.

McCabe, M. P., & Ricciardelli, L. A. (2001). Body image and body change techniques among young adolescent boys. *European Eating Disorders Review, 9*(5), 335-347.

McCabe, M. P., & Ricciardelli, L. A. (2004). Body image dissatisfaction among males across the lifespan: A review of past literature. *Journal of Psychosomatic Research, 56*(6), 675-685.

McCabe, M. P., & Ricciardelli, L. A. (2005). A prospective study of pressures from parents, peers, and the media on extreme weight change behaviors among adolescent boys and girls. *Behaviour Research and Therapy, 43*(5), 653-668.

McDonald, K., & Thompson, J. K. (1992). Eating disturbance, body image dissatisfaction, and reasons for exercising: Gender differences and correlational findings. *International Journal of Eating Disorders, 11*(3), 289-292.

Middleman, A. B., Vazquez, I., & Devant, R. H. (1988). Eating patterns, physical activity and attempts to lose weight among adolescents. *Journal of Adolescent Health*, *22*, 37-42

Mishkind, M.E., Rodin, J., Silberstein, L.R., & Striegel-Moore, R.H. (1986). The embodiment of masculinity. *American Behavioral Scientist, 29*(*5),* 545-562.

Morrison, T. G., & Morrison, M. A. (2006). Psychometrics properties of the Swansea Muscularity Attitudes Questionnaire (SMAQ). *Body Image, 3*(2), 131-144.

Morrison, T.G., Morrison, M.A., Hopkins, C., & Rowan, E.T. (2004). Muscle mania: Development of a new scale examining the drive for muscularity in Canadian males. *Psychology of Men and Masculinity, 5,* 30-39.

Morrison, M.A., Morrison, T.G., & Sager, C-L. (2004). Does body satisfaction differ between gay men and lesbian women and heterosexual men and women? A meta-analytic review. *Body Image, 1,* 127-138.

Murnen, S. K., Smolak, L., Mills, J. A., & Good, L. (2003). Thin, Sexy Women and Strong, Muscular Men: Grade-School Children's Responses to Objectified Images of Women and Men. *Sex Roles, 49*(9), 427-437.

Muth, J. L., & Cash, T. F. (1997). Body-image attitudes: What difference does gender make? *Journal of Applied Social Psychology, 27*(16), 1438-1452.

Myers, P. N., & Biocca, F. A. (1992). The elastic body image: The effect of television advertising and programming on body image distortions in young women. *Journal of Communication, 42*(3), 108-133.

Olivardia, R. (2001). Mirror, mirror on the wall, who's the largest of them all? The features and phenomenology of muscle dysmorphia. *Harvard Review of Psychiatry, 9*(5), 254-259.

Olivardia, R., Pope, H. G, Jr., Borowiecki, J. J., III, & 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.

Olivardia, R., Pope, H.G., Jr., & Hudson, J, I. (2000). Muscle dysmorphia in male weightlifters: A case-control study. *American Journal of Psychiatry.157,* 1291-1296.

Parks, P. S. M., & Read, M. H. (1997). Adolescent male athletes: Body image, diet, and exercise. *Adolescence, 32*(127), 593-602.

Pasman, L., & Thompson, J. K. (1988). Body image and eating disturbance in obligatory runners, obligatory weightlifters, and sedentary individuals. *International Journal of Eating Disorders, 7*(6), 759-769.

Phillips, K.A. (2002). Body image and body dysmorphic disorder, In C.G. Fairburn, & K.D. Brownel (Eds.), *Eating disorders and obesity: A comprehensive handbook* (pp. 113-117). UK: The Guildford Press.

Pickett, T.C., Lewis, R.J., & Cash, T.F. (2004). Men, muscles, and body image: Comparisons of competitive bodybuilders, weight trainers, and athletically active controls. *British Journal of Sports Medicine, 39,* 217-222.

Pope, H. G., Jr., Gruber, A. J., Choi, P., Olivardia, R., & Phillips, K. A. (1997). Muscle dysmorphia: An under recognized form of body

dysmorphic disorder. *Psychosomatics: Journal of Consultation Liaison Psychiatry, 38*(6), 548-557.

Pope, H.G., Jr., Katz, D.L., Hudson, J.I. (1993). Anorexia nervosa and "reverse anorexia" among 108 male bodybuilders. *Comprehensive Psychiatry, 34,* 406-409.

Pope, H. G., Jr., Olivardia, R., Gruber, A., & Borowiecki, J. (1999). Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorders, 26*(1), 65-72.

Pope, H.A., Phillips, K.A., & Olivardia, R. (2000). *The Adonis Complex: The secret crisis of male body obsession.* New York: The Free Press.

Ricciardelli, L. A., McCabe, M. P., & Banfield, S. (2000). Sociocultural influences on body image and body change methods. *Journal of Adolescent Health, 26*(1), 3-4.

Ricciardelli, L. A., McCabe, M. P., & Ridge, D. (2006). The construction of the adolescent male body through sport. *Journal of Health Psychology, 11*(4), 577-587.

Rodin, J., Silberstein, L.R., & Striegel-Moore, R.H. (1985). Women and weight: A normative discontent. In T.B. Sonderegger (Ed.), *Psychology and gender: Nebraska symposium on motivation, 1984* (pp. 267-307). Lincoln, NE: University of Nebraska Press.

Ryckman, R. M., Butler, J. C., Thornton, B., & Lindner, M. A. (1997). Assessment of physique subtype stereotypes. *Genetic, Social, and General Psychology Monographs, 123*(1), 101-128.

Schutz, H. K., Paxton, S. J., & Wertheim, E. H. (2002). Investigation of body comparison among adolescent girls. *Journal of Applied Social Psychology, 32*(9), 1906-1937.

Shroff, H., & Thompson, J. K. (2006). The tripartite influence model of body image and eating disturbance: A replication with adolescent girls. *Body Image, 3*(1),17-23.

Siever, M. D. (1994). Sexual orientation and gender as factors in socioculturally acquired vulnerability to body dissatisfaction and eating disorders. *Journal of Consulting and Clinical Psychology, 62*(2), 252-260.

Silberstein, L. R., Striegel-Moore, R. H., Timko, C., & Rodin, J. (1988). Behavioral and psychological implications of body dissatisfaction: Do men and women differ? *Sex Roles, 19*(3), 219-232.

Skrzypek, S., Wehmeier, P. M., & Remschmidt, H. (2001). Body image assessment using body size estimation in recent studies on anorexia nervosa. A brief review. *European Child & Adolescent Psychiatry, 10*(4), 215-221.

Smolak, L., Murnen, S. K., & Thompson, J. K. (2005). Sociocultural Influences and Muscle Building in Adolescent Boys. *Psychology of Men & Masculinity, 6*(4), 227-239.

Strauman, T. J., Vookles, J., Berenstein, V., Chaiken, S., & Higgins, E. T. (1991). Self-discrepancies and vulnerability to body dissatisfaction and disordered eating. *Journal of Personality and Social Psychology, 61*(6), 946-956.

Strelan, P., & Hargreaves, D. (2005). Reasons for exercise and body esteem: Men's responses to self-objectification. *Sex Roles, 53*(7), 495-503.

Strong, S. M., Williamson, D. A., Netemeyer, R. G., & Geer, J. H. (2000). Eating disorder symptoms and concerns about body differ as a function of gender and sexual orientation. *Journal of Social & Clinical Psychology, 19*(2), 240-255.

Thomas, K., Ricciardelli, L. A., & Williams, R. J. (2000). Gender traits and self-concept as indicators of problem eating and body dissatisfaction among children. *Sex Roles, 43*(7), 441-458.

Thompson, J.K. (1990). *Body image disturbance: Assessment and treatment.* New York: Pergamon Press, Inc.

Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. Washington, DC: American Psychological Association.

Tiggemann, M., Martins, Y., & Churchett, L. (2008). Beyond muscles: Unexplored parts of men's body image. *Journal of Health Psychology, 13*(8), 1163-1172.

Tiggemann, M., Martins, Y., & Kirkbride, A. (2007). Oh to be lean and muscular: Body image ideals in gay and heterosexual men. *Psychology of Men & Masculinity, 8*(1), 15-24.

Tiggemann, M., & Williamson, S. (2000). The effect of exercise on body satisfaction and self-esteem as a function of gender and age. *Sex Roles, 43*(1), 119-127.

Tylka, T. L. (2004). The Relation Between Body Dissatisfaction and Eating Disorder Symptomatology: An Analysis of Moderating Variables. *Journal of Counselling Psychology, 51*(2), 178-191.

Tylka, T. L., Bergeron, D., & Schwartz, J. P. (2005). Development and psychometric evaluation of the Male Body Attitudes Scale (MBAS). *Body Image, 2*(2), 161-175.

Vartanian, L. R., Giant, C. L., & Passino, R. M. (2001). 'Ally McBeal vs. Arnold Schwarzenegger': Comparing mass media, interpersonal feedback and gender as predictors of satisfaction with body thinness and muscularity. *Social Behavior and Personality, 29*(7), 711-723.

Veale, D. (2004). Body dysmorphic disorder. *Postgraduate Medical Journal, 80,* 67-71.

Vincent, M. A., & McCabe, M. P. (2000). Gender differences among adolescents in family, and peer influences on body dissatisfaction, weight loss, and binge eating behaviors. *Journal of Youth and Adolescence, 29*(2), 205-221.

Warren, C. S. (2008). The influence of awareness and internalization of Western appearance ideals on body dissatisfaction in Euro-American and Hispanic males. *Psychology of Men & Masculinity, 9*(4), 257-266.

Wheeler, L., & Miyake, K. (1992). Social comparison in everyday life. *Journal of Personality and Social Psychology, 62*(5), 760-773.

Williamson, I. (1999). Why are gay men a high risk group for eating disturbance? *European Eating Disorders Review, 7*(1), 1-4.

Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90*(2), 245-271.

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.

World Health Organisation (2009). Recommended Amount of Physical Activity. Retrieved 5th April, 2008, from http://www.who.int/dietphysicalactivity/factsheet_recommendations/en/

Yang, C.-F. J., Gray, P., & Pope, H. G., Jr. (2005). Male body image in Taiwan versus the West: Yanggang Zhiqi meets the Adonis Complex. *American Journal of Psychiatry, 162*(2), 263-269.

Yelland, C., & Tiggemann, M. (2003). Muscularity and the gay ideal: Body dissatisfaction and disordered eating in homosexual men. *Eating Behaviors, 4*(2), 107-116.

Empirical Paper

The Development and Validation of a Multidimensional Measure of Male Body Dissatisfaction and its Preliminary use in Exploring the Relationship between Body Dissatisfaction and Exercise.

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Abstract

The Male Body Dissatisfaction Inventory (M-BoDI) is a new measure designed to assess male body dissatisfaction (BD). The current study assessed the reliability, validity, and structure of the M-BoDI, and explored the relationship between BD and exercise. Data from 321 male participants were eligible for analysis. Principal components analysis indicated a four-component structure. The components were labelled: Negative Affective Cognition; Investment, Motivation, and Drive; Social Beliefs; and Meta-beliefs about Appearance, Attractiveness, and Masculinity. The M-BoDI had good internal reliability (α= .92) and scores were stable over a 4-week period (r= .87). Correlations between M-BoDI components and established questionnaires provided evidence for the validity of the new scale. Body dissatisfaction was associated with negative reasons for exercise. The current findings fit with Cash's (1994) distinction between evaluative and investment components within the attitudinal domain of BD. Limitations and further research ideas are highlighted.

Introduction

Body dissatisfaction (BD) in men is linked to a number of harmful negative consequences, including; increased risk of eating disorders, (Andersen, 2001; McCabe & Ricciardelli, 2005), poor psychological adjustment (McCabe & Ricciardelli, 2004), depression, OCD and social phobia (Phillips, 2002), low self esteem and eating pathology (Olivardia, Pope, Borowiecki, & Cohane 2004), increased use of anabolic steroids (Halliwell, Dittmar, & Orsborn, 2007; Labre, 2002; McCabe & Ricciardelli, 2004), and muscle dysmorphia (Pope, Gruber, Choi, Olivardia, & Phillips, 1997). In view of this, it is imperative that male BD is assessed accurately and that theories and models are relevant to male experience. Accurate assessment of BD in men is currently limited as the majority of previous research into BD has focused on female populations and their desire to become thinner (McCabe & Ricciardelli, 2004; Pope, Phillips, & Olivardia, 2000), and hence assessment tools have typically been developed with these concerns in mind.

In recent years many researchers have argued that men also have body image concerns (Leit, Pope, & Gray, 2001; Stanford & McCabe, 2002) and have shown significant differences in the experiences of men and women; with women consistently expressing the desire for weight loss, and men being more typically split between those wanting to lose weight and those wanting to gain weight (Drewnowski & Yee, 1987; Furnham, Badmin, & Sneade, 2002; Furnham & Calnan, 1998; Pope et al.,

2000; Silberstein, Striegel-Moore, Timko, & Rodin, 1988). The desire for weight gain in men seems to reflect a desire for increased muscularity and over the years a muscular mesomorphic "v" shape physique has emerged in Western society as the ideal body shape that many males strive to achieve.

Whilst there has been an increased focus in research recently on male BD, the area remains in its infancy. The limited research base in males derives in part from the lack of available assessment tools. Few assessment tools have been developed from male body image literature or validated on male samples (Tylka, Bergeron, & Schwartz, 2005). As the literature increasingly highlights gender differences in the nature and experience of BD, it may be concluded that it is inappropriate to assess males with measures, which were developed for use with females (Adams, Turner, & Bucks, 2005; Cafri & Thompson, 2004; Kaminski, Chapman, Haynes, & Own, 2005).

Assessment of body dissatisfaction in men

One's "body image" is constructed through attitudinal (e.g. thoughts and feelings about the body) and perceptual (e.g. estimation of body size) mechanisms. Dysfunction can occur in either area or both areas (Skrzypek, Wehmeier, & Remschmidt, 2001). Body dissatisfaction arising from dysfunction of the attitudinal modality has been conceptualised as a multidimensional construct, consisting of cognitive, affective and behavioural components (Cash & Deagle, 1997). Cash (1994) argues that these dimensions can be divided into evaluative (cognitive and affective)

and investment domains (meaning of appearance to the individual and invested thoughts and behaviours). Cash (1994) argues that a full understanding of gender differences in BD requires thorough assessment of these domains. A number of tools have emerged to assess the different dimensions of BD. For example, the Body Checking Questionnaire (BCQ; Reas, Whisenhunt, Netemeyer, & Williamson, 2002), and the Body Image Avoidance Questionnaire (BIAQ; Rosen, Srebnik, Saltzberg, & Wendt, 1991) assess elements of the behavioural dimension; the Situational Inventory of Body Image Dysphoria (SIBID; Cash, 1994a) assesses the affective dimension, and the Male Body Attitudes Scale (MBAS; Tylka et al., 2005) assesses the cognitive dimension. However, each of these assesses only a single dimension of BD and is therefore inappropriate as a comprehensive tool. A number of scales tap into more than one of the cognitive, affective and behavioural dimensions e.g. the Derriford Appearance Scale (DAS; Carr, Harris, & James, 2000; DAS24 short form; Carr, Moss, & Harris, 2005), the Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper & Fairburn, 1987), the Male Eating Behaviour and Body Image Evaluation Scale (MEBBIE; Kaminski & Caster, 1994; Kaminski, Chapman, & Temple, in press), the Muscle Dysmorhic Disorder Inventory (MDDI; Hildebrandt, Langenbucher, & Schlund, 2004) and the Body Image Coping Strategies Inventory (BICSI; Cash, Santos, & Williams, 2005). However each is limited for many reasons (for a detailed discussion refer to Adams et al., 2005), having been developed for and therefore being arguably only applicable to specific clinical populations or female samples. In addition, although body image is comprised of both

evaluative and investment dimensions (Cash, 1994), many measures focus on the evaluative component exclusively, with specific attention to dissatisfaction or satisfaction of particular characteristics or parts of the body. Assessing investment is important as the more an individual is invested in their appearance the more likely they are to engage in harmful behaviours to change, alter or manage their appearance. Thus, when assessing BD in clinical situations, it may be less important to assess evaluation (indeed, increasing numbers of men in non-clinical populations are dissatisfied to some degree, Garner, 1997), but more significant to consider how much this evaluation matters (investment).

There are a few measures that tap into investment: The Multidimensional Body Self Relations Questionnaire (MBSRQ; Cash, 2000) is divided into seven subscales: some tap into evaluation (Appearance Evaluation, Body Areas Satisfaction, Fitness Evaluation) and others tap into investment (Appearance Orientation, Overweight Preoccupation, Fitness Orientation and Health Orientation), but its applicability to males remains limited by its focus on weight loss, and conceptualisation of exercise as purely a health enhancing behaviour rather than as a means for controlling weight. In addition, Carr (2002) notes both that the MBSRQ neglects social and behavioural dysfunction associated with BD, yet describes the measure as “over inclusive” (p. 97) as a tool to assess BD. Furthermore, Rusticus and Hubley (2006) have questioned the invariance of the MBSRQ, noting that no two subscales demonstrated the same level of invariance to the same degree, indicating that the measurement invariance tests for the subscales show that the

nature of body image is perceived differently across different age and gender groups. The implications for this are that some subscales are more appropriate to assess BD in specific groups, for example, that the Health Evaluation subscale is more appropriate for males. The Beliefs about Appearance Scale (BAAS; Spangler & Stice, 2001) also assesses investment, as those that scored highly on the BAAS also scored highly on measures of investment in appearance (e.g. the Appearance Orientation subscale of the MBSRQ). However the BAAS is limited as although it has been validated on men and women, the items were predominantly developed from concerns of individuals with eating disorders, an area in which female dissatisfaction with weight and shape are predominant and may not be relevant outside of those with eating disorders; a very specific population. The Appearance Schema Inventory (ASI; Cash & Labarge, 1996) and its more recently revised version (ASI-R; Cash, Melnyk, & Habrosky, 2004) were designed to assess individuals' investment in their appearance. However, in the development of the ASI, Cash and Labarge (1996) did not specify how the items were generated, and therefore it is unclear to what degree these might reflect the experience of men. The measure was validated on a female sample (n= 274), where it revealed only adequate internal consistency and criterion validities, and there is a lack of information on temporal stability (Carr et al., 2005). Whilst, the ASI was revised to address some of these shortcomings, and validated on a mixed gender sample (77.6% female; 22.4% male), Cash et al. (2004) again provide little detail regarding item generation and this may limit the validity of the content (Carr, 2002). The Assessment of Body image

Cognitive Distortions (ABCD; Jakatdar, Cash, & Engle, 2006) assesses distorted thinking related to how people process information regarding their physical appearance and taps into investment in one's body for self-worth, and whilst psychometric evaluations have reported high internal reliability and convergent validity, this has only been assessed in a female sample.

As research has identified differences between males and females in the experience of BD, it is important to assess BD with gender-appropriate tools.

Coping strategies

As noted previously, evidence suggests that men and women vary not only in terms of the nature of their dissatisfaction, but also in the strategies they employ to manage BD, with men more likely to engage in exercise than dieting behaviours (Hausenblas & Fallon, 2006). Sociocultural theory suggests social pressures (e.g. media, friends and family) act as catalysts for people to conform to unrealistic physique standards. These are difficult to achieve without dieting or exercise or both (Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999). It is not then surprising that BD management is a strong motivator for participating in exercise (McDonald & Thompson, 1992). However, evidence regarding the relationship between BD and exercise remains unclear. On the one hand it has been suggested that exercise may act as a potential risk factor in the development of BD in certain subgroups of exercisers, for example, athletes, runners and bodybuilders, where weight control is important (Labre, 2002; Mangweth et al., 2001). On the other hand there is evidence

to suggest that individuals may be drawn to sports to which their particular physique is suited, and thus their body is used in a functional way. Bardone-Cone, Cass, and Ford (2008) note that if sport focuses on the functional aspects of the body rather than the aesthetics, then exercise may serve as protective. Alongside this, 'reasons for exercising' (as opposed to engagement in exercise itself) has been recently identified as a factor relating to BD. In females, exercising for reasons of body tone, weight control and appearance has been associated with disturbed eating (Furnham et al., 2002) and BD (Silberstein et al., 1988). Furnham et al. (2002) identified positive (mood, health, fitness and enjoyment) and negative (weight control, tone and attractiveness) reasons for exercise. To date the majority of the research in this area has focused on females and found that women typically exercise for appearance related reasons. It may be that those who are more invested in their appearance are those who are more likely to exercise for reasons related to their appearance, which is known to be associated with disordered eating and BD. A significant degree of appearance investment may drive individuals to exercise, to alter appearance, at levels that are harmful to health, and thus these factors may be of value in distinguishing between clinical and non-clinical groups.

Much of the literature about the clinical significance of BD has explored the association between BD and eating disorder symptomatology. As research suggests that men may be more likely to engage in exercise than dieting behaviours to manage distress associated with BD, the secondary aim of this study is to explore whether the core

features of excessive exercise seen in clinical populations are evident with those with BD in a non-clinical group, and in line with recent research findings, to explore the relationship between reasons for exercise and BD.

The development of a new measure

In order to further investigate BD in males a multidimensional measure is needed to tap into the different dimensions of BD, particularly investment. Considering the limitations of existing measures, a qualitative study (Adams et al., 2005) focusing on the experience of BD in men was carried out using semi-structured interviews with 14 men aged between 18 and 35 years. The data were analysed using Interpretative Phenomenological Analysis (IPA), from this four themes emerged: Societal, Interpersonal, Intrapersonal and Social presentation, which were in line with a multi-dimensional (cognitive, behavioural and affective) construct of BD and a multi-theoretical (cognitive-behavioural, sociocultural and self-discrepancy) framework and incorporated not only men's experience of BD, but also factors influencing this, and its impact. This offered support for the development of a new multidimensional assessment tool: The Male Body Dissatisfaction Inventory (M-BoDI). The items were derived by a Steering Committee based on the themes arising from the qualitative analysis and grouped conceptually based on the emerging themes and existing literature. Thus the M-BoDI differs from existing measures as the items were derived directly from the interview data to accurately reflect the experience of male BD. In addition, the M-BoDI differs from many existing tools in focusing not on the content of BD

(for example, which body parts men do or do not like), but on the process, for example, the extent to which men experience BD related cognition and affect, their drive to manage, reduce or tolerate BD, the impact of BD socioculturally, and how invested the men are in their bodies. Research (Adams et al., 2005; Frith & Gleeson, 2004; Pope et al., 2000) has highlighted that males may be reluctant to express BD for the fear of being stereotyped as “gay” or “feminine”. This has clear implications for the assessment of BD in men, suggesting that scores on self-report measures may not be an accurate reflection of underlying experience. Therefore items assessing Social Desirability were included within the M-BoDI, further distinguishing it from existing tools.

The M-BoDI was piloted in an unpublished study (Williamson, 2006) on a purposively sampled advisory group, which consequently led to clarification and removal of items (see Appendix B for details). The M-BoDI was then tested on a further sample of men to conduct preliminary validation statistics.

Preliminary validation (Adams et al., in preparation) found that the M-BoDI demonstrated good internal consistency for the total score, Cronbach’s α =.91. The primary aim of the current study is to explore the structure of the measure by using a Principal Components Analysis (PCA) and further assess the validity and reliability of the scale.

Research aims and hypotheses

The main aim of the present study was to evaluate the psychometric properties of the M-BoDI in men. Internal reliability and test-

retest reliability were assessed. As the measure was designed to tap the multi-dimensional construct of body image it was expected that the PCA would reveal distinct components. It was expected that these components would show concurrent validity by correlating with existing BD measures assessing similar constructs.

The secondary aim was to explore the relationship between male BD and exercise. It was predicted that males that have increased BD are more likely to exercise for negative reasons, and therefore the M-BoDI scores would correlate with the negative subscale of Reasons for Exercise Inventory (REI). It was also predicted that males who exercise for negative reasons are at greater risk of presenting with the core features of excessive exercise typically seen in a clinical population. Thus REI scores were expected to correlate with The Compulsive Exercise Test (CET).

Method

Design

The study adopted a cross sectional design consisting of an Internet based survey.

Participants

Men aged between 18 and 35 years old from the University of Southampton, from the Internet, and from local gyms, clubs and societies were invited to participate in the study. Four hundred and ninety eight men in total (samples one and two) signed onto the online study; of these, 398

filled in some of the questionnaires and 321 completed enough of the questionnaires to be included in the analysis.

Recruitment and sampling

The study was advertised on the University of Southampton's intranet based research website ("Psycho-survey") offering research credits to psychology undergraduates. Staff and non-psychology students from the University of Southampton were also targeted through poster advertising throughout the University. In addition to this, emails were sent to different Schools' administrative teams across campus within the University of Southampton who used the mass emailing systems to email students and staff, particularly focusing on science departments, computing, students union, and sporting teams. In addition to the university population, in an attempt to access a cross section of the community, advertising posters were placed in community centres, churches, sporting clubs, gyms and societies in the local area and a letter advertising the study was also placed in the local newspaper. The study was advertised through "Facebook" a social networking site and was featured on "Psyclik" and "Psychminded" websites. Opportunistic sampling was also used to target friends, colleagues and acquaintances. A "snowballing technique" was incorporated to enable participants to pass on the study information; this is a technique that is often used in an attempt to engage participants in research where populations might be stigmatised or reluctant to participate. All participants were given the option of emailing the researcher for further information and were able to access the study

online. As an incentive, upon completion of the study the participants could choose to be entered into a prize draw for the opportunity to win 100 pounds[1].

Sample one

The author of this paper collected the data in sample one. Four hundred and one participants accessed the online study between October 2008 and April 2009. From this, 98 participants signed on to the survey but did not complete any information so were excluded from the sample. Thus leaving a total number of 303 participants (see Appendix C for table of demographic data). Two hundred and forty two participants (79.9%) of the sample described themselves as regular exercisers, and thus met inclusion criteria for the analyses of reasons for exercise. Reported exercise varied in type and frequency. For example, the participants who classified themselves as regular exercisers varied from participants who walked on a daily basis to University or work, to participants who went to the gym on a daily basis for up to 2 hours per session.

Sample two

The data in sample two were collected by a previous researcher. Ninety-seven participants accessed the online study in 2005/2006. From this two participants were eliminated from the sample as they were both over 35 years old, thus leaving 95 participants (see Appendix C for table of demographic data). Eighty-six participants (90.5%) described themselves

[1] No participants opted out of the prize draw

as regular exercisers. Reported exercise again varied in type and frequency from participants who attended the gym up to 6 times a week, to participants who engaged in occasional amounts of exercise to participants who engaged in small amounts of daily walking.

Measures

Participants Demographics Questionnaire (see Appendix D). Demographic information was collected to describe the sample, including age, occupation, height and weight (to calculate Body Mass Index, BMI, kg/m^2; Garrow & Webster, 1985), degree of formal education, questions regarding regular exercise (e.g. type and frequency), sexual orientation, ethnicity and disability.

Male Body Dissatisfaction Inventory (M-BoDI; see Appendix E, Adams et al., in preparation). The M-BoDI aims to assess BD in men, and comprises of 114 statements relating to BD. The items were derived from Adams et al. (2005) qualitative study exploring male body dissatisfaction (BD) and were grouped into items relating to Coping Strategies, Affect, Cognitive Style, Investment, Social Desirability and Sociocultural Impact. The items are rated on a Likert scale (Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree) where the participant marks 1 of the 5 boxes

Measures employed to assess validity:

Appearance Related Schemas Inventory-Revised (ASI-R; Cash et al., 2004). The ASI-R assesses psychological investment in appearance.

The ASI-R is compiled of two subscales: Motivational Salience (e.g. “I try to be as physically attractive as I can be”) and Self-Evaluative Salience of Appearance (e.g. “When I see good-looking people, I wonder how my own looks measure up”). Items are rated on a five-point disagree-agree scale and scoring is the mean of the items on each subscale. It comprises of 20 items and has been developed for men and women (based on a sample of 135 men and 468 women) with similar levels of internal consistency for both genders. A composite ASI-R Cronbach’s-alpha for men of α = .90. The Motivational Salience and Self-Evaluative Salience subscales have alpha coefficients of .91 and .84 respectively (Cash et al., 2004). In this study the internal consistencies for the Composite, Self-Evaluative Salience and Motivational Salience subscales are .89, .86 and.85 respectively.

The Body Image Coping Strategies Inventory (BICSI; Cash et al., 2005). The BICSI assesses coping strategies adopted to manage body image stressors. The BICSI comprises of three subscales (Avoidance, Appearance Fixing and the Positive Rational Acceptance) with a total of 29 items. The Avoidance subscale (8 items) measures attempts to avoid threats to thoughts and feelings regarding one’s body image (e.g. “I try to tune out my thoughts and feelings”). The Appearance Fixing subscale (10 items) measures the attempts to alter appearance by concealing or correcting those aspects perceived to be flawed (e.g. “I spend extra time trying to fix what I don’t like about my looks”).The Positive Rational Acceptance subscale (11 items) assesses both mental self-talk and

behavioural strategies aimed at increasing acceptance, as well as the degree of acceptance achieved (e.g. “I consciously do something that might make me feel good about myself as a person”). Cash et al. (2005) report that their male sample generated Cronbach’s Alpha coefficients of .74 for Avoidance Coping, .91 for Appearance Fixing and .85 for Positive Rational Acceptance. These figures are comparable to a female sample tested on this measure. Internal consistencies in the current sample were: .87 for Appearance fixing, .71 for Avoidance and .73 for Positive Rational Acceptance.

*Marlowe-Crown 2 (10) Social Desirability (*MCSD; Strahan & Gerbasi, 1972). The MCSD scale assesses an individual’s tendency to present themselves in a favourable light and respond in a socially desirable manner. This brief 10-item version has been chosen for this study as it is recommended for use when a large battery of measures is administered (Strahan & Gerbasi, 1972). Participants respond to the statements with true or false responses. The higher the score the greater need for approval, with a maximum score of 10. Strahan and Gerbasi (1972) report Cronbach’s Alpha coefficients of .62 in a male sample and .59 in the current study.

Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegen,1988). The PANAS is a brief 20-item measure of mood. The items are rated on a Likert scale of 1-5 (1= very slightly or not at all and 5 = extremely). The items relating to each affect dimension are summed (10

items for each) and high scores indicate high levels of affect. Crawford and Henry (2004) report Cronbach's Alpha of .89 for the Positive Affect subscale and .85 for the Negative Affect subscale. PANAS internal consistencies in the current sample were .90 for the Positive Affect subscale and .87 for the Negative Affect subscale.

Measures to investigate the relationship between body dissatisfaction and exercise:

Reasons for Exercise Inventory (REI; Silberstein et al., 1988). The REI measures people's reasons for exercising. The REI comprises of 24 items divided into seven subscales; exercising for weight control, for fitness, for health, for improving body tone, for improving overall physical attractiveness, for improving mood, and for enjoyment. For each motive, a mean score is determined; higher scores represent the reasons that are more important to the individual. Silberstein et al. (1988) reported the alpha coefficients for all the subscales to be above .67 and .88 for the total scale. In this sample, the internal consistencies for the REI total was .85, the subscales were all above .80 (with the exception of health, .79 and tone .75). The different reasons for exercise can be split into positive (α = .94) and negative (α = .84) reasons (Furnham et al., 2002). In this sample, the alpha coefficients were .87 for negative reasons and .84 for positive reasons for exercise. Positive reasons are exercising to improve mood, health, enjoyment, and body fitness. Negative reasons are exercising for weight control, body toning, and attractiveness. The reliability has been calculated separately for male participants: all alpha coefficients were

above .68 (Silberstein, Mishkind, Striegel-Moore, Timko, & Rodin, 1989). Strelan and Hargreaves (2005) collapsed the seven subscales in three domains; Appearance related reasons for exercise (weight control, attractiveness, and body tone reason) and two functional related reasons; health and fitness and the second mood and enjoyment. Internal reliability for men was acceptable .66, .77 and .72 respectively. Participants who did not exercise were asked to skip this section.

The Compulsive Exercise Test (CET; Meyer, in press). The CET has been designed to assess the core features of excessive exercise in the eating disorders population. The core features that it has been designed to assess are: behavioural rigidity (adherence to a strict exercise routine), weight and shape driven exercise (e.g. exercising solely to burn calories), affect regulation (e.g. the positive and negative reinforcement properties of exercise, and compulsivity (e.g. continuing to exercise despite illness/injury). Scoring is the mean of the items for each subscale. Participants who did not exercise were asked to skip this section. Meyer (in press) reported that the sample generated Cronbach's Alpha coefficients for the overall scale of .85 and for each of the subscales ranging from acceptable to high. The internal consistencies in the current study were all acceptable: Total scale, .85; Compulsive Exercise subscale, .85; Weight and Shape Exercise, .80; Mood Regulation, .80; Lack of Exercise Enjoyment, .87; and Behavioural Rigidity, .70.

Procedure

Ethical approval was granted from the Southampton University School of Psychology Ethics Committee (see Appendix F). A website was created via “Psycho-survey” at the University of Southampton. Participants were able to confidentially log on and complete the battery of measures. The information sheet (see Appendix G) presented on the first page of the web-link explained the study and provided instructions on how to participate. Consent was assumed by the completion of the questionnaires and placing a tick in the consent box on the instruction page. After each questionnaire a submit button was added, to enable as much data as possible to be collected in the event that participants failed to complete all questionnaires. Questionnaires were completed in the order they are described above. It was estimated that the battery would take 35-45 minutes to complete. When all questionnaires had been completed a debriefing statement (see Appendix H) appeared on screen advising whom participants could contact if they had questions or had experienced any distress as a result of participating in the study. Psychology students taking part in the study received the appropriate course credit after completing the study.

At the end of the study, participants who completed all of the questionnaires were asked for consent to be contacted in 4 weeks time to participate in the next stage of the study. Participants who consented were asked to leave their email address. Participants were then contacted by the researcher and invited to take part in a second phase of the study. Participants who agreed were emailed a link (see Appendix I) to the follow

up component of the study and were asked to complete the M-BoDI again, in order to collect data for test-retest reliability analyses.

Privacy and confidentiality was assured as the participants completed the study in their own time on a computer, which they selected. The computer program assigned each participant a number, and a code was also manually assigned to the participants for the test-retest data so that participants' numbers could be matched. The email addresses were stored in a separate list in a locked cabinet, which were destroyed at the end of the study.

Data Preparation

The data was downloaded from psycho survey into SPSS. The compute facility was used to score the measures and compute the reverse scored variables. Following item analysis, variation in the responses was checked and all M-BoDI items had a response range greater than 2. Appendix J shows the values of kurtosis and skewness for all questions. All of the M-BoDI questions had acceptable symmetry (all had skewness < 1.5, see Appendix J).

Results

Missing values analysis

Merging samples one and two provided a total of 398 participants. Seventy-two participants did not fill in any of the M-BoDI, and five participants had more than 25% of the M-BoDI data missing (more than 28 items unanswered). These data sets were dropped from the sample before analysis. Three hundred and twenty one data sets were retained for the

final analysis. Where these participants failed to respond to individual items this missing data was substituted with the mean of the other items for that particular item. Although means substitution may result in a loss of variance, Tabachnik and Fidell (2007) recommend it as a conservative method for dealing with a small amount of missing data.

Inter-item correlations

Inspection of the correlation matrix revealed a number of items on the M-BoDI, which correlated, with very few other items. Field (2009) recommends variables that correlate “lots of times” below .3 to be removed before carrying out a Principal Components Analysis (PCA). Therefore, items with correlations < .3 with more than 95% of the other items were not included in the analysis, thus leaving 49 items in total. Data were also assessed for multicollinearity. There were no correlations >.8, so no further items were removed.

The sample

Three hundred and twenty one participants completed enough of the M-BoDI to be included in the analysis (see Table 1 and Table 2 for a demographic profile).

This consisted of 244 participants from sample one and 77 participants from sample two. There was no significant evidence for a difference between groups in M-BoDI total score (t= 0.92, *p*=.36) and therefore the data were treated as one sample for the analysis of the M-BoDI.

Comparison with standardised measures

In a comparison of the published norms for the BICSI (Cash et al.,2005) to the population in the current study, one-sample t-tests showed that the sample in the current study have higher than average BD and engaging in more body changing strategies when compared to the norms on all three subscales of the BICSI. Comparing the norm of the Avoidance subscale (M= .80) to the current sample (M=1.94), the current sample was significantly higher $t(198) = 36.7$, $p<.05$. The mean of the current sample (M=2.37) was significantly higher than the norm for the Appearance fixing subscale (M= 1.22), $t(199) = 29.5$, $p<.05$. The Rational Positive Acceptance subscale norms (M= 111.55), was significantly lower than in the current sample (M= 2.51), $t (196) = 34.5$, $p<.05$.

Table 1
Demographic Data for Sample One and Sample Two

		Sample one Mean, Range, SD	N	Sample two Mean, Range, SD	N
M-BoDI		2.85,1.80-4.39, .474	244	2.79, 1.94-4.00, .439	77
	Age	24, 18-35, 5.0	244	27, 22-35, 3.2	77
	Weight (Kg)	76.5, 38.8-121.2, 12.67	244	81.6, 59.5-130, 6.9	77
	Height (Cm)	180, 162-198, 6.68	236	181.3, 165-198,6.9	77
	BMI	23.6, 12-35.2, 3.57	236	24.7, 18.4-34.5, 3.21	77
		Percentage of sample		Percentage of sample	
Ethnicity	White*	93.5	228	94.8	73
	Black Caribbean	.4	1	0	0
	Black African	.4	2	0	0
	Indian	.8	2	0	0
	Pakistani	.4	1	1.3	1
	Mixed** Background	2	5	2.6	2
	Chinese	1.6	4	0	0
	Not Known	0	0	1.3	1
	Missing	.4	1	0	0
Sexuality	Heterosexual	83.6	204	83.1	64
	Gay	9.4	23	13	10
	Bisexual	4.5	11	1.3	1
	Decline to respond	.8	2	2.6	2
	Missing	1.6	4	0	0
Education level	Degree or Higher Degree	79.9	195	88.4	68

*Including White British, Scottish, Irish and any other White background
** Including White and Black Caribbean, White and Black African, White and Asian and other mixed background

Table 2
Demographic Data for Combined sample

		Combined sample Mean, Range, SD	N
M-BoDI		2.83, 1.80-4.39, .468	321
	Age	25, 18-35, 4.8	321
	Weight (Kg)	77.7, 38.8-130, 12.7	321
	Height (Cm)	179.8, 162-198, 6.75	313
	BMI	23, 12-35.2, 3.51	313
		Percentage of sample	
Ethnicity	White*	93.7	301
	Black Caribbean	.3	1
	Black African	.6	2
	Indian	.6	2
	Pakistani	.6	2
	Mixed** Background	2.1	7
	Chinese	1.2	4
	Not Known	.3	1
	Missing	.3	1
Sexuality	Heterosexual	83.5	268
	Gay	10.3	33
	Bisexual	3.7	12
	Decline to respond	1.2	4
	Missing	1.2	4
Education level	Degree or Higher Degree	81.9	263

*Including White British, Scottish, Irish and any other White background
** Including White and Black Caribbean, White and Black African, White and Asian and other mixed background

Recommended sample sizes for PCA depend on number of questionnaire items, magnitudes of populations, and number of components. Some authors argue, with clear components, a ratio of 2 participants per questionnaire item can produce replicable results (Barrett and Kline, 1981). Comrey and Lee (1992) suggest a sample size of 300 is "good", Field (2009) notes a sample of over 300 is "adequate" and Tabachnik and Fidell (2007) suggest "it is comforting to have at least 300 cases" (p. 613). A sample of 321 participants were available for the analysis; therefore a PCA was carried out.

Principal components analysis

In order to evaluate the component structure of the selected 49 items from the M-BoDI, a PCA with varimax rotation was conducted. A direct oblimin rotation (see Appendix K) was also attempted however on inspection of the correlation components matrix, the components were not highly correlated (correlations <. 4) so for clarity and simplification of interpretation the varimax rotation was used. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO=. 94 ("superb" according to Field, 2009). Bartlett's Test of Sphericity χ^2 (1176) = 8.365, $p < .001$, indicated that correlations between items were sufficiently large for PCA. Inspection of a scree plot (see Appendix L) suggested that a four-component solution was appropriate (Cattell, 1966). All components had eigenvalues >1 and together the components accounted for 50.3% of the variance in the data.

The PCA grouped the 49 items to four distinct components as the best solution (see Table 3 for component loadings). Component 1, labelled 'Negative Affective Cognition' contained 22 items relating to negative affect and cognitive bias associated with one's BD and accounted for 23.6% of the variance, and had an eigenvalue of 11.58. Examples of questions that loaded highly on this component were "When I think about my body I feel disappointed" (.806) and "When I think about my body I feel upset" (.791), and an example demonstrating cognitive bias, "The negative parts of my body are the first bits I see" (.610). Component 2 labelled 'Investment, Motivation and Drive' accounted for 11.6 % of the variance, had an eigenvalue of 5.73, and contained 13 items related to how important appearance is to an individual, how preoccupied an individual is about their body, and how invested they are to change it if dissatisfied. Examples of questions with high loadings on Component 2 were "It is very important for me to improve the way I look" (.697) and the negatively loading "I don't think about my body much" (-.685). This component also taps into "drive", for example "I work on changing my body even when it could be harmful to me" (.356). The third component ('Social Beliefs') was related to individuals' belief that acceptance by others is contingent on one's appearance, concern with how one's appearance is judged socially and linked to this, behavioural strategies of avoidance and disguise (which differ from other coping behaviours as they do not alter one's body per se, only its appearance to others). 'Social Beliefs' contained eight items and accounted for 8.3% of the variance, and had an eigenvalue of 4.05. The items with the highest loadings on this component were "How I look affects

how people think about me" (.699) and "If I look good people will like me" (.698). The final component ('Meta-beliefs about Appearance, Attractiveness, and Masculinity') contained six items and accounted for 6.7% of the variance and had an eigenvalue of 3.31. The items in this component were associated with apparent "masculine" traits that an individual believes that society attributes to men who are seen as attractive. Examples of questions that loaded highly on this component were "I think society sees men who look good as dynamic" (.773) and "I think society sees men who look good as financially successful" (.764).

Table 3 Principle Components Analysis of the M-BoDI: Item Component Loadings

No.	Questions	Component 1	Component 2	Component 3	Component 4
24	When I think about my body I feel……..disappointed	.806			
27	When I think about my body I feel……..upset	.791			
29	When I think about my body I feel……..disheartened	.784			
31	When I think about my body I feel……..frustrated	.774			
22	When I think about my body I feel……..depressed	.756			
26	When I think about my body I feel……..hopeless	.756			
23	When I think about my body I feel……..annoyed	.750			
34	When I think about my body I feel uncomfortable	.746			
35	I feel comfortable with my body	-.735			
21	When I think about my body I feel……..happy	-.718			
20	When I think about my body I feel……..awful	.717			
32	When I think about my body I feel……..satisfied	.-714			
33	I get very upset when I think about my body	.689			
28	When I think about my body I feel……..contented	.-681			
25	When I think about my body I feel……..tired	.650			
42	The negative parts of my body are the first bits I see	.610			
41	I focus more on the negative aspects of my body than the positive	.593	.308		
37	I wish I looked different	.590	.356		
30	When I think about my body I feel……..self-conscious	.571			
14	When I feel dissatisfied with my body I…feel that I cannot change things	.502		.367	
57	I worry that I do not look as good as I am supposed to.	.496	.413	.337	
19	When I feel dissatisfied with my body I…like punishing myself	.435			
46	It is very important for me to improve the way I look		.697		
60	I don't think about my body much		-.685		
13	When I feel dissatisfied with my body I…feel motivated to change		.675		
38	I think about my body		.652		
47	I feel like I must do things to change the way I look	.460	.632		
1	I engage in activities to change the way I look (e.g. take exercise, cut or colour my hair, diet etc		.632		
56	I worry about how I look		.568	.378	
45	When I set goals for myself to change the way I look I feel badly if I don't meet them		.539		
48	It matters to me when my body is different to my ideal		.527		
61	I never worry about my body		-.506		
49	In order to feel okay about myself as a person I need to look good		.488	.394	
51	I would try to change my appearance even if others told me to stop		.466		
50	I work on changing my body even when it could be harmful to me		.356		
75	How I look affects how people think about me			.699	
74	If I look good people will like me			.698	
92	What I believe others are thinking about my body is just as important as what I think about my body			.617	
73	If my body doesn't look good people will think badly of me			.606	
52	How I feel about my body affects my self-confidence		.404	.584	
97	I worry that other people judge me on how I look	.350		.522	
4	When I feel dissatisfied with my body I…avoid being seen	.337		.395	
3	When I feel dissatisfied with my body I…try to disguise it	.342		.382	
83	I think society sees men who look good as…dynamic				.773
77	I think society sees men who look good as…financially successful				.764
81	I think society sees men who look good as…efficient				.742
86	I think society sees men who look good as…having everything				.707
80	I think society sees men who look good as…ready for action				.598
78	I think society sees men who look good as…confident				.597

Concurrent validity

Concurrent validity was assessed using the participants in sample one[2]. To examine the data for normal distribution, Kolmogorov-Smirnov tests were conducted on all measures (M-BoDI components, ASI-R, BICSI, PANAS and the MCSD). The PANAS, MCSD and the Positive Rational Acceptance subscale from the BICSI violated the assumption of normality, therefore non parametric tests[3] were used (Field, 2009).

The M-BoDI's concurrent validity was established by correlating[4] the M-BoDI components that were produced from the PCA with the ASI-R, BICSI, PANAS and the MCSD (see Table 4). As participants' body image schemas would be activated by completing the questionnaires, it was expected that participants experiencing body dissatisfaction as 'Negative Affective Cognition' would report low positive and high negative mood on the PANAS. As predicted the M-BoDI 'Negative Affective Cognition' component correlated significantly with the PANAS positive subscale (negatively), r_s (189) = -.50, p = < *0.001,* the PANAS negative subscale, r_s (192) = .49, p = < *0.001*. Part of the A-SIR is designed to measure 'Motivational Salience' and thus was expected to be related to the 'Investment Motivation and Drive' component. The M-BoDI 'Investment, Motivation, and Drive' component correlated significantly with the ASI-R Motivational Salience subscale, r_s (212) = .59, p = < *0.001.* Those who reported negative affect on thinking about their bodies reported increased

[2] Where highlighted only sample one was used for the analysis, as data on all measures were not collected in sample two.
[3] Pearson correlations were also conducted and the conclusions that could be drawn from the results did not differ.
[4] Bonferroni correction method used when assessing significance of correlations (0.05/40=0.00125)

negative affect on the PANAS. Those who reported a high level of investment in their body on the M-BoDI were those who reported more motivation to be attractive on the ASI-R. It was expected that the M-BoDI would tap into Social Desirability, therefore correlating with the MCSD, however this result was not found.

Significant correlations were also found between the ASI-R Self Evaluative Salience subscale with the M-BoDI 'Negative Affective Cognition' component, r_s (207) = .46, p = < *0.001,* with the M-BoDI 'Investment, Motivation, and Drive' component, r_s (207) = .47, p = < *0.001* and the M-BoDI 'Social Beliefs' component, r_s (207) = .44, p = < *0.001.* Significant correlations were also found between the BICSI Appearance Fixing subscale and the M-BoDI 'Negative Affective Cognition' component, r_s (199) = .40, p = < *0.001,* and the M-BoDI 'Investment, Motivation, and Drive' component, r_s (199) = .57, p = < *0.001* and the M-BoDI 'Social Beliefs' component, r_s (199) = .32, p = < *0.001.* The BICSI Avoidance subscale also significantly correlated with the M-BoDI 'Negative Affective Cognition' component, r_s (198) = .48, p = < *0.001* and the M-BoDI 'Social Beliefs' component 3, r_s (198) = .25, p = < *0.001.*

Table 4

Correlations Between the M-BoDI and the ASI-R, BICSI, MCSD and the PANAS

Measures	Negative Affective Cognition	Investment, Motivation, and Drive	Social Beliefs	Meta-beliefs	M-BoDI Total
ASI-R Self Evaluative Salience	.464***	.472***	.436***	.168*	.738***
ASI-R Motivational Salience	-.056	.591***	.192**	.086	.255***
BICSI Appearance Fixing	.398***	.573***	.320***	.111	.688***
BICSI Avoidance	.484***	-.007	.259***	.016	.486***
BICSI Positive Rational Acceptance	-.046	-.063	.043	-0.19	-.054
MCSD	-.086	.013	-.199**	.030	-.117
PANAS Positive	-.499***	.124	-.221**	-.017	-.407***
PANAS Negative	.489***	.046	.344***	.090	.524***

*Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

*** Correlation is significant at the 0.001 level (Correlations which are significant at the 0.001 level can be assumed to have met the Bonferroni corrected critical probability)

Internal reliability

The M-BoDI total had good internal reliability, Cronbach's α=. 92. The components (produced from the PCA) also had good internal reliability: 'Negative Affective Cognition', α=. 94, 'Social Beliefs', α=. 80 and 'Meta-beliefs about Appearance, Attractiveness, and Masculinity', α=. 80, with the exception of 'Investment, Motivation, and Drive', which had relatively low reliability, α=. 57. However, if item 60 was deleted the respective reliability would improve to α=. 69.

Test re-test reliability

Internal consistency was assessed using participants from sample one who completed the M-BoDI both at time one and at time two (n = 34). To examine the data for normal distribution, Kolmogorov-Smirnov tests were conducted on all components at time one and time two and were normally distributed, therefore parametric tests were used (see Appendix M for Skewness, Kurtosis and Kolmogorov-Smirnov results). The M-BoDI has good test re-test reliability with significant correlations[5] for the M-BoDI total at time one and time two, r (34) = .87, $p = < 0.001$, Negative Affective Cognition at time one and time two, r (34) = .87, $p = < 0.001$, Investment, Motivation, and Drive at time one and time two, r (34) = .73, $p = < 0.001$, Social Beliefs at time one and time two, r (34) = .81, $p = < 0.001$ and Meta-beliefs about Appearance, Attractiveness, and Masculinity at time one and time two, r (34) = .65, $p = < 0.001$.

[5] Bonferroni correction method used to assess significance of correlations

Secondary aims: The relationship of body dissatisfaction and exercise

To assess the secondary aims of the current study participants in sample one who described themselves as 'regular exercisers' were used. To examine the data for normal distribution, Kolmogorov-Smirnov tests were conducted on all measures (M-BoDI, REI and the CET). A number of subscales on the REI and CET violated the assumption of normality, therefore non-parametric correlations[6] were used (Field, 2009) to investigate the relationship between BD and reasons for exercise.

Hypothesis one

As hypothesised the M-BoDI total score significantly correlated with the Negative Reasons for Exercise subscale on the REI, therefore those scoring higher on the M-BoDI were reporting exercising for negative reasons as measured by the REI. The 'Investment, Motivation, and Drive' significantly correlated with the REI Negative Reasons for Exercise, r_s (161) = .63, $p = < 0.003$. Therefore those scoring highly on this component on the M-BoDI, suggested these participants have higher levels of investment in their bodies and were reporting exercising for negative reasons. There was no evidence for a relationship of any of the components of body dissatisfaction and positive reasons for exercise.

[6] Pearson correlations were also conducted and the results did not differ.

Table 5

Correlations Between the M-BoDI and the REI Positive and Negative Reasons for Exercise.

Measures	REI Positive	REI Negative
M-BoDI Total	.039	.569***
Negative Affective Cognition	-.013	.454***
Investment, Motivation, and Drive	.099	.629***
Social Beliefs	.066	.427***
Meta-beliefs about Appearance, Attractiveness, and Masculinity	.091	.187*

*Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

*** Correlation is significant at the 0.003 level (Bonferroni corrected)

Hypothesis two

As hypothesised the REI negative reasons for exercise subscale significantly correlated with the CET, r_s (143) = .58, p = < *0.01.* Therefore participants who reported exercising for negative reasons were scoring higher on the CET.

Discussion

Due to the fact that BD in men is linked to a number of harmful consequences (Andersen, 2001; Halliwell et al., 2007; McCabe & Riccardelli, 2004; McCabe & Riccardelli, 2005, Phillips, 2002; Olivardia et al., 2004; Pope et al., 1997), it is crucial that men's BD is assessed accurately with psychometrically sound measures that have been developed from male body image literature, tap into the experiences of BD in men, and are validated on male samples (Tylka et al., 2005). The primary goal of the current study was to explore the structure of a new, theoretically pertinent measure of BD in men: The Male Body Dissatisfaction Inventory (M-BoDI), and to explore its reliability and validity. The study also had a secondary goal of exploring the relationship between BD and exercise.

The findings of this study supported a four-component structure of the M-BoDI. The components that were supported were: Negative Affective Cognition; Investment, Motivation, and Drive; Social Beliefs and Meta-beliefs about Appearance, Attractiveness, and Masculinity. The M-BoDI had good internal reliability and demonstrated good test re-test reliability, and preliminary evidence suggested that the measure is valid. A significant relationship was also found between the M-BoDI and negative reasons for exercise, which were also associated with core features of excessive exercise. The findings of the current study are in line with Cash's (1994) argument that components of BD (cognitive, affective and behavioural) can be divided into evaluative (cognitive appraisal and affect)

and investment domains (including the meaning of appearance to the individual and invested thoughts and behaviours). Cash (1994) argues that a full understanding of BD requires thorough assessment of these domains.

Primary aim: Exploration of the scale structure

A Principal Components Analysis (PCA) was used to explore the component structure of the M-BoDI. The PCA grouped the 49 M-BoDI items (65 items were removed from the analysis following inspection of the correlation matrix) to four distinct components as the best solution.

Component 1, 'Negative Affective Cognition', taps into individuals' negative affect and cognitive bias associated with BD. This component is similar to Cash's (1994) evaluative component of BD. Cash (2002) suggests that negative body image evaluation triggers appearance schematic processing of information, distorted cognitions and negative affect. It is an interesting finding that cognitive bias is included in this component as many researchers (e.g. Mathews & Macleod, 1994) consider this to be an important aspect of emotion.

Existing measures that tap evaluation (e.g. DAS; Carr et al., 2000; the BSQ, Cooper et al., 1987; the MEBBIE; Kaminski & Caster, 1994 and the MDDI, Hildebrandt et al., 2004) are limited for many reasons in terms of their applicability to the male population in general, having being developed either on female samples or specific clinical populations, or in not capturing all relevant dimensions of BD. The M-BoDI differs to these as

the items were derived from interview data carried out with males without a specific clinical population in mind.

Correlations between the M-BoDI and established questionnaires provided evidence for the validity of the M-BoDI. As expected the M-BoDI 'Negative Affective Cognition' component correlated significantly with the PANAS Negative subscale. This component also significantly correlated with the ASI-R Self Evaluative subscale, which reflects the association of this component with the evaluative component of BD.

Component 2, 'Investment, Motivation, and Drive' is related to how important appearance is to an individual, how preoccupied an individual is about their body, and how invested they are to change it. This is in line with Cash's (1994) concept of investment (meaning of appearance to the individual and invested thoughts and behaviours). The component taps into the meaning of appearance, (e.g. "It matters to me when my body is different to the ideal"), invested thoughts (e.g. " I worry about how I look") and the behaviours that individuals may engage in ("I engage in activities to change the way I look e.g. take exercise, cut or colour my hair, diet etc"). This component also taps into degree of invested behaviour (e.g. " I work on changing my body even when it could be harmful to me"). Assessing investment is important as the more an individual is invested in their appearance the more likely they are to engage in harmful behaviours to change, alter, or manage their appearance.

Many measures focus exclusively on the evaluative component of BD, for example by taking an inventory of specific parts of the body an individual may be dissatisfied with. Whilst some existing measures do tap

into investment (e.g. the MBSRQ; Cash, 2000; the BAAS; Spangler & Stice, 2001; ASI-R; Cash, et al., 2004; and the ABCD; Jakatdar et al., 2006), these are limited in their applicability to males in a number of respects (see Introduction section for more detail).

In terms of convergent validity, as expected the 'Motivation, Investment, and Drive' component significantly correlated with the ASI-R Motivation Salience subscale. The BICSI Appearance fixing subscale also significantly correlated with the 'Investment, Motivation, and Drive component on the M-BoDI suggesting that this component also taps into an individual's motivation to engage in coping strategies that alter ones appearance.

The M-BoDI had good internal reliability with the exception of the Investment, Motivation and Drive component, which had relatively low reliability, α=. 57 (Field, 2009). However, removal of item 60 would improve the respective reliability to α=. 69. Item 60 is a reverse scored item and it was felt important to keep this in the measure to reduce the impact of affirmative bias. Kline (1999) suggests that the generally accepted value of. 8 is appropriate, however further comments "when dealing with psychological constructs values below even .7 can, realistically, be expected because of the diversity of the constructs being measured" (p. 675). On the other hand, Cronbach's alpha scores for the M-BoDI total scale and the first component 'Negative Affective Cognition' over .9, which did not decrease when items were removed. Therefore, arguably, some of the questions may be redundant. However the variables fell into distinct meaningful components following the PCA, which suggests

that the questionnaire successfully targets different aspects of body image. Further research may wish to consider the removal of some of the variables that list a number of emotions that fall into Component 1. However for this study the items were not removed as the inter-item correlations did not fall above the value stated by Field (2009).

The items in Component 3, 'Social Beliefs', were related to individuals' beliefs that acceptance by others is contingent on appearance, and concern with how one's appearance is judged socially and, linked to this, the component taps into behavioural strategies of avoidance and disguise (which differ from other coping behaviours as they do not alter one's body per se, only its appearance to others). In terms of clinical importance some of the beliefs in this component read like dysfunctional assumptions (e.g. "If my body doesn't look good people will think badly of me"), such beliefs around the importance of aspects of appearance to self-evaluation where body image is central can also be linked to equivalent beliefs in other disorders e.g. eating disorders. This also may help to distinguish between clinical and non-clinical groups.

In relation to concurrent validity, the BICSI Avoidance subscale significantly correlated with the 'Social Beliefs' component on the M-BoDI, suggesting that this component is relevant to the assessment of maladaptive coping strategies that individuals may engage in to attempt to disguise or hide aspects of their appearance to prevent perceived social judgement.

Finally the items in the last component, 'Meta-beliefs about Appearance, Attractiveness, and Masculinity' were associated with

ostensibly “masculine” traits that an individual may believe that society attributes to men who are seen as attractive. This is an interesting component, as the original M-BoDI included many more positive qualities (e.g. “healthy”), derived from the Adams et al. (2005) qualitative study, however the attributes, which hung together as a component in the current study, were arguably highly ”masculine” traits such as ”financially successful”, and “ready for action”. Thus it may be that there are specific subgroups of men who believe that society sees men who look good as masculine, and conversely other subgroups of men who do not hold this belief. It may be possible that this is a protective belief system and would warrant further investigation. This is perhaps in contrast as to what may be expected from a similar component in a female population, hence a strength of the M-BoDI is it’s a “bottom up” development, based on the reported experience of men, as opposed to being an, adaptation of a female measure.

The M-BoDI taps into each of the cognitive, affective and behavioural elements of BD proposed by CBT theory. However, these elements are not present within the measure as discrete components; rather, different aspects of each are combined in different ways within different components (e.g. Component 1 consists of affect and cognitive bias, whereas Component 2 incorporates preoccupation (a cognitive construct) and invested behaviour, and Component 3 includes social beliefs (cognitive) and behaviours aimed at avoidance or disguise). Thus, cognition, affect and behaviour are not divided in an arbitrary fashion, but rather are organised within the components in a way that reflects Cash’s

model of evaluation and investment dimensions. Perhaps the Social Beliefs and Meta-beliefs reflect more about the meaning of appearance to the individual, and beliefs about the meaning of appearance to others, which might underlie why some individuals may be more invested to manage their appearance than others.

Research has highlighted men's reluctance to discuss BD concerns (Adams et al., 2005; Frith & Gleeson, 2004; Pope et al., 2000). Therefore items to capture the tendency of respondents to reply in a manner that they perceive would be viewed favourably by others such as "I don't really care what other people think about my body", and "Men who focus a lot on their bodies are a bit of a joke" were included in the original M-BoDI. However, the PCA did not confirm the presence of a coherent social desirability component i.e. there was no evidence that the items, which were expected to tap 'Social Desirability', were answered in a similar way to each other. One explanation may be that the anonymity of completing the study online may have allowed men to answer in a more honest and open way, as perhaps they did not feel judged, as an individual asking the questions was not present. Another explanation may be that the study attracted a certain subgroup of men that were not reluctant to discuss BD: Ninety eight people signed onto the study but did not complete any questions, perhaps these may have been the participants who were reluctant to discuss BD. Also the desire to respond in a socially desirable way in terms of BD (i.e. not presenting with concern) may not be well correlated with the desire to present in socially desirable ways in other

respects. However the MCSD was used in an exploratory way, as there is not an existing measure of male body image-related social desirability.

The MCSD did not show any significant correlations[7]. However there was a trend towards a correlation with 'Social Beliefs'. This makes sense, as perhaps people who are concerned about being judged on the appearance of their body are also concerned about being seen to be a good person.

Several of the measures used to assess convergent validity correlated in a similar way with more than one M-BoDI component, and the Cronbach's alpha for the whole scale is high. It could be argued that the strength of these relationships may hinder interpretation. However, arguably the 4 components made conceptual sense and are important in a clinical context. The theory suggests that BD has different components for example, affect, investment etc. In a clinical situation it may be helpful to work on one area at a time with a client, for example, negative feelings or their investment. In addition the study was carried out in a non-clinical population; in a clinical population the Cronbach's alpha may be lower as the components may not be so highly linked. Further research carried out in a clinical population could test this.

Another possible reason for the similar correlations of some of the measures with the different M-BoDI components is that a number of the comparison measures tap into one of the cognitive, affective or behavioural dimensions that BD has more traditionally been divided into (see introduction for discussion of this). Although the M-BoDI questions were

[7] The MCSD has a particularly low Cronbach's alpha (.59 in the current study), therefore the construct of social desirability may be questionable. Despite this, the measure was selected as it is a widely used measure within research and clinical practice.

initially devised with these separate dimensions in mind, the PCA has grouped the items in a different way i.e. into components that each include some different combination of these (for example in the Negative Affective Cognition component it taps into affect and cognition, in the Investment, Motivation and Drive component it taps into beliefs and behaviours) so a comparison measure tapping into cognition say, or affect, will correlate with more than one of these.

The findings of this study consistently supported the preliminary reliability and validity of the M-BoDI. These findings are especially noteworthy, as few existing measures comprehensively tap into the unique experience of BD in men (Cafri & Thompson, 2004).

Secondary aim: The relationship between body dissatisfaction and exercise

The secondary aim of the study was to explore the relationship between BD and exercise. This is important because, when looking at the significance of BD clinically, much of the literature to date has explored the relationship of BD with disturbed eating. However, research suggests that men are more likely to exercise than to engage in dieting behaviours to manage BD (Hausenblas & Fallon, 2006). It was therefore decided to explore whether the core features of excessive exercise seen in clinical populations are evident with those with BD in a non-clinical group. Additionally, in line with recent research findings, the study set out to explore the relationship between reasons for exercise and BD. As

hypothesised, there were significant correlations between the M-BoDI and the Negative Reasons for Exercise subscale on the REI, suggesting that those scoring higher on the M-BoDI were reporting negative reasons for exercising. Specifically, there was a significant correlation between the M-BoDI 'Investment, Motivation, and Drive' and the REI Negative Reasons for Exercise subscale suggesting individuals with greater investment into their appearance (those scoring higher on this component) may exercise for negative reasons. As negative reasons for exercising have been associated with disturbed eating and BD (Furnham et al., 2002; Silberstein et al., 1988) perhaps these individuals are those with greater clinical risk. In addition, as predicted the Negative Reasons for Exercise subscale on the REI significantly correlated with the CET, suggesting those who reported exercising for negative reasons were also scoring higher on the CET. Thus, negative reasons for exercising may be related to the core features of excessive exercise that are seen in eating disorders. The majority of research associated with reasons for exercising has been conducted on female samples suggesting females are more likely to exercise for appearance (negative) reasons than males, but the findings from the current study suggest that males may also exercise for negative reasons. This suggests that it is vital not just to explore the behaviours individuals engage in but the motivations behind the behaviours. Individuals who are more invested into their appearance may be more likely to engage in harmful behaviours to manage the distress associated with BD (i.e. exercising for negative reasons), and this may distinguish between clinical and non-clinical groups. The role of investment within BD

may explain the mixed findings in relation to whether exercise acts as a protective or risk factor for men; that is, there may not be a straightforward link between exercise and BD per se, but the relationship may be moderated by degree of investment and the reasons underlying the exercise behaviour.

Implications

The findings of the current study not only add knowledge to an area that is in its infancy but also highlight the importance of investment when assessing BD in men (Cash, 1994). As previously discussed, the few existing measures that tap into investment are limited in a number of ways. The M-BoDI could potentially be used as a clinical measure, with a particular focus on investment and drive. Bergeron and Tylka (2007) note that clinicians may want to assess BD in men generally rather than solely drive for muscularity in order to make improvements to their clients' well being. The M-BoDI is a tool that would be able to do this.

Strengths of the current research

The main strength of the study was the combination of data collected for the current study with a sample collected previously from an unpublished study as it enabled an adequate sample for a PCA to be conducted.

A further strength of the M-BoDI is its focus on BD process rather than just content (e.g. the body parts which are the focus of the dissatisfaction, or the types of behaviours engaged in); the M-BoDI also taps into the drive behind the behaviours. This is important as the type of

behaviour utilised to modify appearance may vary over time or in different settings (e.g. excessive exercise, steroid abuse, extreme dieting techniques); what may be more indicative of risk is whether an individual is invested in their appearance to a degree that they are prepared to take risks with their health, which is captured by the M-BoDI's 'Investment, Motivation, and Drive' component. The M-BoDI differs further from existing measures in that its items were derived from in-depth interviews with men and the conceptual subscales were grouped together on the basis of both interview data and existing literature to reflect the experience of male BD, thus the M-BoDI was designed with male concerns in mind. This study has also offered preliminary validation data on the M-BoDI from a male population.

Limitations and directions for future research

The study's limitations are vital to address. The sample size and range may impact on the generalisability of the findings from the current study. Although many researchers argue that 300 participants are adequate for a PCA (Comrey & Lee, 1992; Field, 2009; Tabachnik & Fidell, 2007), it is typically recommended to have a ratio of one participant per 10 items on the measure that is being analysed. A confirmatory factor analysis needs to be carried out in a larger sample, to provide further support to the four-component solution in the present study. In addition, for the findings to be representative of the general male population, the M-BoDI would benefit from validation on a wider population. In spite of attempts made to access a wider population in this study, the sample was

predominately Caucasian, highly educated and within a specific age range (18- 35 years, as this was the age group the M-BoDI was developed with), thus the results cannot be generalised to other cultures or age groups, as research (Edman & Yates, 2005; Frederick et al., 2007; Yang, Gray, & Pope, 2005) suggests that BD in other cultures may differ to the findings in Western culture, and that BD can differ amongst age groups. The socio economic status of participants was not collected but as most were highly educated, having attained a degree or higher it could be assumed that most participants were from privileged backgrounds or the higher end of the socio economic scale. Levels of education and socio economic background may impact on the attitudes people have towards their bodies. Further validation and reliability testing would also be valuable to assess the M-BoDI's predictive validity and its sensitivity to change.

A further limitation, which may affect the generalisability of the findings to the wider population, may be the self-selected sample. The participants who elected to participate may differ from the overall population. The study on the one hand may have attracted people who were comfortable with discussing BD, but the one-sample t-tests (see results section) showed that the study attracted participants who had higher than average concerns about their body and were engaging in body changing strategies, as measured by the BICSI.

As research suggests that men are reluctant to discuss BD, men who specifically choose to complete questions addressing BD may have particular characteristics. In line with men being reluctant to discuss BD, it is unclear whether the self-report format allowed men to respond more

freely, or was limited by its reliance on an honest report. In addition, to assist with collecting a larger sample, participants could choose where to complete the study; this may have been a limitation as their environment may not have been free from distractions. The average time taken to complete the questionnaires was 29 minutes, suggesting that although participants' environment may not have been free from distractions they were focussing on completing the measures accurately as pilot testing had indicated that it would take between 35 minutes and 45 minutes to complete the questionnaires.

Participants provided qualitative data in relation to exercise, including descriptions of the type and frequency of exercise they participated in. However, further exploration of these data was beyond the scope of the current study and will be explored in a future paper.

No measure was identified as appropriate to explore the concurrent validity of either the cognitive elements of the 'Social Beliefs' component, or the 'Meta-beliefs of Appearance, Attractiveness and Masculinity' component. Whilst a measure relating to sociocultural issues has recently been validated with a male sample (SATAQ-3; Karaszia & Crowther, 2008), this relates more closely to the impact of sociocultural factors (e.g. media) on BD rather than beliefs about the importance of appearance in relation to social acceptance, or meta-beliefs about societal attributions. That there are no identified measures to support the concurrent validity of these components is on the one hand a limitation of the study, but on the other hand supports the notion that the M-BoDI is measuring unique dimensions of male BD.

With regards to the REI, despite researchers (Furnham et al., 2002) dividing the reasons for exercise into Negative and Positive Reasons for Exercising subscales, this classification remains subject to debate (Furnham et al., 2002).

Finally as the study of BD in men is in its infancy the following areas may warrant further investigation. The current study is largely correlational, therefore no causal relationships can be inferred, and it would be interesting to explore these further. It would also be valuable to further investigate the role of investment in appearance in outcome studies as investment is understudied in outcomes of CBT for body image concerns (Jarry & Ip, 2005).

References

Adams, G., Turner, H., & Bucks, R. (2005). The experience of body dissatisfaction in men. *Body Image, 2*(3), 271-283.

Andersen, A. E. (2001). Progress in Eating Disorders Research. *American Journal of Psychiatry, 158 (4),* 515-517.

Bardone-Cone, A. M., Cass, K. M., & Ford, J. A. (2008). Examining body dissatisfaction in young men within a biopsychosocial framework. *Body Image, 5*(2), 183-194.

Barrett, P. T., & Kline, P. (1981). The observation to variable ratio in factor analysis. *Personality Study & Group Behaviour, 1*(1), 23-33.

Bergeron, D., & Tylka, T.L. (2007). Support for the uniqueness of body dissatisfaction from drive for muscularity among men. *Body Image, 4,* 288-295.

Cafri, G., & Thompson, J. K. (2004). Measuring male body image: A review of the current methodology. *Psychology of Men & Masculinity, 5*(1), 18-29.

Carr, A.T. (2002). Body shame: Issues of assessment and measurement. In P. Gilbert, & J. Miles (Eds.), *Body shame: Conceptualisation, research and treatment* (pp.90-102). NY: Bruner-Routledge.

Carr, T., Harris, D., & James, C. (2000). The Derriford Appearance Scale (DAS-59): A new scale to measure individual responses to living with problems of appearance. *British Journal of Health Psychology, 5*, 201-215.

Carr, T., Moss, T., & Harris, D. (2005). The DAS24: A short form of the Derriford Appearance Scale DAS59 to measure individual responses to living with problems of appearance. *British Journal of Health Psychology, 10*(2), 285-298.

Cash, T. F. (1994). Body-image attitudes: Evaluation, investment, and affect. *Perceptual and Motor Skills, 78*(3), 1168-1170.

Cash, T.F. (1994a). The Situational Inventory of Body-image Dysphoria: Contextual assessment of a negative body image. *The Behavior Therapist, 17,* 133-134.

Cash, T.F. (2000). *The Multidimensional Body-Self Relations Questionnaire: Users' Manual.* (3rd Revision) {Online}. Available from http://www.body-images.com

Cash, T.F. (2002). The Situational Inventory of Body-image Dysphoria: Psychometric evidence and development of a short form. *International Journal of Eating Disorders, 32,* 362-366.

Cash, T. F., & Deagle, E. A. (1997). The nature and extent of body-image disturbances in anorexia nervosa and bulimia nervosa: A meta-analysis. *International Journal of Eating Disorders, 22*(2), 107-125.

Cash, T. F., & Labarge, A. S. (1996). Development of the Appearance Schemas Inventory: A new cognitive body-image assessment. *Cognitive Therapy and Research, 20*(1), 37-50.

Cash, T. F., Melnyk, 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*(3), 305-316.

Cash, T. F., Santos, M. T., & Williams, E. F. (2005). Coping with body-image threats and challenges: Validation of the Body Image Coping Strategies Inventory. *Journal of Psychosomatic Research, 58*(2), 191-199.

Cattell, R.B. (1996). The scree test for the number of factors. *Multivariate Behavioral Research, 1,* 245-276.

Comrey, A.L., & Lee, H.B. (1992). *A first course in factor analysis* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cooper, P. J., Taylor, M. J., Cooper, Z., & Fairburn, C. G. (1987). The development and validation of the Body Shape Questionnaire. *International Journal of Eating Disorders, 6*(4), 485-494.

Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 43*(3), 245-265.

Drewnowski, A., & Yee, D. K. (1987). Men and body image: Are males satisfied with their body weight? *Psychosomatic Medicine, 49*(6), 626-634.

Edman, J. L., & Yates, A. (2005). A cross-cultural study of disordered eating attitudes among Filipino and Caucasian Americans. *Eating Disorders: The Journal of Treatment & Prevention, 13*(3), 279-289.

Field, A. (2009). *Discovering statistics using SPSS. (3rd ed.).* London: Sage

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.

Frith, H., & Gleeson, K. (2004). Clothing and embodiment: Men managing body image and appearance. *Psychology of Men & Masculinity, 5*(1), 40-48.

Furnham, A., Badmin, N., & Sneade, I. (2002). Body image dissatisfaction: Gender differences in eating attitudes, self-esteem, and reasons for exercise. *Journal of Psychology: Interdisciplinary and Applied, 136*(6), 581-596.

Furnham, A., & Calnan, A. (1998). Eating disturbance, self-esteem, reasons for exercising and body weight dissatisfaction in adolescent males. *European Eating Disorders Review, 6*(1), 58-72.

Garner, D.M. (1997). *The 1997 body image survey results.* Retrieved April 25th, 2008, from http://www.psychologytoday.com/articles/pto-19970201-000023.html

Garrow, J.S., & Webster, B.S. (1985). Quetelet's index (W/H^2) as a measure of fatness. *International Journal of Obesity, 9,* 147-153.

Halliwell, E., Dittmar, H., & Orsborn, A. (2007). The effects of exposure to muscular male models among men: Exploring the moderating role of gym use and exercise motivation. *Body Image, 4*(3), 278-287.

Hausenblas, H. A., & Fallon, E. A. (2006). Exercise and body image: A meta-analysis. *Psychology & Health, 21*(1), 33-47.

Hildebrandt, T., Langenbucher, J., & Schlund, D. G. (2004). Muscularity concerns among men: Development of attitudinal and perceptual measures. *Body Image, 1*(2), 169-181.

Jakatdar, T. A., Cash, T. F., & Engle, E. K. (2006). Body image thought processes: The development and initial validation of the Assessment of Body-Image Cognitive Distortions. *Body Image, 3*(4), 325-333.

Jarry, J.L., & Ip, K. (2005). The effectiveness of stand-alone cognitive-behavioural therapy for body image: A meta-analysis. *Body Image, 2,* 317-331.

Kaminski, P.L., & Caster, J.B. (1994). The Male Eating Behavior and Body Image Evaluation (unpublished test).

Kaminski, P. L., Chapman, B. P., Haynes, S. D., & Own, L. (2005). Body image, eating behaviors, and attitudes toward exercise among gay and straight men. *Eating Behaviors, 6*(3), 179-187.

Kaminski, P.L., Chapman, B.P., & Temple, J.R. (In press). The Male Eating Behavior and Body Image Evaluation (MEBBIE): Development and Validation. *Body Ima*ge

Karazsia, B.T., & Crowther, J.H. (2008). Psychological and behavioral correlated of the SATAQ-3 with males. *Body Image, 5,* 109-115.

Kline, P. (1999). *The handbook of psychological testing* (2nd ed.). London: Routledge.

Labre, M. P. (2002). Adolescent boys and the muscular male body ideal. *Journal of Adolescent Health, 30*(4), 233-242.

Leit, R. A., Pope, H. G., Jr., & Gray, J. J. (2001). Cultural expectations of muscularity in men: The evolution of Playgirl centerfolds. *International Journal of Eating Disorders, 29*(1), 90-93.

Mangweth, B., Pope, H. G., Jr., Kemmler, G., Ebenbichler, C., Hausmann, A., De Col, C., et al. (2001). Body image and psychopathology in male bodybuilders. *Psychotherapy and Psychosomatics, 70*(1), 38-43.

Mathews, A., & Macleod, C. (1994). Cognitive approaches to emotion and emotional disorder. *Annual Review of Psychology, 45,* 25-50.

McCabe, M. P., & Ricciardelli, L. A. (2004). Body image dissatisfaction among males across the lifespan: A review of past literature. *Journal of Psychosomatic Research, 56*(6), 675-685.

McCabe, M. P., & Ricciardelli, L. A. (2005). A prospective study of pressures from parents, peers, and the media on extreme weight change behaviors among adolescent boys and girls. *Behaviour Research and Therapy, 43*(5), 653-668.

McDonald, K., & Thompson, J. K. (1992). Eating disturbance, body image dissatisfaction, and reasons for exercising: Gender differences and correlational findings. *International Journal of Eating Disorders, 11*(3), 289-292.

Meyer, C. (In press). The development and validation of the Compulsive Exercise Test. *European Eating Disorders Review.*

Olivardia, R., Pope, H. G., Jr., Borowiecki, J. J., III, & 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.

Phillips, K.A. (2002). Body image and body dysmorphic disorder, In C.G. Fairburn, & K.D. Brownel (Eds.), *Eating disorders and obesity: A comprehensive handbook* (pp. 113-117), UK: The Guildford Press.

Pope, H.A., Phillips, K.A., & Olivardia, R. (2000). *The Adonis Complex: The Secret Crisis of Male Body Obsession.* New York: The Free Press.

Pope, H. G., Jr., Gruber, A. J., Choi, P., Olivardia, R., & Phillips, K. A. (1997). Muscle dysmorphia: An underrecognized form of body dysmorphic disorder. *Psychosomatics: Journal of Consultation Liaison Psychiatry, 38*(6), 548-557.

Reas, D. L., Whisenhunt, B. L., Netemeyer, R., & Williamson, D. A. (2002). Development of the Body Checking Questionnaire: A self-report measure of body checking behaviors. *International Journal of Eating Disorders, 31*(3), 324-333.

Rosen, J. C., Srebnik, D., Saltzberg, E., & Wendt, S. (1991). Development of a body image avoidance questionnaire. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 3*(1), 32-37.

Rusticus, S. A., & Hubley, A. M. (2006). Measurement invariance of the Multidimensional Body-Self Relations Questionnaire: Can we compare across age and gender? *Sex Roles, 55*(11), 827-842.

Silberstein, L.R., Mishkind, M.E., Striegel-Moore, R.H., Timko, C. & Rodin, J. (1989). Men and their bodies: A comparison of homosexual and heterosexual men. *Psychosomatic Medicine, 51*, 337-346.

Silberstein, L. R., Striegel-Moore, R. H., Timko, C., & Rodin, J. (1988). Behavioral and psychological implications of body dissatisfaction: Do men and women differ? *Sex Roles, 19*(3), 219-232.

Skrzypek, S., Wehmeier, P. M., & Remschmidt, H. (2001). Body image assessment using body size estimation in recent studies on anorexia nervosa. A brief review. *European Child & Adolescent Psychiatry, 10*(4), 215-221.

Spangler, D. L., & Stice, E. (2001). Validation of the Beliefs About Appearance Scale. *Cognitive Therapy and Research, 25*(6), 813-827.

Stanford, J. N., & McCabe, M. P. (2002). Body image ideal among males and females: Sociocultural influences and focus on different body parts. *Journal of Health Psychology, 7*(6), 675-684.

Strahan, R., & Gerbasi, K. C. (1972). Short, homogeneous versions of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology, 28*(2), 191-193.

Strelan, P., & Hargreaves, D. (2005). Reasons for exercise and body esteem: Men's responses to self-objectification. *Sex Roles, 53*(7), 495-503.

Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.). Boston: Allyn & Bacon.

Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. Washington, DC US: American Psychological Association.

Tylka, T. L., Bergeron, D., & Schwartz, J. P. (2005). Development and psychometric evaluation of the Male Body Attitudes Scale (MBAS). *Body Image, 2*(2), 161-175.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063-1070.

Williamson, E. (2006). Development and preliminary validation of a multidimensional assessment of attitudinal male body dissatisfaction, Unpublished Msc dissertation, University of Southampton, Southampton

Yang, C.-F. J., Gray, P., & Pope, H. G., Jr. (2005). Male body image in Taiwan versus the West: Yanggang Zhiqi meets the Adonis Complex. *American Journal of Psychiatry, 162*(2), 263-269.

List of Appendices

Appendix A
Guide for authors- Body Image

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Appendix B

The M-BoDI Pilot Study

The M-BoDI was piloted in an unpublished study (Adams, Turner, Williamson, & Bucks, in preparation) on a purposively sampled advisory group, which consequently led to clarification and removal of items. The advisory group participants gave their thoughts on the format, layout, design and length of the questionnaire and how easy it was to understand and what was required. They were also asked to comment on the topic range, whether they felt there were any male BD related omissions and how likely it was that men would answer the questionnaire openly. Participants were also asked to view lists of words (the full range generated from the original interviews) relating to how they may feel when they think about their body (e.g. hopeless, frustrated, and depressed) or how they think society see men who look good (e.g. confident, strong, and healthy) and to rank these in descending order. Words of equal importance were placed in equal ranking. Participants then regrouped words into synonyms if they thought there were any. Interviews with the advisory group were transcribed and analysed, and based on this the M-BoDI was modified, with minor changes being made to the introductory text, phrasing of some of the questions, and inclusion of positive affect descriptors (e.g. happy, contented, and satisfied).

Appendix C

Table C1

Demographic Profile of the Participants in Sample One and Two

		Sample one		Sample two	
		Mean, Range, SD,	N	Mean, Range, SD,	N
	Age	24, 18-35, 5.1	303	27, 22-35, 3.3	95
	Weight (kg)	76.3, 38.8-121.2,12.6	300	81.5, 55.9-130,12.6	95
	Height (cm)	179.9, 160-200, 6.7	290	181.5, 165-198, 6.9	95
	BMI	23.6, 12-35.2, 3.59	289	24.7, 18.4-34.5, 3.41	95
		Percentage of sample		Percentage of sample	
Ethnicity	White*	93.4	283	93.5	89
	Black Caribbean	.3	1	0	0
	Black African	.7	2	0	0
	Indian	.7	2	0	0
	Pakistani	.3	1	1.1	1
	Mixed background**	2.3	7	2.2	2
	Chinese	1.3	4	0	0
	Not known	0	0	2.1	2
	Missing	1	3	1.1	1
Sexuality	Heterosexual	85.1	258	82.1	78
	Gay	8.6	26	12.6	12
	Bisexual	3.6	11	2.1	2
	Decline to respond	.7	2	2.1	2
	Missing	2	6	1.1	1

*Including White British, Scottish, Irish and any other White background

** Including White and Black Caribbean, White and Black African, White and Asian and other mixed background

Appendix D
Participants Demographics Questionnaire

Participants Characteristics Questionnaire

Due to the nature of this study, the following questions are concerned with very personal information about you. This information is helpful to us: please answer as many questions as you can.

Any responses that you do give will be kept strictly confidential. Completed questionnaires will only be seen by the researchers involved in the study.

Thank you for reading this.

1. How old are you? _____ yrs
2. What is your occupation? _____
3. What is your weight? _____kg or _____stone and pounds
4. What is your height? _____ cm or _____ feet and inches
5. What is your highest level of qualification obtained or currently working towards? (Please tick one)

No Qualifications

GCSE or O' Levels (A-C Grade)

A' Level or Equivalent

Higher Education

Degree or Equivalent

Higher Degree or Postgraduate Qualification

6. Do you engage in regular exercise (e.g. walking to work, going to the gym)?

Yes

No

If NO then please go to question 7.

If YES:

a) In what activities do you engage?

b) Ho many times a week do you engage in each activity?

c) For how long do you engage in each activity on each occasion?

7. What is your sexual orientation? (Please tick all that apply).

Heterosexual

Homosexual

Bi sexual

Other please specify _____

Decline to respond

8. To which ethnic group do you belong? (Please tick one box).

White:

White
White British
White Irish
White Scottish
Irish Traveller
Any other White background

Mixed:
Mixed-White and Black Caribbean
Mixed-White and Black African
Mixed- White and Asian
Any other mixed background

Asian or Asian British:

Asian or Asian British- Indian
Asian or Asian British- Pakistani

Asian or Asian British- Bangladeshi
Chinese
Any other Asian background

Black or Black British

Black or Black British- Caribbean
Black or Black British- African
Any other Black background

Other responses:
Not Known
Refuse to comment
Other not mentioned

9. Do you consider yourself to have a disability?

Yes
No

If YES please describe:

Thank you for taking the time to complete this questionnaire.

Appendix E
The Male Body Dissatisfaction Inventory (M-BoDI)

M-BoDI

The statements below describe how you think, feel or behave about the appearance of your body. They also describe what you believe Society thinks.

Please choose a response for each of the statements.

Consider how you have **typically** felt, thought or behaved in recent weeks.

For example, if a statement would apply to you 60% of the time, you would select “Agree”.

Please only select “Neither agree nor disagree” if you really are unable to decide.

There are no right or wrong answers. Go with your initial response and do not spend too long on any one question.

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
Coping Strategies Subscale					
1. I engage in activities to change the way I look (e.g. take exercise, cut or colour my hair, diet etc).					
When I feel dissatisfied with my body I……					
2. . .do something to change it.					
3…try to disguise it.					
4…avoid being seen.					
5…focus on the parts of my body that I like more					
6. …tell myself that no-one could look like the ideal					
7….put down people who I think look better than me (e.g. in magazines)					

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
8…remind myself of the non-physical parts of myself that I like.					
9…compare myself with others who look worse than I do.					
10…tell myself how unrealistic the ideal is.					
11. just try to accept myself					
12….laugh it off.					
13…feel motivated to change.					
14…feel that I cannot change things.					
15…tell myself I cannot do anything about it.					
16…feel that I can change things if I want to					
17…try to forget about it.					
18…do something enjoyable.					
19…feel like punishing myself.					
Affect Subscale					
When I think about my body I feel……..					
20…awful.					
21…happy.					
22…depressed.					
23…annoyed.					
24…disappointed.					
25…tired.					
26…hopeless.					
27…upset.					
28…contented					
29…disheartened.					
30…self-conscious					
31…frustrated.					
32…satisfied.					
33. I get very upset when I think about my body.					

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
34. When I think about my body I feel uncomfortable.					
35. I feel comfortable with my body.					
36. I am aware of my body at all times.					
Cognitive Style Subscale					
37. I wish I looked different.					
38. I think about my body.					
39. My imperfections are more obvious to me than they are to others.					
40. I pay more attention, than others do, to the parts of my body that I do not like.					
41. I focus more on the negative aspects of my body than the positive					
42.The negative parts of my body are the first bits I see.					
43. I know deep down that I look okay but I often feel that I don't.					
44.I tend to discount any positive comments about the parts of my body I dislike.					
Investment Subscale					
45. When I set goals for myself to change the way I look I feel badly if I don't meet them.					
46. It is very important for me to improve the way I look.					
47. I feel like I must do things to change the way I look.					

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
48. It matters to me when my body is different to my ideal.					
49. In order to feel okay about myself as a person I need to look good.					
50. I work on changing my body even when it could be harmful to me.					
51. I would try to change my appearance even if others told me to stop.					
52. How I feel about my body affects my self-confidence.					
53. My appearance is important to my identity.					
54. I plan my day around managing my appearance.					
55. It bothers me if I am not able to work on my appearance.					
Social Desirability Subscale					
56. I worry about how I look.					
57. I worry that I do not look as good as I am supposed to.					
58. Men who admit they are not happy with their bodies are weak.					
59. It is not okay to talk about my body image concerns with other people.					
60. I don't think about my body much.					
61. I never worry about my body.					

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
62. It is okay to talk about my body image concerns with other men.					
63. When I exercise it is for reasons other than appearance (e.g. enjoyment, health).					
64. I only worry about my body in relation to my physical health.					
65. I would not like to admit to worrying about my body.					
66. It is vain to worry about your body.					
67. Worrying about your body is a waste of time.					
68. Men who focus a lot on their bodies are a bit of a joke.					
69. Men are not as concerned about their bodies as women.					
70. Body dissatisfaction is not an issue relevant to men.					
71. I don't really care what other people think about my body.					
Socio cultural Impact Subscale					
72. If I am not nice looking people will not like me.					
73. If my body doesn't look good people will think badly of me.					
74. If I look good people will like me.					
75. How I look affects how people think about me.					

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
76. If I look good people will find me attractive or sexy.					
I think society sees men who look good as…					
77…financially successful					
78…confident.					
79…outgoing.					
80…ready for action.					
81…efficient.					
82…healthy.					
83…dynamic.					
84…active.					
85…strong.					
86…having everything.					
87…able to take care of themselves.					
88…protective.					
89…masculine.					
90…physically fit.					
91. By having a better body you have more respect from potential partners.					

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
92…What I believe others are thinking about my body is just as important as what I think about my body.					
93. I wonder what other people think about me when they see me.					
94. I compare myself unfavourably to other people.					
95. I only really think about my looks when I am with others.					
96. I feel okay about my body when I am in a relationship.					
97. I worry that other people judge me on how I look.					
98. I worry about my body when I am around other men and can compare myself.					
99. I worry about my body when I see attractive men in the media.					
100. Good looks help you to be accepted.					
101. People are more likely to talk to you if you are nice looking.					
102. It makes me feel good when someone makes a positive comment about my appearance.					
I think society sees men who do not look good as…					
103…Weak.					
104…Lacking willpower.					

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
105…Lacking control.					
106. People judge you on your appearance.					
107. My appearance is more important when I know that people will be looking.					
108. People will make assumptions based on what you look like.					
109. If other people are happy with the way I look (e.g. a partner) it makes me feel better about myself.					
110. My appearance is a lot more important when I am single.					
111. It would upset me if someone made a negative comment about my appearance.					
112. I feel bad if I see someone with a better body than mine.					
113. Being in a relationship helps me feel better about my body.					
114. How I feel about my body is influenced by what other people think.					

Appendix F
Ethics approval

This email is to confirm that your ethics form submission for "The Development and Validation of a Multidimensional Measure of Male Body Dissatisfaction and its Preliminary use in Exploring the Relationship between Body Dissatisfaction and Exercise" has been approved by the ethics committee

Project Title: The Development and Validation of a Multidimensional Measure of Male Body Dissatisfaction and its Preliminary use in Exploring the Relationship between Body Dissatisfaction and Exercise
Study ID : 524
Approved Date : 2008-05-13 15:02:35

Click here to view Psychobook

If you haven't already submitted the Research Governance form for indemnity insurance and research sponsorship along with your ethics application please be aware that you are now required to fill in this form which can be found online at the link below.
Research Governance Form:
http://www.psychology.soton.ac.uk/psyweb/psychobook/admin/ethics/research_governance.doc
This will need to be returned to the address provided on the form.

Please note that you cannot begin your research before you have had positive approval from the University of Southampton Research Governance Office (RGO). You should receive this by email in a maximum of two working weeks. If you experience any delay beyond this period please contact Pippa Smith.
More information about Research Governance can be found at the link below. (You will be prompted to log into sussed.)
http://www.resource1.soton.ac.uk/legalservices/rgo/regprojs/whatdocs.html

Research Governance

This email is to let you know that the Research Governance Office has Approved your study

Study :

Comments : None.
##########
DO NOT REPLY TO THIS EMAIL!
##########

UNIVERSITY OF Southampton

Miss Sarah Matthews
34 Bassett Crescent East
Southampton
SO16 7PB

23 May 2008

Dear Miss Matthews

RGO Ref: 5819

Project Title **The Development and Validation of a Multidimensional Measure of Male Body Dissatisfaction and its Preliminary Use in Exploring the Relationship Between Body Dissatisfaction and Exercise.**

I am writing to confirm that the University of Southampton is prepared to act as sponsor for this study under the terms of the Department of Health Research Governance Framework for Health and Social Care (2nd edition 2005).

The University of Southampton fulfils the role of Research Sponsor in ensuring management, monitoring and reporting arrangements for research. I understand that you will be acting as the Principal Investigator responsible for the daily management for this study, and that you will be providing regular reports on the progress of the study to the Research Governance Office on this basis.

I would like to take this opportunity to remind you of your responsibilities under the terms of the Research Governance Framework, and the EU Clinical Trials Directive (Medicines for Human Use Act) if conducting a clinical trial. We encourage you to become fully conversant with the terms of the Research Governance Framework by referring to the Department of Health document which can be accessed at:

http://www.dh.gov.uk/assetRoot/04/12/24/27/041224

In this regard if your project involves NHS patients or resources please send us a copy of your NHS REC and Trust approval letters when available.

Please do not hesitate to contact me should you require any additional information or support. May I also take this opportunity to wish you every success with your research.

Yours sincerely

Dr Martina Prude
Head of Research Governance
Tel: 023 8059 5058
email: rgoinfo@soton.ac.uk

UNIVERSITY OF Southampton

Miss Sarah Matthews
34 Bassett Crescent East
Southampton
SO16 7PB

22 May 2008

Dear Miss Matthews

Professional Indemnity and Clinical Trials Insurance

RGO REF - 5819 School Ethics Ref - 524

Project Title **The Development and Validation of a Multidimensional Measure of Male Body Dissatisfaction and its Preliminary Use in Exploring the Relationship Between Body Dissatisfaction and Exercise.**

Participant Type:	No Of Participants:	Participant Age Group:	Notes:
Healthy volunteers	570	Adults	

Thank you for forwarding the completed questionnaire and attached papers.

Having taken note of the information provided, I can confirm that this project will be covered under the terms and conditions of the above policy, subject to online tick box consent being obtained from the participating volunteers.

If there are any changes to the above details, please advise us as failure to do so may invalidate the insurance.

Yours sincerely

Mrs Ruth McFadyen
Insurance Services Manager

Tel: 023 8059 2417
email: hrm@soton.ac.uk

cc: File

Finance Department, University of Southampton, Highfield Campus, Southampton SO17 1BJ United Kingdom
Tel: +44 (0) 23 8059 5000 Fax: +44 (0) 23 8059 2195 www.southampton.ac.uk

Appendix G
Participant Information Sheet

Participant Information

Study Title: The Development and Validation of a Multidimensional Measure of Male Body Dissatisfaction and its Preliminary use in Exploring the Relationship between Body Dissatisfaction and Exercise.

Researcher: Sarah Matthews

Ethics Number: 524

Dear Participant

I am a Trainee Clinical Psychologist at Southampton University. The research being conducted is part of my Doctoral Thesis. You are being invited to take part in a research study. Before you decide whether or not to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish.

What is the research about?

Research is being conducted to further develop a new assessment scale for measuring males' body dissatisfaction. We are recruiting men aged 18-35 years old. The scale is a self-assessment questionnaire which aims to assess the full range of issues and experiences associated with dissatisfaction with one's body.

Why have I been chosen?

A wide variety of men are required to participate in the study in order to understand the range of experiences related to body dissatisfaction.

What will I have to do if I participate?

If you decide to take part you will be asked to complete some questions that describe you such as your age, gender and occupation. You will also be asked to complete seven health and exercise related questionnaires. These should take no longer than 35-45 minutes to complete. You are free to withdraw your consent to participate in the study at any time without penalty and are under no obligation to participate if you do not wish to. At the end of the study you will be asked if you wish to be contacted in 4 weeks time to take part in the follow up study. Only leave your details if you wish to be contacted.

Are there any benefits in my taking part?

There are no individual benefits but the results will add to current knowledge in the area.

What are the risks involved?

There is a small risk that due to the sensitive nature of this topic, it may trigger strong emotions. If this is the case and you need to discuss this, the debriefing statement given to you at then end of the study will inform you of what you can do.

Will my participation be confidential?

Yes, any information that you give will be kept strictly confidential. All data will be stored in an anonymous format and kept on a password-protected computer. If you are a Psychology Undergraduate at the University of Southampton and are participating to receive course credits, your name and student ID number will need to be given to your relevant department, although under no circumstances will your comments be disclosed.

What happens if I change my mind?

You have a right to withdraw at anytime with no consequences.

What happens if something goes wrong?

In the case of concern or complaint, please contact Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: 02380 595578

What will happen to the results?

A report of the results will be written for the University of Southampton and will also be submitted for publication in a scientific journal. Participants will not be identified in the report and a brief summary of the results will be made available to you upon request.

Who is organising the research?

Sarah Matthews, Trainee Clinical Psychologist

Who is funding the research?

The University of Southampton

Supervisors

Dr Gillian Adams (Clinical Psychologist)

Dr Hannah Turner (Consultant Clinical Psychologist)

Dr Catherine Brignell (Lecturer, University of Southampton)

-**Who has reviewed this study?**

The School of Psychology Research Ethics Committee at the University of Southampton.

Whom should I contact for further information?

If you have any questions about the study, or wish to request a summary of results please do not hesitate to contact Sarah Matthews at sm506@soton.ac.uk or Dr Gillian Adams at Gillian.Adams@hantspt-sw.nhs.uk Alternatively you could contact the Clinical Psychology Department, 34, Bassett Crescent East, University of Southampton, SO16 7PB. Telephone number: 02380 595575.

Informed Consent

Your consent will be assumed from completion of the following questionnaires.

You may withdraw consent and discontinue participation at any time and without penalty or loss of benefits. Please note that the data collected as part of this study will be treated confidentially and published results of this research project will maintain your confidentiality.

If you are happy to take part, please tick the box and press the button marked 'Continue' (Please scroll down).

Appendix H
Participant Debriefing Statement

Study title: The Development and Validation of a Multidimensional Measure of Male Body Dissatisfaction and its Preliminary use in Exploring the Relationship between Body Dissatisfaction and Exercise.

Researcher: Sarah Matthews

Ethics Number: 524

THANK YOU FOR COMPLETING THE QUESTIONNAIRES. WE ARE VERY GRATEFUL FOR THE TIME YOU HAVE GIVEN TO THIS STUDY

FOR YOUR INFORMATION

Thank you very much for participating in our research. The aim of this research was to further develop and validate a multidimensional measure for Male Body Dissatisfaction and to explore the relationship between male body dissatisfaction and exercise. Your data will help us develop and validate the new scale. Once again results of this study will not include your name or any other identifying characteristics. The research did not use deception. A summary of research findings will be available to you once the project is completed.

Our feelings about our bodies can change on a daily basis. However, if you find that your thoughts or feelings about this subject have troubled you for some time, there are several places you can go to get help or advice. These include your General Practitioner and, if you are a member of the university, you could also talk to your tutor or the University Counselling Service.

If you would like additional information please contact Dr. Gillian Adams (Clinical Psychologist) on 02380 626262 or Gillian.Adams@hantspt-sw.nhs.uk

If you have any further questions about the study, or wish to request a summary of results please do not hesitate to contact me, Sarah Matthews at sm506@soton.ac.uk. Alternatively you could contact the Clinical Psychology Department, 34, Bassett Crescent East, University of Southampton, SO16 7PB. Telephone number: 02380 595575.

Thank you for your participation in this research.

If you have any questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: 02380 595578

Sarah Matthews
Trainee Clinical Psychologist

Appendix I
Invite email for re-test

Dear Participant,

Re: The Development and Validation of a Multidimensional Measure of Male Body Dissatisfaction and its Preliminary use in Exploring the Relationship between Body Dissatisfaction and Exercise (Male Body Image Study).

Thank you for taking the time to complete the questionnaires for the above study 4 weeks' ago, and for indicating that you would be willing to complete the questionnaires a second time.

If you are still willing to take part in the second phase of the study, we would be grateful if you would copy and paste the following address into your browser
http://www.psychology.soton.ac.uk/psychosurvey/survey_start.php?surveyID=500
and complete a questionnaire again (M-BoDI questionnaire). This should take no more than 15 minutes.

However, before you do, please note that your study ID number is: XX

It is vital that you enter this number in the ID number box in the ID number section, which will appear before the questionnaire. If you don't we will not be able to use your data as we wont be able to pair your 1st and 2nd questionnaire responses - and this would be a great shame!

If you have decided that you no longer wish to participate in this part of the study, simply delete this email.

Thank you once again for your help with this study.

Sarah Matthews
Trainee Clinical Psychologist, University of Southampton

Supervised by Dr. Gillian Adams, Clinical Psychologist, Dr. Hannah Turner, Consultant Clinical Psychologist and Dr. Catherine Brignell, Lecturer, University of Southampton.

Appendix J

Table J1 Skewness and Kurtosis for all M-BoDI questions

Question Number	Skewness Statistic	Std.Error	Kurtosis Statistic	Std. Error
1	-.723	.139	-.320	.277
2	-.838	.136	.169	.271
3	-.073	.137	-1.222	.272
4	.875	.136	-.172	.272
5	-.127	.137	-1.154	.273
6	.041	.137	-1.211	.273
7	1.124	.137	.702	.272
8	.081	.136	-1.167	.272
9	.046	.137	-1.304	.272
10	.162	.137	-1.111	.272
11	-.648	.136	-.458	.272
12	-.137	.137	-1.099	.272
13	-.639	.136	-.340	.272
14	.575	.137	-.624	.272
15	1.066	.136	1.333	.272
16	-1.165	.136	1.487	.272
17	-.110	.137	-1.070	.272
18	-.818	.137	.284	.272
19	.892	.137	-.444	.273
20	.961	.137	.557	.273
21	-.399	.137	-.598	.272
22	.803	.137	-.205	.272
23	.163	.137	-1.301	.273
24	.054	.137	-1.338	.272
25	.695	.137	-.213	.273
26	1.098	.137	.806	.273
27	.714	.137	-.454	.273
28	-.232	.137	-.948	.273
29	.539	.137	-.651	.273
30	-.533	.137	-.774	.273
31	.314	.137	-.989	.273
32	-.124	.137	-.955	.273
33	1.287	.136	1.441	.272
34	.655	.137	-.650	.273
35	-.509	.137	-.721	.273
36	.246	.136	-.929	.272
37	-.179	.136	-1.242	.273

Question Number	Skewness Statistic	Std.Error	Kurtosis Statistic	Std. Error
38	-1.213	.136	1.463	.271
39	-.783	.136	.161	.272
40	-.675	.136	-.310	.272
41	-.100	.136	-1.098	.271
42	.201	.137	-1.066	.272
43	.009	.137	-1.089	.272
44	.164	.136	-1.149	.272
45	-.413	.136	-.809	.271
46	.120	.136	-1.004	.271
47	.017	.136	-1.079	.271
48	-.330	.137	-1.009	.273
49	-.282	.136	-1.023	.272
50	1.397	.137	1.717	.273
51	.412	.136	-.954	.271
52	-.965	.136	.303	.271
53	-.796	.136	-.072	.271
54	1.246	.136	1.324	.271
55	.486	.136	-.807	.271
56	-.403	.137	-.836	.272
57	.110	.137	-1.176	.272
58	.860	.136	.380	.271
59	.409	.137	-.850	.272
60	.322	.137	-.869	.273
61	.946	.136	.885	.272
62	-.667	.137	-.497	.272
63	-1.024	.136	.708	.272
64	.253	.137	-1.085	.273
65	.277	.137	-1.021	.272
66	.652	.136	-.519	.271
67	.834	.136	.379	.271
68	.152	.137	-1.069	.272
69	-.085	.136	-1.271	.272
70	1.117	.136	3.047*	.272
71	.443	.137	-.689	.273
72	.737	.137	-.125	.273
73	.536	.136	-.629	.272
74	-.035	.137	-.994	.272
75	-.965	.137	.279	.273
76	-.882	.137	1.414	.273
77	-.508	.136	-.778	.272

Question Number	Skewness Statistic	Std.Error	Kurtosis Statistic	Std. Error
78	-1.021	.136	1.871	.272
79	-1.287	.136	3.979*	.272
80	-.901	.136	1.351	.272
81	-.531	.137	-.453	.273
82	-.452	.156	.626	.311
83	-.888	.137	.741	.272
84	-.792	.136	2.546	.272
85	-.922	.137	1.320	.273
86	.079	.137	-1.109	.272
87	-.952	.137	1.017	.272
88	-.239	.137	-.732	.272
89	-.675	.137	.105	.272
90	-1.055	.137	3.231*	.273
91	-.771	.137	-.010	.272
92	.151	.137	-1.197	.273
93	-.856	.137	.078	.272
94	.039	.137	-1.250	.272
95	.782	.137	-.037	.272
96	-.275	.137	-.893	.273
97	-.172	.137	-1.109	.273
98	-.064	.137	-1.188	.272
99	.471	.137	-.818	.273
100	-.946	.137	.529	.273
101	-1.001	.137	.768	.274
102	-1.056	.138	2.548	.274
103	.366	.136	-.901	.272
104	-.251	.136	-1.113	.272
105	-.161	.136	-1.143	.272
106	-1.077	.136	2.218	.271
107	-1.095	.136	1.278	.272
108	-1.379	.136	5.562*	.271
109	-1.132	.137	2.134	.273
110	-.189	.137	-.972	.273
111	-.658	.136	-.538	.272
112	.584	.136	-.618	.272
113	-.160	.137	-.744	.272
114	-.215	.137	-1.242	.273

* Items with kurtosis out of the ‘acceptable’ range (kurtosis > 3). These questions were not included in the analysis because of lack of correlation with other variables during the inter item correlations.

Appendix K

Table K1 Direct Oblimin Rotation Component Loadings

No.	Questions	Component 1	Component 2	Component 3	Component 4	Component 5
32	When I think about my body I feel……..satisfied	-.842				
24	When I think about my body I feel……..disappointed	.829				
28	When I think about my body I feel……..contented	-.816				
35	I feel comfortable with my body	-.787				
31	When I think about my body I feel……..frustrated	.772				
21	When I think about my body I feel……..happy	-.772				
29	When I think about my body I feel……..disheartened	.765				
23	When I think about my body I feel……..annoyed	.761				
34	When I think about my body I feel uncomfortable	.745				
27	When I think about my body I feel……..upset	.716				
22	When I think about my body I feel……..depressed	.643				.313
20	When I think about my body I feel……..awful	.638				
42	The negative parts of my body are the first bits I see	.628				
37	I wish I looked different	.626				
26	When I think about my body I feel……..hopeless	.616				.401
30	When I think about my body I feel……..self-conscious	.612				
41	I focus more on the negative aspects of my body than the positive	.574				
33	I get very upset when I think about my body	.569				.367
25	When I think about my body I feel……..tired	.555				.331
57	I worry that I do not look as good as I am supposed to.	.445				
13	When I feel dissatisfied with my body I…feel motivated to change		.753			
46	It is very important for me to improve the way I look		.647			
1	I engage in activities to change the way I look (e.g. take exercise, cut or colour my hair, diet etc		.641			
38	I think about my body		.618			
60	I don't think about my body much		-.614			
47	I feel like I must do things to change the way I look	.425	.535			
45	When I set goals for myself to change the way I look I feel badly if I don't meet them		.507			
48	It matters to me when my body is different to my ideal		.455			
56	I worry about how I look		.439		.413	
51	I would try to change my appearance even if others told me to stop		.430			.387
49	In order to feel okay about myself as a person I need to look good		.421		.366	
61	I never worry about my body	-.316	-.397			
14	When I feel dissatisfied with my body I…feel that I cannot change things	.380	-.388			
77	I think society sees men who look good as…financially successful			.783		
83	I think society sees men who look good as…dynamic			.782		
81	I think society sees men who look good as…efficient			.744		
86	I think society sees men who look good as…having everything			.713		
80	I think society sees men who look good as…ready for action			.628		
78	I think society sees men who look good as…confident			.622		
75	How I look affects how people think about me				.779	
74	If I look good people will like me				.726	
52	How I feel about my body affects my self-confidence				.633	
92	What I believe others are thinking about my body is just as important as what I think about my body				.612	

No.	Questions	Component 1	Component 2	Component 3	Component 4	Component 5
73	If my body doesn't look good people will think badly of me				.573	
97	I worry that other people judge me on how I look	.307			.537	
3	When I feel dissatisfied with my body I…try to disguise it				.352	
4	When I feel dissatisfied with my body I…avoid being seen				.331	.324
50	I work on changing my body even when it could be harmful to me		.336			.575
19	When I feel dissatisfied with my body I feel…like punishing myself					.484

Appendix K- Continued

Principal components analysis

In order to evaluate the component structure of the selected 49 items from the M-BoDI, a PCA with oblimin rotation was conducted. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO=. 94 ("superb" according to Field, 2009). Bartlett's Test of Sphericity χ^2 (1176) = 8.365, $p < .001$, indicated that correlations between items were sufficiently large for PCA. All components had eigenvalues >1 and together the components accounted for 53.9% of the variance in the data.

The PCA grouped the 49 items to five components (see Table K1 for component loadings). Component 1 contained 20 items relating to negative affect and cognitive bias associated with one's BD and accounted for 31.2% of the variance, and had an eigenvalue of 15.3. Examples of questions that loaded highly on this component were " When I think about my body I feel satisfied" (-.842) and "When I think about my body I feel disappointed" (.829), and an example demonstrating cognitive bias, "The negative parts of my body are the first bits I see" (.628). Component 2 accounted for 8.6 % of the variance, had an eigenvalue of 4.2, and contained 13 items related to how important appearance is to an individual, how preoccupied an individual is about their body, and how invested they are to change it if dissatisfied. Examples of questions with high loadings on Component 2 were "When I feel dissatisfied with my body I feel motivated to change". The third component contained six items and accounted for 6.1% of the variance and had an eigenvalue of 3.0. The items in this component were associated with apparent "masculine" traits that an individual believes that society attributes to men who

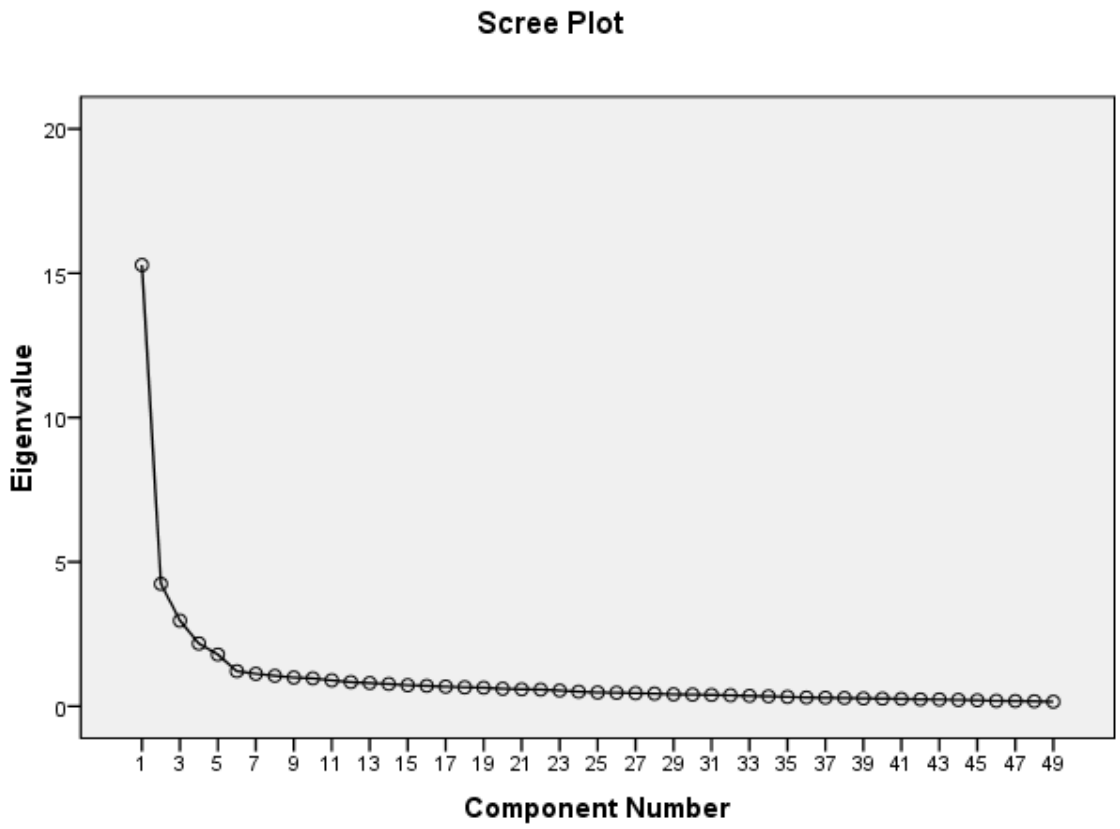
are seen as attractive. Examples of questions that loaded highly on this component were “I think society sees men who look good as financially successful” (.783) and “I think society sees men who look good as dynamic” (.782). The fourth component was related to individuals’ belief that acceptance by others is contingent on one’s appearance, concern with how one’s appearance is judged socially and linked to this, behavioural strategies of avoidance and disguise (which differ from other coping behaviours as they do not alter one’s body per se, only its appearance to others). Component 4 contained eight items and accounted for 4.4 % of the variance, and had an eigenvalue of 2.2. The items with the highest loadings on this component were “How I look affects how people think about me” (.779) and “If I look good people will like me” (.726). The final factor comprised of 2 items, accounted for 3.7% of the variance and had an eigenvalue of 1.8. It relates to motivation and negative cognition.

Appendix L

Scree Plot

Figure 1

A scree plot to show the four-component solution



Appendix M

Table M1

Kolmogorov-Smirnov, Skewness and Kurtosis for the Test re-test reliability data

	Component	Kolmogorov-Smirnov	Skewness	Std. Error	Kurtosis	Std. Error
Time one						
	Negative Affective Cognition	1.017	.602	.403	-.498	.788
	Investment, Motivation and Drive	.512	.065	.403	-.774	.788
	Social Beliefs	.586	.053	.403	-.882	.788
	Meta-beliefs about Appearance, Attractiveness and Masculinity	.552	.-.327	.403	.315	.788
	Total M-BoDI	.848	.493	.403	-.376	.788
Time two						
	Negative Affective Cognition	.856	.910	.403	.837	.788
	Investment, Motivation and Drive	.460	-.029	.403	-.557	.788
	Social Beliefs	.657	.092	.403	-.280	.788
	Meta-beliefs about Appearance, Attractiveness and Masculinity	1.041	.378	.403	-.258	.788
	Total M-BoDI	1.017	.652	.403	.466	.788