Mediating and moderating factors of the relationship between sexual orientation and eating pathology and body satisfaction in sexual minority and heterosexual men

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MEDIATING AND MODERATING FACTORS OF THE RELATIONSHIP BETWEEN
SEXUAL ORIENTATION AND EATING PATHOLOGY AND BODY SATISFACTION IN
SEXUAL MINORITY AND HETEROSEXUAL MEN

by

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A Dissertation

Submitted to the University at Albany, State University of New York
in Partial Fulfillment of
the Requirements for the Degree of
Doctor of Philosophy

College of Arts & Sciences
Department of Psychology
2017
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Abstract

Most research on body image and disordered eating has focused largely on women, as women are at higher risk than men for eating disorders. In recent years research has revealed that men are at increasing risk for these outcomes, especially as the ideal male body represented in media images and therefore frequently internalized among men is becoming so lean and muscular as to make it very difficult for most men to realistically achieve. Sexual minority men in particular have been found to be at increased risk for body dissatisfaction, body shame, and disordered eating than their heterosexual counterparts. The research on sexual minority men, however, is in the beginning stages and it is unclear to date how and why body dissatisfaction and eating pathology may be systematically different in this population in comparison to heterosexual men. The current study sought to investigate mediating and moderating factors into the relationship between sexual orientation, body dissatisfaction, and disordered eating. Sexual minority men \( (n = 112) \) reported higher levels of body dissatisfaction and disordered eating than heterosexual men \( (n = 242) \). Contrary to hypotheses, integration into gay culture was not related to the outcome variables, nor were appearance conversations. Also contrary to hypotheses, exercise motivations were similar in both groups of men, with the exception that heterosexual men were more likely to report exercising for the purpose of competition. Implications and possible directions for future research are discussed.
Mediating and Moderating Factors of the Relationship between Sexual Orientation and Eating Pathology in Sexual Minority and Heterosexual Men

Although women make up the majority of individuals with eating disorders and most of the existing research has therefore focused on women, men certainly account for a percentage of cases of all types of eating disorders and related psychopathology, although the exact percentage remains unclear and estimates vary, sometimes widely, across studies. Depending upon the particular study, men are thought to account for about 10% of anorexia nervosa (AN) (Muise, Stein, & Arbess, 2003) cases, 5-15% of bulimia nervosa (BN) cases (Harvey & Robinson, 2003; Muise, Stein, & Arbess), and about half of binge eating disorder (BED) cases (Hudson, Hiripi, Pope, & Kessler, 2007). Overall, men appear to be at lower risk for the development of AN and BN than women, although men are increasingly reporting body dissatisfaction (Leit, Gray, & Pope, 2002) and eating concerns in recent years (Jones & Morgan, 2010). Men are particularly at higher risk compared to women when considering such constructs as muscle dysmorphia (Pope, Phillips, & Olivardia, 2000; Murray, Rieger, Touyz, & De la Garza Garcia, 2010), drive for masculinity (Pritchard, 2014), and behaviors like the use of appearance and performance enhancing drugs (Murray, Rieger, Touyz, & De la Garza Garcia).

In recent years, there has been much more research focused on the specific sociocultural, psychological, and evolutionary factors that may be at play in the etiology, development, and maintenance of eating disorders in men. However, understanding into how different groups of men differ with regard to their specific appearance and eating concerns remains in its infancy.

Eating Disorders in Sexual Minority Men

Although research is somewhat limited in this area, sexual minority (SM; for the purposes of this paper, any man who identifies as non-heterosexual) men are generally
understood to be at increased risk for eating disordered behaviors compared to heterosexual men (Feldman & Meyer, 2007; Harvey & Robinson, 2003; Jones & Morgan, 2010; Russell & Keel, 2002; Strong, Williamson, Netemeyer, & Geer, 2000; Williamson & Hartley, 1998; Yelland & Tiggemann, 2003). Predictably, SM men are also at increased risk for body dissatisfaction in comparison to heterosexual men (Beren, Hayden, Wilfley, & Grilo, 1996; Kimmel & Mahalik, 2005, Morrison, Morrison, & Sager, 2004; Russell & Keel, 2002; Tiggemann, Martins, & Kirkbride, 2007) and, in fact, SM men have comprised up to 30% of samples of men with eating disorders in existing research (Carlat, Camargo, & Herzog, 1997.)

What remains unclear, however, is whether the apparently increased risk of eating disordered behavior in SM men is a direct relationship of homosexuality and disordered eating or if there are specific mediating factors involved that put SM men at increased risk compared to their heterosexual counterparts. Possible mediating factors of this relationship have thus far received only limited study. In addition, even studies that have investigated proposed mediating factors have not examined the possible functions of disordered eating as they relate to sexual minority men. This is an important question, as it may allow researchers to unlock an essential body of information which will make possible more targeted treatment approaches for SM men who experience body dissatisfaction and disordered eating.

To date, researchers have speculated about many different possible causes of their apparent increased risk for body dissatisfaction and disordered eating. The possible causes that have been put forth thus far include measurement issues, in particular the fact that sexual minority men may simply be more likely to report eating disorder symptomatology or body image dissatisfaction (Jankowski, Diedrichs, & Halliwell, 2013), increased or qualitatively different types of body dissatisfaction, (which may be more damaging to SM men than
heterosexual men) (Calzo, Corliss, Blood, Field, & Austin, 2013), sociocultural explanations including media images targeted specifically toward gay male audiences (Duggan & McCreary, 2004) and level of participation in the LGB community (Feldman & Meyer, 2007), as well as biological and evolutionary (Li, Smith, Griskevicius, Cason, & Bryan, 2010) explanations. Because there is already reason to believe that sociocultural factors are heavily involved, and because these are the factors most susceptible to change, this research focuses primarily on sociocultural factors that likely play a role.

Although there has been speculation that the differential rates of body image dissatisfaction and eating disorder diagnoses among men may be explained by the fact that SM men may simply be experiencing depression and anxiety stemming from stigma around their sexual orientation, and therefore presenting for treatment at higher rates than their heterosexual counterparts, Russell & Keel (2002) found that gay men were at higher risk for eating disordered behavior even after controlling for these variables. In order to determine if SM men truly are more susceptible to the development of body dissatisfaction and eating disorders than heterosexual men, research should begin to more fully examine the etiological and developmental factors involved so that clinicians have access to empirically founded treatment options for this group.

A 2004 meta-analysis investigated the role that body dissatisfaction plays in the relationship between sexual orientation and body image evaluation (Morrison, Morrison, & Sager, 2004) and found that, overall, gay men experienced more body dissatisfaction than heterosexual men. The authors noted that in their research no such differences were seen between lesbians and heterosexual women; rather, it seemed that sexual orientation was more relevant to body dissatisfaction for men than for women. The authors speculated that gay men
may experience perceived discrepancies between their ideal and actual bodies at a level similar to all women, and at a higher level than heterosexual men. Conclusions are difficult to draw on this topic, however, as other research has revealed disparate findings.

Some research has taken the approach of comparing the experience of SM men to that of women for insight. A 2003 investigation into body dissatisfaction and disordered eating in gay men found that gay men scored significantly higher than their heterosexual counterparts on multiple measures of disordered eating and that gay men were similar to women on measures of drive for thinness and bulimia (Yelland & Tiggemann, 2003). Further, gay men in this study did not differ from women on how important they believed their appearance was to others, both groups scoring significantly higher than heterosexual men on this item. Specifically, gay men believed their muscularity (but not their weight generally) to be more important to others than did either heterosexual men or women. Another important finding from this study was that gay men and women both indicated lower self-esteem than heterosexual men (though, again, they did not differ from each other) but that for gay men specifically, self-esteem was negatively correlated with the perceived importance to others of appearance, weight, and muscularity.

Further, although gay men reported more satisfaction with their bodies than women, (and, in contrast to the research cited above, scored similarly to heterosexual men on this measure) they did report a similar amount of motivation to reach their ideal body size and shape as the female participants (Yelland & Tiggemann). This finding may indicate that for gay men, body dissatisfaction may not be related to drive for thinness or dieting behavior in the same way that they are thought to be related for other groups. For example, an earlier study by Beren, Hayden, Wilfley, & Grilo (1996) investigated differences in body dissatisfaction among gay and heterosexual men and women. While the authors found that the differences between men’s actual
and ideal bodies were similar for heterosexual and gay men, gay men were significantly more dissatisfied with their bodies than the heterosexual men, and in fact were similar to women on measures of body dissatisfaction. The authors note that this finding is interesting, given the pressure women face from idealized body standards put forth in Western media images.

Because gay male subculture places an unusually high value on physical appearance (Pope, Phillips, & Olivardia, 2000) the internalized message about physical appearance standards is likely more deleterious for SM men than for heterosexual men. As Yelland and Tiggemann (2003) point out, gay mens’ levels of self-esteem were negatively correlated with their appearance evaluation, including evaluation of weight and muscularity. Taken together, these findings seem to provide further support for the notion that the extreme emphasis on physical appearance together with relatively inflexible guidelines for what constitutes an attractive body in the gay male subculture may place SM men at increased risk for body dissatisfaction and disordered eating compared to heterosexual men, and comparable to women on these variables.

**Sociocultural Explanations**

Evidence abounds in the literature for a sociocultural explanation for eating disordered pathology in women. Sociocultural theory (Fallon, 1990) posits that societal beauty standards create pressure to achieve an unrealistic prescribed appearance and contribute to the development and maintenance of body dissatisfaction. For many decades women have been subjected to unrealistic body ideal expectations driven by media images, and, in recent years, men have been increasingly subject to similar pressure. Research suggests that most men and boys are dissatisfied with some aspect of their bodies (Cohane & Pope, 2001) and that body dissatisfaction in men is becoming more prevalent (Jones & Morgan, 2010). Not coincidentally, in recent years men's bodies have become objects of intense scrutiny in the media, and are
portrayed as more lean and more muscular than in the past (Leit, Pope, & Gray, 2001). Agliata & Tantleff-Dunn (2004) point out that "...as women are vulnerable to the culture of thinness that permeates Western society (Heinberg, 1996), males are subjected to a culture of muscularity" (pp. 2). It stands to reason, then, that as the media representations of the ideal male body evolve, and become ever more distant from the average man's actual body, the nature of men's internalizations of the ideal body will change as well. Evidence reveals that this transformation is already in progress (Blond, 2008). The current lean, muscular male body ideal is as unrealistic for most men as the thin-ideal female body portrayed in the media is unrealistic for women (Pope, Phillips, & Olivardia, 2000). As men in the general population are not becoming more lean and muscular, it makes sense that they, like women, are also finding it more difficult to bridge the cognitive gap between their ideal and actual bodies. In fact, researchers are seeing an increase in body dissatisfaction and disordered eating in men that tends to parallel the changes in media representations of male bodies (Blond; Jones & Morgan). At the same time there has been a parallel surge in body modification products for men, including gym memberships and cosmetic procedures, suggesting that men may be making increased efforts to bring their bodies into alignment with their idealized appearance standards.

This increase in body dissatisfaction should not be surprising when one considers this finding within the context of social comparison theory (Festinger, 1954), which posits that negative self-perceptions occur when people perceive themselves as “worse” than others on a particular dimension - in this case, the attractiveness of one’s body. This increase in body dissatisfaction and disordered eating is reminiscent of a similar trajectory in women over the last several decades.

Sexual minority men in particular may be at increased risk compared to men in general
because of sociocultural concerns specific to them. Gay men are known to have higher levels of overall body dissatisfaction than their heterosexual counterparts (Duggan & McCreary, 2004; Martins, Tiggemann, & Kirkbride, 2007). Complicating this fact, several studies have found that the gay male subculture greatly values physical attractiveness in much the same way that women value physical attractiveness (Strong, Williamson, Netemeyer, & Geer, 2000). In research on women, body dissatisfaction and dietary/compensatory behavior to prevent weight gain emerge as two of the strongest predictors of eating disorders in multiple studies (Frank & Thomas, 2003; Patrick, Stahl, & Sundaram, 2011). Both of these variables have shown increases as exposure to thin-ideal media images has increased, which seems to point to a sociocultural explanation, at least in part. To the extent that men are also now experiencing these concerns, sociocultural explanations also make sense as a starting point for further investigation into men with body dissatisfaction and disordered eating. When it comes to gay men, it has been suggested that because they seek to sexually attract other men, and men are known to value the appearance of sexual partners more than women, they are subject to similar levels of appearance demands as heterosexual women (Feldman & Meyer, 2007), which would be expected to result in heightened shape and weight concern in that group as well.

To date, there is limited research on how media influences may impact the body satisfaction of SM men, but what research does exist suggests that younger gay men in particular may be susceptible to media exposure targeted to that demographic, as it often focuses on an extremely muscular and lean body composition coupled with rigid fashion and personal grooming standards. According to this type of visual media, the ideal body is not only extremely lean and muscular, but completely hairless and usually light-complected. Achieving this body type is clearly impossible without some dedication, effort, and generally, money. Given the gap
between what the average gay man actually looks like and media representations of what he
should look like, substantial upward social comparison, resulting in body dissatisfaction, is
expected. When considering the increased importance of physical attractiveness and pressure to
look attractive within the gay community, it comes as little surprise that SM men are
experiencing body dissatisfaction and disordered eating at higher rates than their heterosexual
counterparts.

To further examine the idea that gay men are subjected to different or more deleterious
types of media messages than heterosexual men, Duggan & McCreary (2004) investigated the
relationship between consumption of muscle and fitness magazines and various types of
pornography and body dissatisfaction in 101 gay and heterosexual men. Although the
consumption of these types of media images correlated positively with body dissatisfaction in
both groups, pornography exposure was correlated with social physique anxiety only in gay men.
This study also revealed that the vast majority of gay men reported consuming pornography
within the previous month, and many of those who denied consumption of pornography reported
consumption of other men’s health or fashion magazines. Given this finding, all or nearly all gay
men have no shortage of objects of body comparison available to them. Given the discrepancy
between the size and shape of the average male body and the ideal body, the vast majority of
these comparisons likely leave men feeling that their own bodies do not measure up.

Adding to the apparently deleterious effects of the media images themselves is the fact
that SM men may not only be exposed to more media, but also perceive the importance of media
messages to be higher than their heterosexual counterparts. Research by Carper, Negy, &
Tantleff-Dunn (2010) examined relationships between media influence, body image, and eating
concerns in heterosexual and gay college men. In contrast to some previous research (Yelland &
Tiggemann, 2003), this study found no differences between heterosexual and gay men on perceived importance of physical appearance or on amount of exposure to media images. However, the gay participants did score significantly higher on perceived pressure from the media, indicating that they may place more importance on the media exposure they do experience and feel more pressured to strive toward the body ideals depicted in media images than heterosexual men. The authors note that this is somewhat counterintuitive considering that fewer media messages are directed toward gay men in particular, but speculate that gay men, like heterosexual women, may be more likely to internalize the physical appearance standard presented in media images, believing those to be realistic goals to which to aspire. Additionally, the images that are specifically targeted toward SM men are qualitatively different than media images of men in general, and may be more problematic for the body image of the intended audience.

**Participation in gay community and culture.**

Given evidence that media targeting SM men focuses more attention on the male physique than does mainstream male-targeted media, SM men who consume gay-targeted media should be expected to experience increased body dissatisfaction compared to both heterosexual men and SM men who do not consume gay-targeted media. A 2006 study by Levesque & Vichesky that assessed the nature and correlates of body dissatisfaction among gay men investigated the effects of involvement in and perceived acceptance within the gay community (which would likely include exposure to gay-targeted media images) as well as social comparison tendencies. The authors found that the gay male participants were more dissatisfied with their bodies than the norm for men overall and, in fact, did not differ from the norms for women. Most of the participants chose a muscular ideal body type but identified their own
bodies as slightly under or overweight. Participants also identified a muscular body type as most appealing to other gay men. In addition, the authors found that the tendency to compare one’s own body with the bodies of others was associated with greater involvement in the gay community and greater appearance orientation. Being more involved in and feeling less accepted by the gay community were associated with the desire for increased muscularity. The authors speculated that while greater involvement in the gay community would be expected to increase opportunities for social comparison, tending to increase body dissatisfaction, feeling accepted within the community may alleviate some pressure to achieve the idealized body type present in the media, providing a protective effect.

Interestingly, although in this study (Levesque & Vichesky, 2006), self-esteem was related to body image, such that lower self-esteem was related to lower body satisfaction, the authors found that integration (a measure of involvement and perceived acceptance) into the gay community moderated the relationship between body image satisfaction and self esteem, such that for those with low or moderate levels of integration, the relationship was present, but it was not present for those highly integrated into the community. The authors speculated that either this highly integrated group represented a group of men who never experienced the body image satisfaction - self esteem association in the first place, or possibly that as men integrate into the community they come to realize that the focus on appearance is not as integral to the community as it appears from the outside. Later findings by Feldman and Meyer (2007) lend further support to the notion that the level of integration into the community may be involved in these apparent relationships.

In a 2007 study by Feldman and Meyer, the association between the prevalence of eating disorders and participation in the gay community was measured in SM New York City men.
Participation in the gay community was assessed by accounting for whether or not participants had attended a recreational organization heavily attended by other SM men and via the percentage of other organizations (charitable, political, professional, etc.) that were also heavily attended by other SM men. Results indicated that participants who reported involvement in gay recreational organizations had higher rates of subclinical eating disorders. Further, a feeling of connectedness to the gay community was related to fewer current eating disorders, which complicates interpretation of previous and current findings that SM men are at higher risk for eating disorders than heterosexual men. It is possible that belongingness to a community has a protective effect against the development of eating disorders, such that those who feel a sense of belongingness may be at less risk while those on the fringes of the community are suffering the effects of the pressure to adhere to an appearance ideal without the apparent protection of the acceptance of the SM community.

Another path through which participation in gay culture may affect body dissatisfaction and ultimately, eating disordered behaviors, is through the conversations SM men have with one another about their bodies. Both positive and negative appearance conversations, defined as “any discourse that reinforces narrowly defined appearance ideals in society,” (Jankowski, Diedrichs, & Halliwell, 2013, p.1), have been found to occur more frequently among gay men than heterosexual men (Jankowski, et al., 2013). Further, these conversations may be a potent vehicle through which messages about one’s body may be transmitted and evaluated. Given that gay men are more likely to engage in these conversations, they may provide one source of understanding into how and why body dissatisfaction and eating pathology differ between gay and heterosexual men, especially as research has already shown that appearance conversations are also quite common among women and predict body dissatisfaction in women (Stice,
Maxfield, & Wells, 2003). It stands to reason that, while women and men likely discuss different aspects of their appearance and/or discuss appearance using different language, the mechanisms whereby body satisfaction or dissatisfaction follow from such conversations are similar.

Jankowski and colleagues (2013) used an adapted version of the Frequency of Fat Talk Scale (Salk & Engeln-Maddox, 2011) to investigate the frequency of both positive and negative appearance conversations among gay and heterosexual British men. Not only were gay men more likely to engage in both positive and negative appearance conversations than their heterosexual counterparts, but negative appearance conversations fully mediated the relationship between sexuality and body fat dissatisfaction. In contrast, both positive and negative appearance conversations mediated the relationship between sexuality and muscularity dissatisfaction, although neither fully mediated this relationship. Another interesting finding was that both positive and negative conversations fully mediated the effect of sexuality on internalization of the appearance ideal. In sum, this study’s findings indicated that gay men’s more frequent appearance conversations fully explained their increased likelihood of internalization of the appearance ideal, partially explained their increased muscularity dissatisfaction, and negative appearance conversations in particular fully explained their increased body fat dissatisfaction when compared with heterosexual men.

Objectification theory.

Much of the existing sociocultural framework explaining body dissatisfaction and eating disorder psychopathology arises out of objectification theory (Frederickson & Roberts, 1997). Developed as a theoretical account of the objectification of women’s bodies in multiple media outlets, it may now be expanded to provide an account of the objectification of SM men’s bodies as well (Martins, Tiggemann, & Kirkbride, 2007; Wiseman & Moradi, 2010). Objectification
theory posits that, in sexually objectifying cultures, women’s bodies are always in a position to be looked at and evaluated by others, leading women to adopt an observer’s perspective and judgments on their own bodies. Bodies that more accurately reflect the culture’s current ideal body standards are afforded more value than bodies that deviate from this cultural standard. This theory also asserts that within these cultures this process results in the objectification of women’s bodies, or women being perceived solely as bodies or body parts rather than as whole and complex people. Over time women then come to internalize this message as well, a process known as “self-objectification.” This process is postulated to result in body dissatisfaction and disordered eating as women feel pressured to attain the ubiquitous thin-ideal body promoted by modern media and Western cultural standards for thinness. In fact, research has been relatively consistent in finding that repeated exposure to the thin body ideal leads to body dissatisfaction, negative affect, and eating concerns in women. In men, the current cultural prescription for the ideal body is primarily lean and muscular, and research on body image, and eating concerns in men is also starting to consistently indicate that men experience more body dissatisfaction and disordered eating behavior in Western cultures that are subject to this standard, especially for those men who consume the most media images (Duggan & McCreary, 2004).

As SM men have begun to appear more and more regularly within the mainstream media in sexually objectifying cultures, it stands to reason that a similar process may be operating for them as well. This process may affect SM men differently than heterosexual men. The gay male subculture is known to place significant importance on physical attractiveness and media targeted towards SM men includes more sexually objectifying images of the lean, extremely muscular ideal body than other media sources (Kane, 2010). To the extent that SM men are also
falling prey to self-objectification, they can, like women and heterosexual men, be expected to experience body dissatisfaction and disordered eating (Wiseman & Moradi, 2010).

In a 2007 investigation of the role of objectification theory in SM men’s body image dissatisfaction and disordered eating, Martins, Tiggemann, and Kirkbride examined trait differences in self-objectification and body image among gay and heterosexual men, and then manipulated state self-objectification in these participants. Initial analyses revealed that gay men had significantly higher self-objectification and body surveillance scores than heterosexual men, providing support for the notion that gay men are subject to a different type or degree of physical appearance standards than are heterosexual men. Body shame, drive for thinness, and body dissatisfaction, all purported consequences of self-objectification, were also higher in gay than heterosexual participants. There was no difference in drive for muscularity between the two groups, suggesting that that variable is a shared concern between gay and heterosexual men, which may reflect the high level of muscularity in the male ideal body targeted in the media toward all men. This study also found that for gay men, but not heterosexual men, self-objectification was related to body shame. Further, body shame mediated the relationship between self-objectification and body dissatisfaction and drive for thinness for gay men.

In part two of this investigation, state self-objectification was manipulated in the same participants. According to objectification theory, increased state self-objectification should increase an individual’s experience of the consequences of self-objectification, in this case body shame, drive for thinness, and body dissatisfaction. The authors manipulated state self-objectification using a clothing try-on task. In the nonobjectifying condition, men tried on a sweater, while in the objectifying condition they tried on a swimsuit. It was hypothesized that gay men, but not heterosexual men, in the swimsuit condition would experience more body
shame and body dissatisfaction and would display more dietary restriction than those in the sweater condition following the task. Both groups of men reported higher levels of state self-objectification and body surveillance in the swimsuit condition than in the sweater condition. As expected, increasing self-objectification led to increases in body shame, lower body dissatisfaction, and restrained eating for gay men only - findings similar to those found previously for women wearing swimsuits (Fredrickson et al., 1998). Although objectification theory was originally intended to better understand the experiences of women, it has now been applied in studies like these to the experience of gay men, another frequently sexually objectified group. In particular, it is important that this study showed a link between state self-objectification (which gay men are likely to experience during their daily activities) and body shame, a link that is also present for women but not heterosexual men. As body shame is a risk factor for disordered eating, this finding may begin to untangle one of the reasons SM men are at higher risk of disordered eating than heterosexual men.

**Function of Body Dissatisfaction and Eating Pathology in Sexual Minority Men**

In addition to various mediating factors that may play a role in the differential rates in ED diagnoses and body dissatisfaction between heterosexual and SM men, there are likely also functional differences. That is, gay men’s body dissatisfaction and eating disordered behavior may have intended or actual consequences that are different from those that women and heterosexual men experience. Most notably these may include ultimate social consequences such as feeling positive about one’s own body in comparison with peers, and attraction of potential sexual partners. Women and heterosexual men also often have these overall goals. However, SM are in a unique position with regard to their pursuit of these long-term consequences, given that
they not only pursue attracting potential partners but also may compete with these partners in physical attractiveness, which should theoretically create disparate short-term goals.

It may be that the function of SM men’s body dissatisfaction and eating concerns may be more similar to that of women than heterosexual men. To illustrate, Duggan & McCrery (2004) found that pornography exposure, although extremely prevalent in both heterosexual and gay men, was associated with social physique anxiety only in gay men. This may speak to the fact that, when viewing media images of other men, including pornography, gay men may compare their own bodies to the bodies of the objects of their sexual attraction. Like heterosexual individuals, they compete with others of their same sex for mates, but unlike their heterosexual counterparts, gay men also may compete against their mates or potential mates on physical attractiveness, which could result in different types or intensity of body dissatisfaction.

Men are known to value physical attractiveness in their sexual partners more than do women. Given this finding, gay men may be expected to be more concerned about their own appearances than heterosexual men, who need only attract women. Previous research has indicated that gay men are more likely to report not only that their physical attractiveness is important to others, but are more likely than heterosexual men to report exercising not to improve fitness, but specifically to increase attractiveness. In this research gay men also scored higher than either women or heterosexual men on the importance of building up muscle, which was a chief motivation for exercise (Yelland & Tiggemann, 2003). This finding was especially interesting in that the same study found that body satisfaction was similar for gay and heterosexual men. Given these seemingly disparate findings, it makes conceptual sense to investigate whether the function of muscle-building or other exercise behavior is different in gay
men - and not intended to improve body satisfaction per se, but to attract mates or to compete with other men for mates.

**Current Research**

This research attempted to integrate findings in the existing literature by examining mediating and moderating factors that influence the relationship between sexual orientation and eating pathology in SM men, including body dissatisfaction, appearance conversations, social comparison, and integration into the LGB community. Previous research has examined the links between many of these variables, but few have included measures of eating pathology specifically, and very little has focused on the possible role of integration into the LGB community. The current investigation also aimed to make possible a more developed understanding of the function of body dissatisfaction and disordered eating in SM men specifically, in particular whether motivations for exercise differ in heterosexual and SM men.

**Hypotheses**

(1) It is hypothesized that SM men will report higher levels of overall body dissatisfaction than heterosexual men and will exhibit higher levels of eating disordered behavior than their heterosexual counterparts.

(2) Those SM men more heavily involved in the LGB community but low on perceived acceptance are expected to have increased body shame and body dissatisfaction via upward social comparison both with peers and ideal male images in the media, and via perceived pressure from the LGB community to be physically attractive.

(2a) Those SM men with high scores on both involvement and perceived acceptance into the LGB community are hypothesized to have less body shame & body dissatisfaction than those high on involvement and low on perceived acceptance.
(3) Appearance conversations are expected to moderate the relationship between integration into gay culture and body dissatisfaction and disordered eating, such that those having more positive appearance conversations will be found to experience less body dissatisfaction and disordered eating, and those having more negative appearance conversations will be found to experience more body dissatisfaction and disordered eating.

(4) SM men are expected to endorse exercising for the express purpose of attracting sexual partners at higher levels than heterosexual men.

**Method**

**Participants**

Participants were sexual minority men and heterosexual men at or over the age of 18 recruited via various strategies to maximize response rate and the generalizability of the findings. First, snowball sampling took place on several social networking websites, including reddit.com, facebook.com, Yahoo! Groups, craigslist.com, and twitter.com. Recruitment also took place in online discussion forums for SM men. Community outreach and word of mouth were also important avenues of recruitment for the gay community in particular.

**Procedure**

Participants participated online by completing a questionnaire including demographic characteristics and all of the measures listed below. Participants received no compensation for their participation.

**Measures**

Demographic data collected included age, height, weight, race, and indicators of socioeconomic status.

**Sexual orientation.**
**The Kinsey Scale.**

The Kinsey Scale (Kinsey, Pomeroy, & Martin, 1948) is a seven point Likert-type scale on which participants indicate their sexual orientation, ranging from 0 (“exclusively heterosexual with no homosexual”) to 6 (“exclusively homosexual with no heterosexual”). Consistent with previous research, (Beren, 1996; Carper, 2010) individuals who score “mostly” to “exclusively” homosexual are categorized as homosexual, while those who score “mostly” to “exclusively” heterosexual are categorized as heterosexual.

**Integration into LGB community.**

Integration into the LGB community was assessed using a measure adapted from Levesque & Vichesky (2006) which includes 10 items, five measuring perceived acceptance within the community and five measuring involvement in the community. The perceived acceptance scale includes questions such as “I feel very included by the gay community” and is rated on a 7-point likert-type scale from 1 (strongly disagree) to 7 (strongly agree). Levesque & Vichesky’s research revealed adequate reliability (α=.85) for this scale. The involvement scale includes items assessing how frequently participants have attended organizations specifically targeting the LGB community such as clubs, stores, etc. on a 5-point scale from 1 (never) to 5 (regularly). The authors also found acceptable reliability (α=.61) on this scale. Higher scores indicate higher perceived acceptance by and involvement in the LGB community, respectively. In the current sample, reliability was excellent for perceived acceptance (Cronbach’s α = .92), and lower, though still acceptable, for perceived involvement (Cronbach’s α = .75). For the integration scale including all 10 items, reliability was α = .87 and all items contributed unique variance to the overall scale. Exploratory factor analysis on the total scale revealed one item of perceived involvement did not load with the other items. This item assessed how frequently a
participant had attended an LGB organizational meeting. The item was deleted from the scale for final analyses, leaving 9 total items, four assessing perceived involvement and five assessing perceived acceptance from the LGB community. Of the remaining items, all five of the perceived acceptance items loaded onto a single latent factor. The remaining 4 items of the perceived involvement scale loaded separately, appearing to reveal two separate factors, one assessing frequency of attending bars or clubs targeted toward an LGB clientele, and visiting stores intended for this demographic, and another assessing frequency of reading print publications or visiting websites intended for LGB audiences.

Eating pathology/body image measures

**Body image satisfaction.**

*The Body Image States Scale.*

The Body Image States Scale (BISS; Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002) is a six-item self-report scale that uses a nine-point Likert-type scale to assess an individual’s body satisfaction in the immediate present. Half of the items range from 1 (extremely dissatisfied) to 9 (extremely satisfied) and the other half of the items, which are reverse scored, range from 1 (extremely satisfied) to 9 (extremely dissatisfied). Higher total scores represent more positive body image states. The reliability of the scale in this sample was good in both groups (Cronbach’s α = .82 in heterosexual men, and .83 in SM men). As expected, exploratory factor analyses revealed that all items loaded onto a single latent factor.

**Drive for Muscularity Scale.**

The Drive for Muscularity Scale (*DMS; McCreary & Sasse, 2000*) is a 15-item questionnaire that contains a seven-item muscularity-oriented body image attitudes subscale and an eight-item muscularity-oriented behaviors subscale. Each item is scored on a six-point Likert
scale from 1 (always) to 6 (never). Sample items include “I feel guilty if I miss a weight training session” and “I lift weights to build up muscle.” Total and subscale scores are calculated by averaging the respective items, with higher scores indicating greater drive for muscularity. Previous research has shown the DMS to have good construct, convergent, and discriminant validity, as well as high internal consistency in samples of primarily heterosexual Caucasian men (McCreary et al., 2004; McCreary and Sasse, 2000).

**Bodybuilder Image Grid.**

The Bodybuilder Image Grid-Original (BIG-O; Hildebrandt et al., 2004) is a silhouette scale designed to measure perceptual inconsistencies in male body image. Thirty drawn male figures are presented in front and profile view on a grid that systematically varies body fat (left to right) and muscularity (top to bottom). Body fat is rated from 1 to 6 and muscle mass from 1 to 5. Difference scores in men’s reported desired levels of body fat and muscle represent the direction and magnitude of desired change. Participants in this study used this measure to rate: (1) the figure that best represents their current body type and (2) the figure that best represents their ideal body type, and (3) the figures that represent their perception of what others find most attractive. The BIG-O has been shown to exhibit good test-retest reliability, convergent validity, and discriminant validity (Hildebrandt et al., 2004).

**Perceived importance of physical appearance.**

**Physical Attractiveness Questionnaire.**

The Physical Attractiveness Questionnaire (PAQ) is a very brief measure assessing the perceived importance of physical attractiveness to participants themselves and others in different situations. This measure consisted of three items taken from the Body Image Survey (Berscheid,
Walster, & Bohrnstedt, 1973) and developed for use in the current form by Carper, Negy, & Tantleff-Dunn (2010). The items are measured on a 6-point likert-type scale from 1 (not very important) to 6 (very important), so higher numbers indicate greater perceived importance of attractiveness. Scores on individual items are summed to create a composite score. Carper, et al. found adequate reliability on this measure for heterosexual (α = .73) and gay (α = .88) men. Exploratory factor analysis revealed all items in this measure loaded onto a single latent factor.

**Body shame.**

*Objectified Body Consciousness Scale; Body Shame scale.*

The Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996) Body Shame scale is an 8-item scale that assesses body shame, or the shame a person feels when their body does not measure up to internalized cultural standards, often generalized to the whole self. Participants respond on a 7-point likert-type scale from “strongly disagree” to “strongly agree” and higher scores indicate higher levels of body shame. Items include, “When I’m not the size I think I should be, I feel ashamed.” Although originally developed for and validated on women, this scale has shown good reliability on a sample of gay men (α = .81) (Martins, Tiggemann, & Kirkbride, 2007). Exploratory factor analyses on this measure revealed that all items loaded onto a single latent factor.
Exercise motivation.

Exercise Motivations Inventory-2.

The Exercise Motivations Inventory-2 (EMI-2; Markland & Ingledew, 1997) is a 51-item scale developed to assess people’s motives for exercising, whether or not they actually exercise. Participants rank each item on a 6-point likert-type scale from 0 (not at all true for me) to 5 (very true for me). There are 14 subscales grouped into appearance/weight, social engagement, health/fitness, and enjoyment related motives. Scores for each are found by calculating means of the relevant items.

Disordered eating.

Eating Disorder Examination-Questionnaire.

The Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) is a 28-item self-report questionnaire that assesses eating disorder behaviors (e.g., frequency of binge eating, purging, fasting, and compulsive exercise) and attitudes (e.g., fear of gaining weight, desire to be thin). The measure contains four subscales: Restraint, Eating Concern, Shape Concern, and Weight Concern. All of the subscales have displayed good reliability in men, with Cronbach’s α ranging from .73 to .88 (Mussap, 2008) and global score reliability in a sample of gay men was excellent (α = .95; Blashill & Vander Wal, 2009).

Appearance conversations.

There is no currently established, validated measure of mens’ appearance conversations (‘fat talk’). However, Jankowski, Dietrichs, & Halliwell (2013) adapted a validated measure of womens’ appearance conversations, the Frequency of Fat Talk Scale (Salk & Engeln-Maddox, 2011) for men which was used in the current study with the single modification of changing the word “mate” to “man” to reflect the language of the expected participant base in the United
States. Participants will be provided with the following definition of positive appearance conversations:

“When you or others discuss parts of your body that you’re happy with, or point out a part of somebody’s body that you admire. For example, ‘I’m lucky I’ve got good genes. It’s great being 6ft!’ and ‘Man, your arms are huge! The gym is really paying off for you.’”

For negative appearance conversations, participants will be given the following definition:

“When you or others discuss parts of your body that you’re not happy with, or point out a part of somebody’s body that might be ‘flawed.’ For example, ‘Man, I need to go to the gym more, my biceps are pathetic!’ and ‘All right man, how’s that beer belly coming along?’”

Following each definition, participants were asked to rate how often they engage in such conversations on 5-point Likert-type scale from 1 (“it’s extremely rare”) to 5 (it’s extremely common”). Higher scores, therefore, indicate more frequent engagement in appearance conversations, whether positive or negative.

**Social comparison.**

**Sociocultural Attitudes Toward Appearance Scale-3.**

The Sociocultural Attitudes Toward Appearance Scale-3 (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) is a 30-item measure that assesses how much individuals perceive that the media influences their attitudes about body image and their likelihood of developing disordered eating. Participants respond on a 5-point likert-type scale from 1 *(definitely disagree)* to 5 *(definitely agree)* and higher scores indicate greater perceived influence. In addition to the composite score the SATAQ-3 yields four subscales: 1) information (perception of the importance of the media as an importance source of information about attractiveness, 2) pressure (tendency to compare oneself with media images and perception of pressure from the media to emulate those images), 3) internalization-general (awareness of ideal
body types presented by the media and internalization of these as personal standards to which to aspire), and 4) internalization-athlete (awareness of the importance of musculature and muscle tone in an attractive body.) The SATAQ-3 yielded excellent reliability in a study of gay ($\alpha = .95$) and heterosexual ($\alpha = .93$) men (Carper, Negy, & Tantleff-Dunn, 2010).

**Statistical Analyses**

The author conducted descriptive statistics to describe the study sample and t-tests to compare the two groups on demographic variables. One-way MANCOVA analyses were run to test between-groups comparisons on the dependent variables. Multiple regression techniques were used in mediation and moderation analyses and subsequent post-hoc tests.

Finally, in order to ensure construct validity of measures that were used for the first time, were adapted from previous measures for use in this research, or include fewer than 10 items, exploratory factor analyses were conducted. Specifically, analyses included principal axis factoring using Promax rotation, as the items in each measure were expected to correlate with one another, and so orthogonal solutions were not forced. These additional analyses were run on the OBCS, PAQ, BISS, and the measures of integration into the LGB community.

Additional exploratory factor analysis was also run to determine divergent validity of the BISS and OBCS. Sampling adequacy was good as measured by KMO’s test of sampling adequacy, and Bartlett’s test of sphericity was significant ($p < .001$). Findings revealed three distinct factors with relatively high correlations between most items. All of the items on the OBCS with one exception loaded together onto a “body shame” factor. The exception was the item, “I would be ashamed for people to know what I really weigh.” This item had a factor loading of only .389 on this factor and was the only body shame item which measured how ashamed someone would feel to reveal information about themselves to another. The other items
were related to shame felt in response to knowledge about one’s self. Items on the BISS were evenly split between an “appearance satisfaction” factor and a “comparison to others” factor with the exception of the item, “I feel better/worse about my looks than I usually feel.” This was the only item on either scale which instructed participants to rate their feelings compared to their feelings in other time points, this may explain why it failed to load on any of the three factors that emerged in the solution. See Table 1 for factor loadings and communalities for these items.

Results

Participants

A total of 357 men completed the survey. A Maholonobis distance test on the dependent variables body shame, body dissatisfaction, and global eating concern revealed three multivariate outliers. The data from these participants were removed for the analyses. To facilitate between-groups analyses, men who scored 1-2 on the Kinsey scale (exclusively or predominately heterosexual) were coded as heterosexual, and men scoring 3-7 (more than incidentally homosexual – exclusively homosexual) were coded as SM. Following this categorization, 242 men (68.4%) were categorized as heterosexual, and 112 (31.6%) as SM (see Table 2 for raw sexual orientation scores).

Heterosexual and SM men were similar on all demographic variables (see Table 3) except that heterosexual men were more likely to report being in a long-term relationship, while SM men were somewhat more likely to report being single or not in a sexual relationship. These differences were not significant. Participants had a mean age of 29.01 years and a median BMI of 24.68. Body mass index was slightly positively skewed and leptokurdic, with a range of 14.75 to 47.46. Eighty-six percent of participants reported that they were White, and almost all
reported at least some college, with 34.7% having a Bachelor’s degree and 23.6% having a graduate degree.
Hypothesis 1

A one-way MANCOVA was used to test hypothesis 1, which posited that disordered eating, body dissatisfaction, and body shame would be higher in SM men than in heterosexual men. Assumptions of homogeneity were met for this test. While controlling for body mass index (BMI), findings for this test were not significant (Wilks’ $\Lambda = .96, F(3, 222) = 3.34, p = .02$). These results were inconsistent with previous findings (Beren, et al., 1996; Kimmel & Mahalik, 2005, Morrison, et al., 2004; Russell & Keel, 2002; Tiggemann, et al., 2007).

Hypothesis 2

Hypotheses 2 predicted that social comparison would mediate the relationship between integration into LGB culture and body shame and body dissatisfaction. This hypothesis was not supported. Hypothesis 2a predicted an interaction between perceived acceptance and perceived involvement in the LGB community that would affect body dissatisfaction and body shame. This hypothesis was also not supported. Post-hoc analyses examined the measure of integration into the gay community as separate scales of perceived involvement and perceived acceptance. Correlations between perceived involvement in the gay community and the dependent variables, body shame and body dissatisfaction, were not significant, though there was a significant correlation between perceived involvement and social comparison. In particular, perceived involvement was correlated with all subscales of the SATAQ-3 except the internalization-athlete subscale. It was most highly correlated with the pressure subscale, which measures a person’s tendency to compare oneself with media images and perceived pressure to emulate those images. Perceived acceptance had a small (but significant) negative correlation with body dissatisfaction, but was unrelated to social comparison and body shame in both groups. Subsequent analyses revealed that perceived acceptance was also unrelated to drive for muscularity and disordered
eating. Analyses using both the perceived involvement and perceived acceptance scales as the global “integration into gay community” measure seemed to obscure the small effects of perceived acceptance alone. See Table 4 for a complete correlation table of these variables.

**Hypothesis 3**

Hypothesis 3, which predicted that appearance conversations would moderate the relationship between integration into LGB culture and body dissatisfaction and body shame, was not supported. Perceived involvement in the gay community was not correlated with body dissatisfaction or body shame, though both dependent variables displayed moderate positive correlations with negative appearance conversations. Post-hoc analyses revealed that SM men were significantly more likely than heterosexual men to engage in negative (but not positive) appearance conversations. Further post-hoc analyses revealed that positive appearance conversations were negatively correlated with body dissatisfaction for SM, but not heterosexual, men. Table 5 illustrates correlations for these variables.

**Hypothesis 4**

An independent samples t-test was conducted to examine whether SM men reported higher levels of exercising for the purpose of enhancing their appearance than heterosexual men. This hypothesis was not supported, as SM men reported similar levels as heterosexual men (SM men: $M = 4.32$, $SD = 1.22$; heterosexual men: $M = 4.09$, $SD = 1.11$; $t(242) = -1.44$, $p > .01$) on this variable. A one-way MANCOVA was also run in order to test group differences on other subscales of the EMI-2 while controlling for BMI. This test was significant (Wilks’ $\Lambda = .87$, $F(10, 233) = 3.40$). Follow-up comparisons revealed that heterosexual men were more likely to exercise for the purposes of enjoyment ($F(1, 242) = 11.93$, $p = .001$), revitalization ($F(1, 242) = 10.37$, $p = .001$), and competition ($F(1, 242) = 14.27$, $p < .001$). In the case of competition, it is
worth noting that distributions in both groups were relatively flat, with a modal score of 1. Though the range in both groups was similar, with scores from 1 to 6, the median score in heterosexual men was 2.25 (SD = 1.53), compared to 1.25 (SD = 1.35) in SM men. These scores may reflect the fact that these data did not differentiate between men who exercised at varying levels of frequency or intensity, including those who did not exercise at all.

**Exploratory factor analyses**

For all tests, Bartlett’s Test of Sphericity was significant ($p < .001$). These analyses revealed that for the OBCS, PAQ, and BISS, items in each measure loaded onto a single latent factor, as intended on these measures. The results for the measure of integration into the LGB community were more complex. On the perceived acceptance subscale, the 5 items loaded onto a single latent factor. The perceived involvement subscale, however, revealed unexpected results. One item assessing the frequency of attendance at LGB organizational meetings did not seem to be related to the other items in the scale, and was deleted for analyses. Of the remaining 4 items, there emerged a “public” factor assessing visits to bars, clubs, and gyms serving the LGB community, and an apparent “private” factor assessing consumption of print publications and websites targeted toward LGB audiences. See Table 6 for factor loadings on this measure.

**Discussion**

There can be no question that the study of body image generally and of body dissatisfaction in particular in SM men has begun to receive increased attention in the scientific literature within the past several years. However, this research can still be considered to be in its infancy and the study of eating behaviors in particular in SM men has to date received very little attention, other than the finding that SM men do experience more disordered eating and body dissatisfaction than heterosexual men. This study sought to begin to unpack some of the
variables and relationships between variables that may contribute to this finding, and to offer some insights into possible functions of disordered eating and exercising in SM men. Specifically, the current study sought to examine some mediating and moderating factors including social comparison, frequency of negative and positive appearance conversations, and integration into LGB culture that may influence the relationship between sexual orientation and body dissatisfaction and disordered eating.

Inconsistent with results from several previous studies, (Beren, et al., 1996; Feldman & Meyer, 2007; Harvey & Robinson, 2003; Jones & Morgan, 2010; Kimmel & Mahalik, 2005; Morrison, et al., 2004; Russell & Keel, 2002; Strong, et al., 2000; Tiggemann, et al., 2007; Williamson & Hartley, 1998; Yelland & Tiggemann, 2003) and with initial hypotheses, levels of body dissatisfaction and disordered eating were similar in SM and heterosexual men after controlling for BMI.

Contrary to initial hypotheses, there were no interaction effects of social comparison or appearance conversations between integration into LGB culture and body shame and body dissatisfaction. In fact, in this sample many of these variables were not even correlated. (See Table 4 for complete correlation matrix.) One variable in particular that did not show expected correlations was perceived involvement in the gay community. Though perceived involvement was related to both social comparison overall and, more strongly, the social pressures subscale of the SATAQ-3, it did not show expected correlations with either body shame or body dissatisfaction. Because so few participants endorsed any level of perceived involvement, any effect it may have on body image outcomes remains unknown, if it has any effect at all. Further, measurement problems with the subscale may have contributed to the lack of significant findings.
Possibly because of the very low levels of perceived involvement in the gay community within this sample, there was also no interaction between appearance conversations, integration into the gay community, and body image outcomes. This finding was also contrary to initial hypotheses. Though negative appearance conversations were positively associated with social comparison pressure and body image outcomes, and SM men were more likely to engage in negative (but not positive) appearance conversations, it remains unknown what role, if any, integration into the gay community may play in this relationship, though it was found that higher involvement in the LGB community was associated with more negative (but not positive) appearance conversations. Further, those men who engaged in more upward social comparison with media images did report more frequent negative appearance conversations, and these behaviors are associated with more negative body image outcomes. It therefore follows that those who are more integrated into the gay community may have more negative outcomes than those less integrated, to the extent that the involvement in the LGB community provides more comparison targets, as well as more people with whom to engage in appearance conversations. Further, since SM men were more likely than heterosexual men to endorse this social comparison pressure – the perceived pressure to emulate upward body comparison targets – it makes sense that this relationship may exist in men who spend a lot of time in settings with other men, as those men serve as potential comparison targets. This is especially true for SM men because of the heightened focus on appearance within specifically “gay” settings such as gay clubs and bars (Strong, et al., 2000). When it comes to SM men, they may also be more susceptible to this pressure within settings with more SM men because those comparison targets are also potential sexual partners. While there were no significant between-groups differences in this sample in the importance of physical attractiveness, both groups had high scores on this
measure, endorsing both that their own physical attractiveness is important or very important to potential partners, and that potential partners’ physical attractiveness is important or very important in their own evaluations.

In contrast to the perceived involvement scale of the measure of integration into the LGB community, the perceived acceptance scale was normally distributed and had adequate variance in this sample. However, though it showed a positive correlation with positive appearance conversations and a small negative correlation with body dissatisfaction, it was unrelated to body shame, negative appearance conversations, and social comparison.

Initial hypotheses predicted that SM men would endorse exercising for the purpose of enhancing their appearance more than heterosexual men. Though SM men did report somewhat higher levels of exercising for the enhancement of appearance, this difference was not significant. It is important to note that both groups of men reported high levels on this variable, and a ceiling effect may be obscuring any real difference between groups. In the author’s view this is a likely scenario especially because both groups endorsed feeling that their appearance was important or very important in social situations and that potential partners’ appearance was important or very important. Further, SM men are likely to be encountering potential partners more frequently than heterosexual men while exercising, because gyms are more populated by men than by women, especially in areas with weight machines or free weights (Salvatore & Marecek, 2010).

Post-hoc analyses revealed that there was very little between-groups difference in the mens’ motivations for exercise overall. In fact, the only subscales that showed a significant between-groups difference was exercising for the purposes of enjoyment, revitalization, and competition, in which heterosexual men had higher scores than SM men. In the case of
exercising for competition, it is worth noting that distributions in both groups were fairly flat and
the modal score for both was 1. The fact that heterosexual men were more likely to endorse
exercise for the purpose of enjoyment or revitalization may have clinical implications, as those
people who report exercising obsessively often report exercising for the purpose of avoiding a
negative outcome, such as weight gain, rather than exercising for the sake of enjoyment. Perhaps
emphasizing the positive aspects of exercise itself, rather than focusing on avoidance of aversive
outcomes, could be useful in promoting healthful, and not compulsive, exercise habits. It is
worth noting that in this research participants did not report how much exercise they engaged in,
or even whether they currently exercised at all. It is likely that men who exercise more often may
have different motivations than those who exercise rarely, and better understanding these
differences could inform the specificity of treatment approaches.

Finally, exploratory factor analyses were conducted in order to examine the psychometric
properties of some of the measures used in this research. With the exception of the perceived
involvement subscale of the integration into LGB culture instrument, all measures’ factor
loadings were predictable and showed that items loaded onto intended latent factors even on this
mixed sample of heterosexual and SM men, or exclusively SM men in the cases of the SM-
specific measures.

Further investigation into the perceived involvement scale revealed that there was an item
that did not seem to “belong” – that item assessed frequency of attending LGB organization
meetings and few respondents endorsed this behavior with any frequency. Of the remaining 4
items, two seemed to be related to a “public” factor which assessed the frequency of attending
events or establishments targeting LGB people, and two seemed to assess a more “private” latent
factor which related to reading print publications or websites specifically targeting the LGB population or SM men.

**Limitations and Future Research**

Any conclusions drawn from the current study must consider certain limitations to the methodology and sample. First, the participants were a convenience sample whose responses were collected entirely via a few internet sites. Though the measures, by and large, did display adequate psychometric properties, there are always limitations to self-report data, including the possibility that some participants may not have been responding with great attention to the subject at hand, may have misunderstood some items, may have intentionally given untrue responses, or may have responded randomly to some measures.

Second, all of the data collected in this research was collected via self-report at one time, and is therefore limited by the typical constraints of both self-report data and correlational data. Measures of specific behaviors, including eating behavior and involvement within the gay community, may be more accurate when measured in a more behavioral fashion, such as ecological momentary assessment techniques. Further, as with all correlational data, there can be no conclusions drawn about causality from this study.

Third, a majority of participants were white, young, and highly educated. This was unlikely to have affected any between-groups analyses since both groups were similar on these variables, but any conclusions drawn from this research cannot be generalized to other racial groups, age groups, or less educated men. This limitation applies especially to generalization to other racial groups, since the sample in this research was 87.6% white and data on other racial groups were too scant to allow any cross-racial comparisons.
As noted previously, the measure of integration into the gay community used in this research, which assessed both perceived involvement and perceived acceptance in the gay community, is a little-used one, and, to the author’s knowledge, has only been used once before in the study for which it was developed (Levesque & Vichesky, 2006). Further, the perceived involvement subscale of this measure displayed some measurement inconsistencies. It is likely that further refinements to the measure may result in a more sensitive assessment of involvement in the gay community. Further research using this measure or similar measures of integration into the LGB community will help to elucidate how and in what circumstances it may be a more informative variable.

Conclusions

Though this sample did not show differences in levels of body shame, body dissatisfaction, or disordered eating after controlling for BMI, most previous research has found that SM men report higher levels of all of these outcomes than heterosexual men. Given that both SM and heterosexual men appear to be reporting more body dissatisfaction and body shame than in the past, and the fact that these variables are predictors of disordered eating, there is certainly a need for clinical research in the treatment of body dissatisfaction. Because SM men seem to vary from both heterosexual men and women on some of the functions of their specific body dissatisfaction, such as exercise motivations, it is also clear that SM men may require treatments focusing on different aspects of these outcomes than other populations. The current study examined some of the possible factors involved specifically for SM men.

Though several initial hypotheses were not supported in this research, given the nascent state of this literature overall the current study may help illuminate some questions with regard to SM men and some of the possible reasons that they may be more likely to experience body
dissatisfaction and disordered eating behaviors than their heterosexual counterparts. This research may also begin to unravel how the epidemiology of body dissatisfaction and disordered eating in SM men differs from that of heterosexual men. There may be clinical implications in the relationships between appearance conversations, sexual orientation, and social comparison, for example. It is worth exploring further the idea of promoting positive appearance conversations, given that in this sample these conversations were predictive of more positive body image in SM men. Additionally, as social comparison was a stronger predictor of body shame for SM than for heterosexual men, it makes sense to investigate how social comparison is different in the LGB community than in the general population. Though it may seem at first glance that there may simply be more opportunities for social comparison, and those who are more involved in the community may have more social comparison targets and more opportunities to engage in appearance conversations, the fact that negative but not positive appearance conversations were related to involvement in the LGB community seems to belie this notion.

Additionally, though many of the IVs and DVs were not related, perceived acceptance within the LGB community was predictive of more positive body image. This finding, together with the finding that more involvement (but not acceptance) in the LGB community was related to more negative appearance conversations and more body shame, may mean that it is valuable to investigate ways to help those who are very involved in the LGB community also feel more accepted.

Finally, given that positive appearance conversations were predictive of more positive body image for SM, but not heterosexual men, this could have treatment implications for both groups. Because men in both groups reported similar amounts of both kinds of conversations, it
seems that positive appearance conversations may be happening differently, or have a different function, in SM men than in their heterosexual counterparts. Future research on aspects of all of these variables and their interrelationships may help to elucidate the etiology, functions, and possible avenues for treatment approaches that can be fine-tuned toward heterosexual or SM men.
References


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Table 1. Exploratory factor analysis for BISS and OBCS based on principal axis factoring with Promax rotation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Body shame</th>
<th>Appearance satisfaction</th>
<th>Comparison to others</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I can’t control my weight, I feel like something must be wrong with me. (OCBS)</td>
<td>.68</td>
<td></td>
<td></td>
<td>.50</td>
</tr>
<tr>
<td>I am ashamed of myself when I haven’t made the effort to look my best. (OCBS)</td>
<td>.77</td>
<td></td>
<td></td>
<td>.62</td>
</tr>
<tr>
<td>I must be a bad person when I don’t look as good as I could. (OCBS)</td>
<td>.83</td>
<td></td>
<td></td>
<td>.72</td>
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<tr>
<td>I would be ashamed for people to know what I really weigh. (OCBS)</td>
<td>.39</td>
<td>-.36</td>
<td></td>
<td>.53</td>
</tr>
<tr>
<td>I never worry that something is wrong with me when I am not exercising as much as I should. (OCBS)</td>
<td>.50</td>
<td></td>
<td></td>
<td>.19</td>
</tr>
<tr>
<td>When I am not exercising enough, I question whether I am a good enough person. (OCBS)</td>
<td>.68</td>
<td></td>
<td></td>
<td>.50</td>
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<tr>
<td>Even when I can’t control my weight, I think I’m an okay person. (OCBS)</td>
<td>.53</td>
<td></td>
<td></td>
<td>.33</td>
</tr>
<tr>
<td>When I’m not the size I think I should be, I feel ashamed. (OCBS)</td>
<td>.73</td>
<td></td>
<td></td>
<td>.62</td>
</tr>
<tr>
<td>Satisfaction with physical appearance (BISS)</td>
<td>.68</td>
<td></td>
<td></td>
<td>.67</td>
</tr>
<tr>
<td>Satisfaction with body size and shape (BISS)</td>
<td>.59</td>
<td></td>
<td></td>
<td>.47</td>
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<tr>
<td></td>
<td>Satisfaction with weight (BISS)</td>
<td>0.96</td>
<td>0.78</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Feeling physically attractive/unattractive (BISS)</td>
<td>0.73</td>
<td>0.59</td>
<td></td>
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<td></td>
<td>Feel better/worse about my looks than I usually feel (BISS)</td>
<td>0.17</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Feel better/worse than the average person looks (BISS)</td>
<td>0.85</td>
<td>0.75</td>
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</tr>
<tr>
<td></td>
<td>% of Variance</td>
<td>42.21</td>
<td>12.03</td>
<td>7.63</td>
</tr>
<tr>
<td></td>
<td>Eigenvalues</td>
<td>5.91</td>
<td>1.68</td>
<td>1.07</td>
</tr>
</tbody>
</table>

*Note. Rotated pattern matrix. Factor loadings above .40 appear in bold.*
Table 2. Sexual Orientation (Raw Scores)

<table>
<thead>
<tr>
<th>Orientation</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusively heterosexual</td>
<td>171</td>
<td>48.3</td>
</tr>
<tr>
<td>Predominately heterosexual, only incidentally homosexual</td>
<td>71</td>
<td>20.1</td>
</tr>
<tr>
<td>Predominately heterosexual, but more than incidentally homosexual</td>
<td>27</td>
<td>7.6</td>
</tr>
<tr>
<td>Equally heterosexual and homosexual</td>
<td>15</td>
<td>4.2</td>
</tr>
<tr>
<td>Predominately homosexual but more than incidentally heterosexual</td>
<td>7</td>
<td>2.0</td>
</tr>
<tr>
<td>Predominately homosexual, only incidentally heterosexual</td>
<td>22</td>
<td>6.2</td>
</tr>
<tr>
<td>Exclusively homosexual</td>
<td>41</td>
<td>11.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>354</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 3. Demographic variables by sexual orientation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall n = 354</th>
<th>Heterosexual men n = 242</th>
<th>SM* men n = 112</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Mean (SD)</td>
<td>29.01 (10.32)</td>
<td>29.52 (10.67)</td>
<td>27.87 (9.58)</td>
</tr>
<tr>
<td>BMI Mean (SD)</td>
<td>25.89 (6.38)</td>
<td>25.97 (6.40)</td>
<td>25.72 (6.36)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>7 (2.0%)</td>
<td>4 (1.7%)</td>
<td>3 (2.7%)</td>
</tr>
<tr>
<td>Asian/Pacific Isl.</td>
<td>16 (4.5%)</td>
<td>10 (4.1%)</td>
<td>6 (5.4%)</td>
</tr>
<tr>
<td>Black</td>
<td>1 (0.3%)</td>
<td>1 (0.4%)</td>
<td>0</td>
</tr>
<tr>
<td>Native American</td>
<td>1 (0.3%)</td>
<td>1 (0.4%)</td>
<td>0</td>
</tr>
<tr>
<td>White</td>
<td>310 (87.6%)</td>
<td>217 (89.7%)</td>
<td>93 (83.0%)</td>
</tr>
<tr>
<td>Mixed race</td>
<td>19 (5.4%)</td>
<td>9 (3.7%)</td>
<td>10 (8.9%)</td>
</tr>
<tr>
<td>Relationship Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTR</td>
<td>150 (42.4%)</td>
<td>111 (45.9%)</td>
<td>39 (34.8%)</td>
</tr>
<tr>
<td>Sexual (1 person)</td>
<td>55 (15.5%)</td>
<td>38 (15.7%)</td>
<td>17 (15.2%)</td>
</tr>
<tr>
<td>Sexual (2+ people)</td>
<td>20 (5.6%)</td>
<td>12 (5.0%)</td>
<td>8 (7.1%)</td>
</tr>
<tr>
<td>Single</td>
<td>129 (36.4%)</td>
<td>81 (33.5%)</td>
<td>48 (42.9%)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some HS</td>
<td>11 (3.5%)</td>
<td>5 (2.4%)</td>
<td>6 (5.8%)</td>
</tr>
<tr>
<td>HS grad/GED</td>
<td>22 (7.0%)</td>
<td>12 (5.7%)</td>
<td>10 (9.6%)</td>
</tr>
<tr>
<td>Some college</td>
<td>80 (25.5%)</td>
<td>56 (26.7%)</td>
<td>24 (23.1%)</td>
</tr>
<tr>
<td>AA/AS/trade cert.</td>
<td>18 (5.7%)</td>
<td>10 (4.8%)</td>
<td>8 (7.7%)</td>
</tr>
<tr>
<td>BA/BS</td>
<td>109 (34.7%)</td>
<td>74 (35.2%)</td>
<td>35 (33.7%)</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>74 (23.6%)</td>
<td>53 (25.2%)</td>
<td>21 (20.2%)</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 10k/yr</td>
<td>81 (25.8%)</td>
<td>51 (24.3%)</td>
<td>30 (28.8%)</td>
</tr>
<tr>
<td>10-25k/yr</td>
<td>49 (15.6%)</td>
<td>31 (14.8%)</td>
<td>18 (17.3%)</td>
</tr>
<tr>
<td>25-50k/yr</td>
<td>71 (22.6%)</td>
<td>48 (22.9%)</td>
<td>23 (22.1%)</td>
</tr>
<tr>
<td>50-100k/yr</td>
<td>76 (24.2%)</td>
<td>52 (24.8%)</td>
<td>24 (23.1%)</td>
</tr>
<tr>
<td>100-200k/yr</td>
<td>27 (8.6%)</td>
<td>20 (9.5%)</td>
<td>7 (6.7%)</td>
</tr>
<tr>
<td>&gt;200k/yr</td>
<td>10 (3.2%)</td>
<td>8 (3.8%)</td>
<td>2 (1.9%)</td>
</tr>
</tbody>
</table>

*SM = sexual minority
Table 4. Intercorrelations between perceived involvement in LGB community, social comparison, body image and body shame.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. PIS</td>
<td>.43**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Body image satisfaction</td>
<td>.22**</td>
<td>.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Body shame</td>
<td>-.16</td>
<td>.13</td>
<td>.58**</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. PAQ</td>
<td>.08</td>
<td>.18*</td>
<td>-.07</td>
<td>.34**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. SATAQ (global)</td>
<td>.16</td>
<td>.26**</td>
<td>.18**</td>
<td>.34**</td>
<td>.19**</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. SATAQ (INT-General)</td>
<td>.13</td>
<td>.17</td>
<td>.20**</td>
<td>.50**</td>
<td>.31**</td>
<td>.66**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. SATAQ (INT-Athlete)</td>
<td>.05</td>
<td>.17</td>
<td>-.10</td>
<td>.41**</td>
<td>.29**</td>
<td>.64**</td>
<td>.68**</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>9. SATAQ (Pressure)</td>
<td>.16</td>
<td>.36**</td>
<td>.27**</td>
<td>.49**</td>
<td>.17*</td>
<td>.73**</td>
<td>.68**</td>
<td>.45**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. SATAQ (Information)</td>
<td>.16</td>
<td>.30**</td>
<td>-.05</td>
<td>.28**</td>
<td>.23**</td>
<td>.55**</td>
<td>.56**</td>
<td>.38**</td>
<td>.60**</td>
<td></td>
</tr>
</tbody>
</table>

*Note. PAS = Perceived Acceptance Scale; PIS = Perceived Involvement Scale; PAQ = Physical Appearance Questionnaire (measures perceived importance of appearance); SATAQ = Sociocultural Attitudes Toward Appearance Questionnaire. *p < .05; **p < .01
Table 5. Intercorrelations between engagement in appearance conversations, perceived involvement in LGB community, body image, body shame and disordered eating.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
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<tbody>
<tr>
<td>1. EAC1</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. EAC2</td>
<td>.22*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. PIS</td>
<td>.17</td>
<td>.27**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. PAS</td>
<td>.23*</td>
<td>.12</td>
<td>.43**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Body image satisfaction</td>
<td>.21**</td>
<td>-</td>
<td>.34**</td>
<td>.00</td>
<td>.22**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Body shame</td>
<td>.03</td>
<td>.39**</td>
<td>.13</td>
<td>-.16</td>
<td>-</td>
<td>.58**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. EDE-Q (global)</td>
<td>-.09</td>
<td>.46**</td>
<td>.18*</td>
<td>-.12</td>
<td>-</td>
<td>.66**</td>
<td>.74**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. EDE-Q (restraint)</td>
<td>-.05</td>
<td>.26**</td>
<td>.13</td>
<td>-.04</td>
<td>-</td>
<td>.29**</td>
<td>.40**</td>
<td>.76**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. EDE-Q (eating concern)</td>
<td>-.08</td>
<td>.38**</td>
<td>.13</td>
<td>-.16</td>
<td>-</td>
<td>.56**</td>
<td>.64**</td>
<td>.83**</td>
<td>.47**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. EDE-Q (weight concern)</td>
<td>-.11</td>
<td>.42**</td>
<td>.08</td>
<td>-.15</td>
<td>-</td>
<td>.70**</td>
<td>.75**</td>
<td>.93**</td>
<td>.55**</td>
<td>.75**</td>
<td></td>
</tr>
<tr>
<td>11. EDE-Q (shape concern)</td>
<td>-.09</td>
<td>.51**</td>
<td>.26**</td>
<td>-.06</td>
<td>-</td>
<td>.71**</td>
<td>.75**</td>
<td>.92**</td>
<td>.56**</td>
<td>.72**</td>
<td>.88**</td>
</tr>
</tbody>
</table>

*Note. EAC1 = Engagement in appearance conversations (positive); EAC2 = Engagement in appearance conversations (negative); PAS = Perceived Acceptance Scale; PIS = Perceived Involvement Scale; EDE-Q = Eating Disorders Inventory – Questionnaire.

*p < .05; **p < .01
Figure 1. Effects of social comparison on the relationship between involvement and acceptance in the LGB community and body dissatisfaction and body shame.

*p < .001
Figure 2. Effects of appearance conversations on the relationship between involvement and acceptance in the LGB community and body dissatisfaction and body shame.

Note. + = positive appearance conversations; - = negative appearance conversations.

*p < .01, *p < .001
Table 6. Exploratory factor analysis for measure of involvement in LGB community based on principal axis factoring with Promax rotation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Public involvement</th>
<th>Private involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attended bar/club</td>
<td>0.66</td>
<td>0.33</td>
</tr>
<tr>
<td>Visited store</td>
<td>0.96</td>
<td>0.36</td>
</tr>
<tr>
<td>Attended meeting</td>
<td>0.38</td>
<td>0.33</td>
</tr>
<tr>
<td>Read publications</td>
<td>0.39</td>
<td>0.88</td>
</tr>
<tr>
<td>Visited website</td>
<td>0.30</td>
<td>0.83</td>
</tr>
<tr>
<td>% of Variance</td>
<td>21.84</td>
<td>50.04</td>
</tr>
<tr>
<td>Eigenvalues</td>
<td>1.09</td>
<td>2.50</td>
</tr>
</tbody>
</table>

*Note. Items assessed how frequently participants had visited establishments or read information intended for LGB audiences or patrons specifically. Factor loadings above .40 appear in bold.*
Appendix

Kinsey Scale of Sexual Orientation

Please use the scale below to choose the option that best represents your sexual orientation.

1. Exclusively heterosexual with no homosexual
2. Predominantly heterosexual, only incidentally homosexual
3. Predominantly heterosexual, but more than incidentally homosexual
4. Equally heterosexual and homosexual
5. Predominantly homosexual, but more than incidentally heterosexual
6. Predominantly homosexual, only incidentally heterosexual
7. Exclusively homosexual
Perceived Acceptance Scale (PAS)

Perceived Acceptance within the LGB Community

Please rate how much you agree/disagree with each item from 1 (strongly disagree) to 7 (strongly agree)

1. I feel very included by the LGB community.
2. I feel very accepted by the LGB community.
3. I feel I can be who I really am within the LGB community.
4. I feel as though people in the LGB community like me.
5. I feel like I can talk openly with others in the LGB community.

Perceived Involvement Scale (PIS)

Perceived Involvement within the LGB Community

Please rate how frequently you have engaged in the following:

1. Attended a bar/club frequented by mostly LGB patrons
2. Visited a store visited by mostly LGB patrons
3. Attended an LGB organization meeting
4. Read publications intended for LGB audiences
5. Visited internet websites intended for LGB audiences
The Body Image States Scale

For each of the items below, check the box beside the one statement that best describes how you feel RIGHT NOW, AT THIS VERY MOMENT. Read the items carefully to be sure the statement you choose accurately and honestly describes how you feel right now.

1. Right now I feel…
   - Extremely dissatisfied with my physical appearance
   - Mostly dissatisfied with my physical appearance
   - Moderately dissatisfied with my physical appearance
   - Slightly dissatisfied with my physical appearance
   - Neither dissatisfied nor satisfied with my physical appearance
   - Slightly satisfied with my physical appearance
   - Moderately satisfied with my physical appearance
   - Mostly satisfied with my physical appearance
   - Extremely satisfied with my physical appearance

2. Right now I feel…
   - Extremely satisfied with my body size and shape
   - Mostly satisfied with my body size and shape
   - Moderately satisfied with my body size and shape
   - Slightly satisfied with my body size and shape
   - Neither dissatisfied nor satisfied with my body size and shape
   - Slightly dissatisfied with my body size and shape
   - Moderately dissatisfied with my body size and shape
   - Mostly dissatisfied with my body size and shape
   - Extremely dissatisfied with my body size and shape

3. Right now I feel…
   - Extremely dissatisfied with my weight
   - Mostly dissatisfied with my weight
   - Moderately dissatisfied with my weight
   - Slightly dissatisfied with my weight
   - Neither dissatisfied nor satisfied with my weight
   - Slightly satisfied with my weight
   - Moderately satisfied with my weight
   - Mostly satisfied with my weight
   - Extremely satisfied with my weight

4. Right now I feel…
   - Extremely physically attractive
   - Mostly physically attractive
   - Moderately physically attractive
Slightly physically attractive
Neither attractive nor unattractive
Slightly physically unattractive
Moderately physically unattractive
Mostly physically unattractive
Extremely physically unattractive

5. Right now I feel…
   A great deal worse about my looks than I usually feel
   Much worse about my looks than I usually feel
   Somewhat worse about my looks than I usually feel
   Just slightly worse about my looks than I usually feel
   About the same about my looks as usual
   Just slightly better about my looks than I usually feel
   Somewhat better about my looks than I usually feel
   Much better about my looks than I usually feel
   A great deal better about my looks than I usually feel

6. Right now I feel that I look…
   A great deal better than the average person looks
   Much better than the average person looks
   Somewhat better than the average person looks
   Just slightly better than the average person looks
   About the same about my looks as usual
   Just slightly worse than the average person looks
   Somewhat worse than the average person looks
   Much worse than the average person looks
   A great deal worse than the average person looks
**Drive for Muscularity Scale**

Please read each item carefully and choose the answer that best applies to you.

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I wish that I were more muscular.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I lift weights to build up muscle.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I use protein or energy supplements</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I drink weight gain or protein shakes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I try to consume as many calories as I can in a day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I feel guilty if I miss a weight training session.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I think I would feel more confident if I had more muscle mass.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Other people think I work out with weights too often.</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>9. I think I would look better if I gained 10 pounds in bulk.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>10. I think about taking anabolic steroids.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11. I think that I would feel stronger if I gained a little more muscle mass.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12. I think that my weight training schedule interferes with other aspects of my life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>13. I think that my arms are not muscular enough.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>14. I think that my chest is not muscular enough.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I think that my legs are not muscular enough.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. 1 = Always, 2 = Very often, 3 = Often, 4 = Sometimes, 5 = Rarely, 6 = Never.*
Body Image Grid

Below, you will find a grid of male figures. Look at them closely. Please recognize that these bodies may not be completely accurate representations of you personally or bodies you think to be attractive. You will see two numerical scales along the top and right hand side of the grid: a) the Body Fat scale on the top that ranges from extremely low body fat (0) to extremely high body fat (120), and b) the Muscle Mass scale along the right hand side that ranges from extremely low muscle mass (0) to extremely high muscle mass (100). For each of the following questions, you will be asked to choose where on these scales the male body asked about falls. You will indicate for each the desired body fat score (on the scale of 0-120 as marked on the grid), and desired muscle mass score (on a scale of 0-100 as marked on the grid) that correspond to the “ideal” figure as requested.

1. What do you think is the best approximation of your CURRENT body (assume figure has your height)?
   Body Fat Scale Score: _________
   Muscle Mass Scale Score: _________
2. What do you think is the best approximation of your IDEAL body?
   Body Fat Scale Score: _________
   Muscle Mass Scale Score: _________
3. What do you think is the best approximation of the body others find most attractive?
   Body Fat Scale Score: ______
   Body Muscle Scale Score: ______
Physical Appearance Questionnaire (PAQ)

Scoring: 1 (not very important)
2
3
4
5
6 (very important)

How important do you think physical attractiveness is:

1. in day-to-day social interactions?
2. in your evaluation of potential romantic partners?
3. to potential partners?
Body Shame Subscale of Objectified Body Consciousness Scale

1. When I can’t control my weight, I feel like something must be wrong with me.
2. I feel ashamed of myself when I haven’t made the effort to look my best.
3. I feel like I must be a bad person when I don’t look as good as I could.
4. I would be ashamed for people to know what I really weigh.
5. I never worry that something is wrong with me when I am not exercising as much as I should.
6. When I am not exercising enough, I question whether I am a good enough person.
7. Even when I can’t control my weight, I think I’m an okay person.
8. When I’m not the size I think I should be, I feel ashamed.
Sociocultural Attitudes Toward Appearance Scale (SATAQ-3)

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

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

1. TV programs are an important source of information about fashion and "being attractive."
2. I've felt pressure from TV or magazines to lose weight.
3. I do not care if my body looks like the body of people who are on TV.
4. I compare my body to the bodies of people who are on TV.
5. TV commercials are an important source of information about fashion and "being attractive."
6. I do not feel pressure from TV or magazines to look pretty.
7. I would like my body to look like the models who appear in magazines.
8. I compare my appearance to the appearance of TV and movie stars.
9. Music videos on TV are not an important source of information about fashion and "being attractive."
10. I've felt pressure from TV and magazines to be thin.
11. I would like my body to look like the people who are in movies.
12. I do not compare my body to the bodies of people who appear in magazines.
13. Magazine articles are not an important source of information about fashion and "being attractive."
14. I've felt pressure from TV or magazines to have a perfect body.
15. I wish I looked like the models in music videos.
16. I compare my appearance to the appearance of people in magazines.
17. Magazine advertisements are an important source of information about fashion and "being attractive."
18. I've felt pressure from TV or magazines to diet.
19. I do not wish to look as athletic as the people in magazines.
20. I compare my body to that of people in "good shape."
21. Pictures in magazines are an important source of information about fashion and "being attractive."
22. I've felt pressure from TV or magazines to
23. I wish I looked as athletic as sports stars.
24. I compare my body to that of people who are athletic.
25. Movies are an important source of information about fashion and "being attractive."
26. I've felt pressure from TV or magazines to change my appearance.
27. I do not try to look like the people on TV.
28. Movie stars are not an important source of information about fashion and "being attractive."
29. Famous people are an important source of information about fashion and "being attractive."
30. I try to look like sports athletes.
Eating Disorder Examination (EDE-Q)

*Note: During survey administration, this measure will be modified to reflect the male-only sample. The questions referring to participants’ menstrual periods will be removed.

### EATING QUESTIONNAIRE

Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all the questions. Thank you.

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

<table>
<thead>
<tr>
<th>Question</th>
<th>No days</th>
<th>1-5 days</th>
<th>6-12 days</th>
<th>13-15 days</th>
<th>16-22 days</th>
<th>23-27 days</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2. Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3. Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4. Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5. Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6. Have you had a definite desire to have a totally flat stomach?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7. Has thinking about food, eating or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>8. Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>9. Have you had a definite fear of losing control over eating?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>10. Have you had a definite fear that you might gain weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>11. Have you felt fat?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>12. Have you had a strong desire to lose weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Questions 13-18: Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

Over the past four weeks (28 days) .......

13 Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?

14 ... On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?

15 Over the past 28 days, on how many DAYS have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?

16 Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?

17 Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?

18 Over the past 28 days, how many times have you exercised in a “driven” or “compulsive” way as a means of controlling your weight, shape or amount of fat, or to burn off calories?

Questions 19 to 21: Please circle the appropriate number. Please note that for these questions the term “binge eating” means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

19 Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)?

<table>
<thead>
<tr>
<th></th>
<th>No days</th>
<th>1-5 days</th>
<th>6-12 days</th>
<th>13-15 days</th>
<th>16-22 days</th>
<th>23-27 days</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

20 On what proportion of the times that you have eaten have you felt guilty (felt that you’ve done wrong) because of its effect on your shape or weight?

<table>
<thead>
<tr>
<th></th>
<th>None of the times</th>
<th>A few of the times</th>
<th>Less than half of the times</th>
<th>Half of the times</th>
<th>More than half of the times</th>
<th>Most of the times</th>
<th>Every time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

21 Over the past 28 days, how concerned have you been about other people seeing you eat?

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Markedly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Questions 22 to 28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).

<table>
<thead>
<tr>
<th>Over the past 28 days .......</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Markedly</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 Has your weight influenced how you think about (judge) yourself as a person?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>23 Has your shape influenced how you think about (judge) yourself as a person?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>24 How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25 How dissatisfied have you been with your weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>26 How dissatisfied have you been with your shape?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>27 How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>28 How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

What is your weight at present? (Please give your best estimate.) ..........................................

What is your height? (Please give your best estimate.) .............................................................

If female: Over the past three-to-four months have you missed any menstrual periods? ............... ..............................

If so, how many? ..............................................................

Have you been taking the “pill”? ..............................................................

THANK YOU
Engagement in Appearance Conversations

How often do you engage in the following?

Positive appearance conversations:

“When you or others discuss parts of your body that you’re happy with, or point out a part of somebody’s body that you admire. For example, ‘I’m lucky I’ve got good genes. It’s great being 6ft!’ and ‘Man, your arms are huge! The gym is really paying off for you.’”

1 – it’s extremely rare
2
3
4
5 – it’s extremely common

Negative appearance conversation:

“When you or others discuss parts of your body that you’re not happy with, or point out a part of somebody’s body that might be ‘flawed.’ For example, ‘Man, I need to go to the gym more, my biceps are pathetic!’ and ‘All right man, how’s that beer belly coming along?’”

1 – it’s extremely rare
2
3
4
5 – it’s extremely common
Exercise Motivations Inventory – 2

On the following pages are a number of statements concerning the reasons people often give when asked why they exercise. Whether you currently exercise regularly or not, please read each statement carefully and indicate, by circling the appropriate number, whether or not each statement is true for you personally, or would be true for you personally if you did exercise. If you do not consider a statement to be true for you at all, circle the ‘0’. If you think that a statement is very true for you indeed, circle the ‘5’. If you think that a statement is partly true for you, then circle the ‘1’, ‘2’, ‘3’ or ‘4’, according to how strongly you feel that it reflects why you exercise or might exercise.

Remember, we want to know why you personally choose to exercise or might choose to exercise, not whether you think the statements are good reasons for anybody to exercise.

Not at all true for me | Very true for me

Personally, I exercise (or might exercise) …

1. To stay slim
2. To avoid ill-health
3. Because it makes me feel good
4. To help me look younger
5. To show my worth to others
6. To give me space to think
7. To have a healthy body
8. To build up my strength
9. Because I enjoy the feeling of exerting myself
10. To spend time with friends
11. Because my doctor advised me to exercise
12. Because I like trying to win in physical activities
<table>
<thead>
<tr>
<th></th>
<th>Reason</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>To stay/become more agile</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>14</td>
<td>To give me goals to work towards</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>15</td>
<td>To lose weight</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>16</td>
<td>To prevent health problems</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>17</td>
<td>Because I find exercise invigorating</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>18</td>
<td>To have a good body</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>19</td>
<td>To compare my abilities with other peoples’</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>20</td>
<td>Because it helps to reduce tension</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>21</td>
<td>Because I want to maintain good health</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>22</td>
<td>To increase my endurance</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>23</td>
<td>Because I find exercising satisfying in and of itself</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>24</td>
<td>To enjoy the social aspects of exercising</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>25</td>
<td>To help prevent an illness that runs in my family</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>26</td>
<td>Because I enjoy competing</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>27</td>
<td>To maintain flexibility</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>28</td>
<td>To give me personal challenges to face</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>29</td>
<td>To help control my weight</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>30</td>
<td>To avoid heart disease</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>31</td>
<td>To recharge my batteries</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>32</td>
<td>To improve my appearance</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>33</td>
<td>To gain recognition for my accomplishments</td>
<td>0 1 2 3 4 5</td>
</tr>
</tbody>
</table>

70
<table>
<thead>
<tr>
<th>Number</th>
<th>Reason</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>To help manage stress</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>35</td>
<td>To feel more healthy</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>36</td>
<td>To get stronger</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>37</td>
<td>For enjoyment of the experience of exercising</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>38</td>
<td>To have fun being active with other people</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>39</td>
<td>To help recover from an illness/injury</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>40</td>
<td>Because I enjoy physical competition</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>41</td>
<td>To stay/become flexible</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>42</td>
<td>To develop personal skills</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>43</td>
<td>Because exercise helps me to burn calories</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>44</td>
<td>To look more attractive</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>45</td>
<td>To accomplish things that others are incapable of</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>46</td>
<td>To release tension</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>47</td>
<td>To develop my muscles</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>48</td>
<td>Because I feel at my best when exercising</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>49</td>
<td>To make new friends</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>50</td>
<td>Because I find physical activities fun, especially when competition is involved</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>51</td>
<td>To measure myself against personal standards</td>
<td>0 1 2 3 4 5</td>
</tr>
</tbody>
</table>