12-1-2005

Implicit and Explicit Attitudes Towards Body Images

Kenneth Brasel
Western Kentucky University

Follow this and additional works at: http://digitalcommons.wku.edu/theses
Part of the Psychology Commons

Recommended Citation
http://digitalcommons.wku.edu/theses/490

This Thesis is brought to you for free and open access by TopSCHOLAR®. It has been accepted for inclusion in Masters Theses & Specialist Projects by an authorized administrator of TopSCHOLAR®. For more information, please contact topscholar@wku.edu.
Acknowledgements

This thesis signifies the culmination of my formal education that began over twenty-three years ago. Any attempt to single out anyone would only minimize the multitude of individuals that offered their friendship, encouragement, and never-ending support over the years which continues to offer me the opportunity to accomplish not only this post-graduate degree, but other difficult challenges.

Nonetheless, I would like to thank Dr. Sam McFarland for giving me a perfect example of how passion and research are inseparable, and Dr. John Bruni for holding my hand during those first few academic presentations.

I would also like to extend my deepest thanks to Dr. Rick Grieve, whose “all knowing,” often exasperated looks, were all it took to motivate me toward completion in this endeavor; you have truly been a mentor and a friend. To Dr. Pitt Derryberry, a very intimidating mind who always had a minute to untangle my questions and find me the answer I needed, I give thanks. Dr. Cathy Reeves, you have been a calming force when all seemed lost.

I would like to thank my wife and son who have always been my life, and specifically to my son: My greatest hope is that your life’s journey will truly be your own.

Finally, I would be remiss if I didn’t return to the person who never doubted my success. My first hour on campus was spent in his office; I intend for my last hour to be there as well. As I have already mentioned, I will miss your passion, your direction, your undying belief that you can change the world. To Sam, I will truly miss our conversations.
This study examined the differences of men's and women's implicit and explicit attitudes towards three constructs of body images: muscular, obese, and skinny. Participants were 101 volunteers and included 31 male and 70 female college students attending Western Kentucky University. Age of the participants ranged from 18 to 59 years, with a mean of 21.23 years ($SD = 6.47$).

All participants were given a questionnaire with a series of male and female body images along a continuum of obese-skinny-muscular. Participants were asked to first identify their current body image and then their ideal body image. They were then asked to rank the different male and female body images from 1 (least desirable) to 9 (most desirable). Participants were then given a series of computer implicit association tests (IAT) that presented pictures supporting constructs of: muscular, obese, and skinny. These constructs were paired equally with words that supported constructs of good and bad. The mean scores of each pairings were compared and then computed using Cohen’s $d$ against each other and then against the ranked results of the questionnaire.

The IAT software prevented the differentiating between the three constructs the dimensional factors of men and women. As a result, our desired implicit constructs were not valid.
The first hypothesis under study was that men and women will make more positive implicit attributions for the socially ideal body shapes (muscular men and thin women). The data generated were not suitable to challenge this hypothesis. The second hypothesis was that men and women will make more negative implicit attributions for body shapes that deviate from the ideal body shape (obese men and women, muscular women and thin men). The data generated were also not suitable to challenge this hypothesis. The final hypothesis was that men and women will differ in their implicit and explicit attitudes toward body shapes, especially those that deviate from the social ideal. Men (M = 14.86; SD = 1.94) and women (M = 9.01; SD = 2.92, P = <.001) did differ in their explicit attitudes towards male images. There were no significant differences in either men’s or women’s explicit attitudes towards female body images and their implicit attitudes were not correctly assessed.
# Table of Contents

List of Tables..................................................................................vii

Abstract.........................................................................................viii

Introduction......................................................................................1
  Body Dissatisfaction........................................................................2
  Women’s Body Image.......................................................................3
  Men’s Body Image...........................................................................4
  Attributional Influences.................................................................5
  Implicit Measures...........................................................................6
  Explicit and Implicit Attitudes.......................................................9
  Limitations of Current Research................................................11
  Present Study................................................................................11

Methods..........................................................................................13
  Participants and Design...............................................................13
  Apparatus....................................................................................13
  Explicit Attitudes..........................................................................14
  Implicit Attitudes..........................................................................15
  Procedure.....................................................................................15

Results............................................................................................17

Discussion.......................................................................................21
  Limitations...................................................................................25
  Future Studies...............................................................................26
  Conclusion....................................................................................26
List of Tables

Table 1: Comparison of Implicit Attitudes of Men and Women Towards The Interacting Constructs of: Muscular, Obese, and Thin Body Images .................. 18

Table 2: Comparisons of Explicit Body Images ........................................... 19

Table 3: Comparison of Ideal Male Body Images ......................................... 20
Introduction

During the late Renaissance and Victorian periods, wealth and beauty were measured literally by the pound, quite contrary to today's perspective (Edward & Edward, 1999). While wealth continues to be defined by most as the literal amount of one's monetary holdings, beauty and attractiveness have drastically evolved, or "devolved," if you will. While "Old Europe" set the cultural and social expectations through the public display of royalty and the elite, today's standards are often set forth by television and other mass media (Lavine, Sweeny, & Wagner, 1999).

Lavine et al. (1999) explored the perception by men and women of their ideal body shape of the opposite sex and found they were conforming to established cultural expectations. They discussed how a majority of individuals were not only influenced by the models and actors in the media, but expressed a desire for their own body shape to be closer to those presented on television. In a mass-media review, researchers found the average image and ideal body styles were influenced by the changing portrayal (by the mass media) of men and women in power or the entertainment industry (Courtney & Whipple, 1983). Modern investigators have found a steady trend in the use of thinner models when examining magazine centerfolds in magazines marketed for both men and women (Wolf, 1991).

With society's increasing focus on health issues, mass media appears to have shifted the personification of beauty in a new direction: thin bodies with a clear definition of toned, sleek muscles (Silverstein, Peterson, & Perdue, 1986). The present study examines this latest phenomenon of body image and its perspective through the eyes of some of the most affected. The general hypotheses under study include that, while men and
women continue to have similar views on attractiveness, a closer examination of their attitudes will detail clear and different biases between the genders.

**Body Dissatisfaction**

Foretelling a societal shift, John Travolta, in the 1985 movie “Perfect” (Bridge, 1985), as well as an earlier video starring Olivia Newton John (Kipner, 1981) sweating through a risqué workout, pumped muscle tone into society’s complicated definition of beauty. The 1990’s saw a proliferation of research looking into the increasing focus of men’s and women’s concern about their appearance, with an increasing factor being their attainment of muscle mass (Schillinginman, 1993; White & Gillett, 1994). It is no surprise that men and women want to look better and to achieve a higher level of fitness. However, this drive to meet a goal must be defined and, in some cases, quantified. Body dissatisfaction has become a prime catalyst for changing one’s attitudes and behaviors and has helped motivate millions to address their concerns of their own body weight (Drewnowski, Kurth, & Krahn, 1995).

One of the leading issues with the rush to change one’s body image that has emerged during the last 30 years is the increasing variety and seriousness of eating disorders found in both men and women (Moses, Banilivy, & Lifshitz, 1989; Striegel-Moore, Silberstein, & Rodin, 1986). While the exploration and definition of the various eating disorders are beyond the scope of this paper, it is important to underscore the causal relationship between body dissatisfaction and the pathological development of some of the eating disorders (Moses et al., 1989). The research indicates that women are dissatisfied with their body shape and, thus, are driven to lose weight. Men, on the other hand, while
similarly dissatisfied with their body shape, tend to consider either of two options, losing weight or gaining weight (Drewnoski & Yee, 1987).

There has been growing interest in understanding the development of body dissatisfaction, and theories and hypotheses continue to be explored concerning these interests (Cash & Deagle, 1997). Cash and Deagle (1997) examined numerous research studies conducted over the 15 years prior to their meta-analysis and developed several unanswered questions concerning the relationship between body dissatisfaction in men and eating disorders. One of the challenging questions in their article was the degree to which the inclusion of muscle mass as a factor of one’s body image contributes to the psychological effects of both eating disorders and dissonance over body size in men.

Women’s Body Image

It would be difficult to track society’s ever-changing view of an ideal figure. Perhaps the strongest indicator would be the cyclic use of models in the mainstream media. In a study reviewing 49 years of media use of models in women magazines, a strong correlation ($r = .86$) was found that remained consistent with the current trend of the female body image and the degree of reader’s self-reported level of body dissatisfaction (Lee, 2001). Lee discussed the adaptation and internalization of the model’s body image in magazines as the new standard for attractiveness and beauty. He found women readers accepted the models as the current definition for beauty, and a majority sought to define their perception of attractiveness by the appearance of the models.

Dittmar and Howard (2004) examined variables that would lead women to such high levels of body dissatisfaction and explored the desires of women to internalize such a strong desire to attain these idealized body images. The overall mean for internalization
was close to the midpoint of the scale \((M = 3.49; SD = .92)\), with a range across almost all scale points, including the top extreme \((1.50 \text{ to } 6.00)\). The overall mean for social comparison was somewhat below the scale midpoint of \(2.5 \ (M = 2.02; SD = .73)\), and the range did not reach the top of the scale \((1.00 \text{ to } 4.43)\). With the lack of extensive information, questions still remain on how women deal with images of their gender that represent more toned, physically fit body images.

**Men’s Body Image**

The presentation of specific body images of models affects men’s self-perception as well. There has been a growing interest of research that deals with this very fact in men. Moulding and Hepworth (2001) detailed the growing awareness of men who view male models in regard to comparing their own body image to those presented in the print media. This drive has been noted by vendors and consumers alike with the proliferation of a variety of items to induce readers to increase their muscle mass, such as dietary supplements, exercise equipment, and other muscle enhancing products (Froiland, Koszewski, Hingst, & Kopecky, 2004).

Media exposure includes the big screen with movies presenting bigger than life action heroes, such as Arnold Schwarzenegger, Sylvester Stallone, and Jean Claude Van Damme. Recent television has utilized reality television to present buff male models in powerful and successful roles. Research has yet to draw exact comparisons between men and women in relationship to the development of body dissatisfaction due to exposure to media based portrayals of body images (Halliwell & Dittmar, 2003). This is not to understate the damage of body dissatisfaction in men; Grieve (2001) demonstrated the incongruence of men’s current perception of their body image with that of their ideal body
image. He argued that this very incongruence was often the source of the drive to change their body image. This incongruence in body dissatisfaction was measurable even after a brief exposure to muscular male models (Lorenzen, Grieve, & Thomas, 2004). In their research utilizing a pre and post-assessment, men who were exposed to even a brief picture of a muscular model had lower self-ratings of body satisfaction following the exposure. Exposure to brief pictures of male models with average body shapes had no effect on the self-ratings of the male participants.

The incongruence in muscular men’s perception of their current body image, in relationship to their actual size, has been labeled “muscle dysmorphia” (Pope, Gruber, Choi, Olivardia, and Phillips, 1997). They were some of the first to produce a set of criteria for diagnostic determination of muscle dysmorphia. The motivation to continue to increase one’s muscle size due to an overwhelming idea that one is not sufficiently toned or muscular is one such criterion. This coincides with a significant impairment to the individuals’ social, academic, or occupational functioning. There are several other factors leading to a diagnosis, including an overriding need to work out with weights that is often detrimental to other important lifestyle management areas. Pope et al. (1997) estimated that 10% of a sample population of body builders had muscle dysmorphia and these were consistent with male populations from three other countries (Olivardia & Pope, 2000).

**Attributional Influences**

Researchers for years have been attempting to examine the relationship of attitudes between how people internalize the attractiveness of models in the mass media arena and other desirable attributes. Ickes (1996) proposed that we perceive others as having certain attributes simply by their level of attractiveness, and recent research contemporizes this to
the extent that we are more likely to believe beautiful people are more generous, wealthy, and friendlier than the average person (Henslin & Katz, 2003). This has increased the marketability of attractive models when certain consumer friendly associations (such as superior intelligence, high moral standards, and/or the ability to work harder on life’s issues) have been implied or overtly portrayed (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999).

With the increased usage of more muscular and toned models in advertisements and commercials, any change or shift, however subtle, would be interesting from a psychological and heath provider’s standpoint. The addition of muscle mass in men would definitely be an added dimension to the traditional attractive toned models in use by many mass marketers. By the same comparison, muscle mass on women would add a confounding variable in interpreting and understanding attitudes about these individuals. With the increased concern about health-related issues, have we become educated significantly enough to affect our level of socialization that we now interpret muscle mass into our definition of attractiveness? This paper intends to answer the gist of this question.

*Implicit Measures*

The importance of measuring attitudes of individuals lay in one of the goals of research psychology itself, understanding and ultimately predicting behavior. Fazio, Sanbonmatsu, Powell, and Kardes (1996) conducted research to uncover the attitudes that are the culprits of certain behaviors. They first conceded that self-presentational strategies innate to most of us must be overcome, as they provoke most of us to perceive ourselves in a better light or moderate our opinions to protect others’ perceptions of us. In recent years, and with the advent of computer based testing (CBT), several methodologies have evolved
to circumvent these strategies. The Implicit Association Test (IAT) is one of the most published methodologies in existence today that attempts to get beyond the self-presentation confound of most questionnaires and uncovers the implicit views of subjects (Greenwald & Nosek, 2001).

The IAT works off the concept that individuals store and organize information using several different schemas. One such schema allows people to organize information by associations, and along with this basic association is the strength or saliency of that particular association. The stronger the association, the easier it is for individuals to store and retrieve information based on a cue. Researchers have used associational tasks for years in a variety of attempts to measure thoughts concerning marriage, race, love, and a host of other topics (Fincham, Bradbury, & Arias, 1997). One such research presented participants with cues on marriage such as support, intimacy, and trust (Bradbury, Cohen, & Karney, 1998). Participants reporting a high satisfaction with their marriage were quick to associate words such as support and intimacy in defining their marriage. Likewise, participants having a poor outlook on their marriage were not so positive in associating support and intimacy with the concept of marriage.

Briefly, the IAT is a computerized method for indirectly measuring the strength of the association between a target concept and a valence attribute by using a double-categorization task. It relies on the assumption that if a target concept and an attribute dimension are highly associated (congruent), the task is easier, and, therefore, quicker when they share the same response key than when they require a different response key. The IAT needs one target category (e.g., flowers), one contrast category (e.g., insects), one target attribute (e.g., pleasant), and one contrast attribute (e.g., unpleasant), each
represented by a series of stimuli. The stimuli can be words or exemplars that would cause the participant to make an immediate association with any one specific category; this is completed by pressing one of two keys on a keyboard. The key to the IAT is the automatic associations that are inherent in all people (e.g., flowers/pleasant). Some associations are more difficult based on prior experiences and thus developed associations, (e.g., poison ivy/pleasant: Greenwald, McGhee, & Schwartz, 1998).

The originators and later users of the IAT have made additional assumptions. Using the benefits provided by CBT, they argue that it is not only the associations themselves, but also the speed of the associations that can provide insight into the construct in question. When looking into negative biases towards homosexuals, Seise, Banse and Neyer (2002) found strong correlations between reaction times of participants presented with the constructs of homosexuals and poverty. These same participants were slower to identify descriptors when homosexuality was paired with wealth and other positive social constructs.

The IAT has been used for over seven years to measure the strengths of associations between a target concept and two opposing dimensions (Greenwald et al., 1998). Subsequent research supports the idea that presented or targeted concepts, such as race, are implicitly associated in a person’s memory, and combining these into an association can be measured using latency scores (Greenwald & Farnham, 2000; Teachman, Gregg, & Woody, 2001). With findings similar to the halo effect (Thorndike, 1935), researchers have found strong evidence that there are implicit drives that have internalized prior learning or exposed events that can be triggered by exposing related target exemplars and concepts.
For example, attractive pictures of models are more quickly associated with intelligence, sound moral judgment, and friendliness (Richetin, Croizet, & Huguet, 2004).

While we can expect and hope for individual differences in our society in the definition of attractiveness, participants have shown an overall preference to some body images (Grieve, Newton, Kelly, Miller, & Kerr, 2005). Researchers have typically used stick figures to minimize the influence of the model’s facial attractiveness and attempted to have the research participants focus on the body image itself. However, when attempting to measure the implicit associations where presentations of models are made in fewer than 50 milliseconds (Greenwald et al., 1998), participants can be expected to visually grasp the image of the target, and not specific facial features. So in selecting and defining body images, this study used three basic types: skinny or thin, overweight, and muscular. The selection of the models were all made in regards to similar levels of attractiveness, and chosen from online sources or print magazines.

Explicit & Implicit Attitudes

Explicit attitudes have been the mainstay behind understanding and, therefore, predicting behavior since the dawn of psychology. For the purpose of this study, implicit attitudes are defined as subconscious beliefs toward a construct or ideal developed previously due to exposure to any or all of the elements that make up the construct, without the value of moderating this attitude due to present situational conditions. Explicit attitudes are defined as conscious attitudes towards a construct or ideal developed over time due to exposure to any or all of the elements that make up the construct, with the value of moderating this attitude in light of present situational conditions.
The increasing usage of CBT, such as the IAT and Inquisit software programs (http://www.millisecond.com), researchers have developed three leading models aiding in understanding the predictive validity in the relationship between implicit and explicit attitudes (Perugini, 2005). The first theory is that both implicit and explicit attitudes are linked to all levels of behavior, and if methods existed, researchers could tease out and thus explain the variance for the behavior (Armitage & Conner, 2001; Perugini & Bagozzi, 2004). Research by these authors was able to explain and subsequently attribute 80% to 90% of the variance to either explicit or implicit attitudes. Additional review of the existing research does not show any additional support for this model.

Wilson, Lindsey, and Schooler (2000) proposed a second theory that has been quoted and supported in numerous journal articles. They presented a model that both implicit and explicit attitudes are different but are activated in the same manner when presented with similar stimuli. Wilson and colleagues stated that the attitudes are independent, and it is the situation that dictates which attitude will control the behavior. This intuitively solves the self-presentation effect that has long been known to affect explicit attitudes in questionnaires. If the situation dictates a spontaneous response, then the implicit attitude consistently overrides the desire to utilize the explicit attitude. Wilson et al. (2000) labeled this theoretical model the double-dissociation model.

The third leading theory put forth by Perugini (2005) is the additive pattern model. This model is developed by the fact that implicit and explicit measures have, at best, achieved correlations of 0.20 to 0.30 on a consistent basis across a variety of attitudes and situations (Fazio & Olson, 2003). Explicit and implicit attitudes coexist, and it is not only the situation that dictates which type of attitude drives the behavior, but the personality of
the individual as well (Fazio & Dunton, 1997). If an individual is impulsive, in a stressful situation, this theory would argue that his or her implicit attitudes will define his or her behavior every time.

A review of the literature does not offer much guidance as to what happens when there is a direct challenge to an individual’s choice of behavior once presented with a situation that is in direct conflict of his or her explicit and implicit attitudes. Beneficial restraints in research that protect the welfare of participants must be addressed before methodologies are in place that allow for psychologists to challenge individuals’ internal guidance of behavior (e.g., when they know to do good, but choose not to).

Limitations of Current Research

As mentioned earlier, implicit and explicit opinions and perceptions can be confounded by the introduction of social desirability. Muscular body images have not been included to date in determining the implicit assigning of negative or positive attributional traits by participants in research. One would expect society’s growing restraint of tolerance and social desirability to restrain any outward or explicit biases towards men and women based on body images.

Present Study

This present study will include both an implicit and explicit measure. These specific hypotheses will be examined:

H₁: Men and women will make more positive implicit attributions for the socially ideal body shapes (muscular men and thin women).
H₂: Men and women will make more negative implicit attributions for body shapes that deviate from the ideal body shape (obese men and women, muscular women, and thin men).

H₃: Men and women will differ in their implicit and explicit attitudes toward body shapes, especially those that deviate from the social ideal.
Methods

Participants and Design

Participants for this study were 101 volunteers (31 male, and 70 female) college students from Western Kentucky University. Participants were recruited from visitors to the Downing University Center, the on-campus student center. The mean age of participants was 21.30 (SD = 6.45). The mean education level was 14.21 years (SD 1.31). There were 81 (80.2%) Caucasian participants, 14 (15.9%) African American participants, and 6 (6%) participants of other races.

The design for this study was a 3 (type of picture: muscular vs. obese vs. thin) x 2 (gender of participant: male vs. female) mixed factorial design. The independent variables are a set of six pictures depicting three specific body types of men and women (muscular, obese, and thin), and the gender (male or female) of the participants. The dependent variables are implicit and explicit measures of participant's attitudes towards these pictures as they associate them with being “good” or “bad.”

Apparatus

The Implicit Association Test (IAT; Greenwald et al., 1998) was administered on a series of four Pentium computers, each with a comparable 15-inch color monitor. Computers were networked and data collected on a single hard drive. Monitors and input devices were placed on 36-inch high tables and spaced 24 inches apart. The Farnham version of the Implicit Association Test (FIAT) software was used to allow collection of additional information, including participant number and rank order of test. In an article by Nosek, Greenwald, and Banaji (2005), research involving large samples (Ns range from
produced power values exceeding .99 to detect effects of Cohen’s $d$ as low as .10 to as high as 2.7. These values allow high inferential abilities when utilizing specific IAT protocols and procedures.

*Explicit Attitudes*

There has been significant use of the Contour Drawing Rating Scale (Thompson & Gray, 1995) in providing researchers a tool in helping assess participants’ perception of body images. A recent adaptation of this assessment is the Body Shape Assessment (BSA). This measure consists of 18 male and female sketches along a continuum beginning at an obese image, and progressing through a lean or skinny midline image and then subsequently progressing into a muscular image. The BSA has not been correlated with implicit measures to date, but its inclusion in our research will allow for both validity and reliability of both implicit and explicit views of men and women that is inclusive of muscular body images.

Each participant was asked basic demographic information, including age, gender, ethnicity, and current education level. The adapted questionnaire presented to each participant in the current study used drawings similar to the Contour Drawing Rating Scale, but were reduced to only nine body images of each sex. In order to retain some similarity to the BSA drawings, every other drawing was omitted. Participants were asked to select the drawing of their sex that they felt best portrayed their current body image. They then were asked to select the body image they would most like to have. Participants then reviewed both sets of male and body images again on a separate page and completed the questionnaire twice from two different perspectives. Participants were asked to rate the drawings on a scale of 1 “least favorable” to 9 “most
favorable.” First, participants rated the drawings from the perspective of how they personally feel, and then they rated the drawings on how they perceive the opposite sex would rate the drawings.

**Implicit Attitudes**

The version of the IAT used in this study was designed using five constructs: Good, Bad, Obese, Muscular, and Thin. The first two constructs used two separate exemplars as follows: Good (charity, peace), Bad (war, pain). The constructs for Good and Bad were obtained by using prior IAT research funded by the National Institute of Mental Health by a group called Project Implicit. The pictorial exemplars for the body image styles were selected from a series of pictures used in a previous study (Lorenzen et al., 2004) and pictures selected from magazines that appeared to have similar degrees of attractiveness. This level of attractiveness was simply assessed by a consensus of male and female graduate students providing input on the thesis development of their peers.

**Procedure**

Participants were introduced to the study, and given a consent form that detailed the potential risks and benefits of their involvement. They were given a five-digit code to insure confidentiality and they used this code on both implicit and explicit measures. They were then given either the explicit or implicit measure to complete. The implicit measure involved participants being seated in front of a computer terminal and being walked through the initial procedures. The IAT computer software displayed specific and simple instructions for the use of the keyboard and the desired responses. A participant would read the directions on the screen which instructed them to place their left fore-finger on the (A) key on the keyboard and their right fore-finger on the (K) key. The software would then
display the constructs on the top left and top right of the computer screen (e.g., Good, Bad). The word or picture exemplars would then appear one at a time in the middle of the screen, randomly, until all the exemplars were displayed two times each. If a participant associated the presented exemplar with the left construct, they would press their left fore-finger on the (A) key. If they associated the exemplar with the right construct, they would press the (K) key with their right fore-finger. A series of practice trials were used to familiarize each participant with the proper association of exemplars and constructs. Participants were presented with an on-screen notice that the next trial was the recorded test trial and to respond as quickly as possible.

The typical timeframe for the IAT was 10 to 15 minutes per participant. The explicit measure took less than five minutes to complete. All data were kept separate from the consent form to insure confidentiality. All participants were debriefed upon completion of the study. All participants who signed an informed consent document received a coupon for a free ice cream cone upon completion of their participation.
Results

The present research study involved two measures, the IAT (an implicit assessment of attitudes toward body shapes) and an extended questionnaire (an explicit assessment of attitudes toward body shapes). In order to address the first two hypotheses, the data from each measure was analyzed separately, and then subsequently both measures were compared. The first two hypotheses address the implicit attitudes measured by the IAT. The software of the IAT generated a set of overall latency scores that represent the participants’ responses to the congruent (body image and “good”) and incongruent (body image and “bad”) scores as well as individual standard deviation measures. The higher the value of this measure, the greater the degree of inferred bias against the congruent body image. The higher the negative value of this measure, the greater the degree of inferred bias against the incongruent body image. Any score approaching zero is inferred as having little to no measurable bias.

The simple subtraction of the congruent scores from the incongruent scores divided by the pooled standard deviation represents the IAT effect measure. Using a syntax to divide each IAT score by a pooled standard deviation (Cohen’s $d$), a new IAT score for each condition is created for all participants. Dr. Greenwald refers to this as the “$d$ measure” (Cai, Sriram, Greenwald, & McFarland, 2003).

After completing descriptive statistical analyses of the data, $t$-test analysis was done to determine if there was a significant difference between and within the men and women participants. Comparisons between gender and IAT scores did not reflect any significant differences.
Table 1
Comparison Implicit Attitudes of Men and Women Towards The Interacting Constructs of Muscular, Obese, and Thin Body Images

<table>
<thead>
<tr>
<th>Question</th>
<th>Men</th>
<th>Women</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>om*</td>
<td>43.38</td>
<td>189.70</td>
<td>83.12</td>
<td>187.62</td>
<td>-0.94</td>
</tr>
<tr>
<td>to</td>
<td>-0.11</td>
<td>258.52</td>
<td>72.34</td>
<td>255.49</td>
<td>-1.24</td>
</tr>
<tr>
<td>mt</td>
<td>28.04</td>
<td>256.89</td>
<td>81.65</td>
<td>199.33</td>
<td>-1.06</td>
</tr>
</tbody>
</table>

Note: om = obese to muscular comparison; to = thin to obese comparison; and mt = muscular to thin comparison.

As shown in table 1, several paired samples comparisons were conducted examining the implicit conditions. There were no significant differences between our three implicit conditions when compared by gender and also when collapsed across the gender variable.

A comparison of means in the explicit measures produced some significant differences along several variables after generating multiple paired samples t-tests. When examined within gender, women’s current body image ($M = 7.70; SD = 3.33$) is significantly different than their ideal body image ($M = 9.01; SD = 2.92$), $t(1, 70) = -4.08, p < .001$. Men’s current body image ($M = 10.97; SD = 4.37$) was significantly different from their ideal body image ($M = 15.1; SD = 15.13$), $t(1,29) = 5.72, p < .001$. There were significant differences between genders for the ideal male body image. Men reported desiring a much more muscular shape ($M = 14.86; SD = 1.94$) than women reported desiring ($M = 13.30; SD = 3.17$), $t(1, 99) = 6.23, p < .001$. 
Table 2

Comparison of Explicit Body Images

<table>
<thead>
<tr>
<th>Question</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>cbi*</td>
<td>10.97</td>
<td>4.37</td>
</tr>
<tr>
<td>ibi</td>
<td>15.13</td>
<td>1.91</td>
</tr>
<tr>
<td>imbi</td>
<td>14.93</td>
<td>1.91</td>
</tr>
<tr>
<td>ifbi</td>
<td>10.54</td>
<td>3.75</td>
</tr>
</tbody>
</table>

Note: cbi = current body image, ibi = ideal body image, imbi = ideal male body image, ifbi = ideal female body image

When asked to rank order pictures, men and women both ranked the following body images as most desirable. Men ranked male body images MH (M = 7.48; SD = 1.94), MI (M = 5.62; SD = 1.84), and ME (M = 4.76; SD = 1.35) as most desirable. Women ranked the same body images as most desirable, but in different order: MH (M = 6.59; SD = 1.96), ME (M = 5.66; SD = 1.45), and MI (M = 4.17; SD = 2.02). All three images are on the skinny to muscular continuum, with ME stressing tone, less muscle definition, and MI stressing extreme muscle definition. MH is one step down from MI, and thus demonstrating a high amount of muscle tone. There were no differences between genders for the ranking of women’s ideal body image.
Table 3

Comparison of Ideal Male Body Images

<table>
<thead>
<tr>
<th>Question</th>
<th>Men</th>
<th>Women</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(M)</td>
<td>(SD)</td>
<td>(M)</td>
<td>(SD)</td>
<td>(t)</td>
<td>(df)</td>
<td>(p)</td>
</tr>
<tr>
<td>MA</td>
<td>1.56</td>
<td>1.25</td>
<td>2.50</td>
<td>1.62</td>
<td>-289</td>
<td>97</td>
<td>.228</td>
</tr>
<tr>
<td>MB</td>
<td>2.99</td>
<td>1.89</td>
<td>1.98</td>
<td>1.59</td>
<td>-356</td>
<td>97</td>
<td>.652</td>
</tr>
<tr>
<td>MC</td>
<td>3.21</td>
<td>1.65</td>
<td>2.22</td>
<td>2.10</td>
<td>2.28</td>
<td>97</td>
<td>.352</td>
</tr>
<tr>
<td>MD</td>
<td>4.89</td>
<td>1.89</td>
<td>5.98</td>
<td>3.36</td>
<td>3.68</td>
<td>97</td>
<td>.459</td>
</tr>
<tr>
<td>ME</td>
<td>4.76</td>
<td>1.35</td>
<td>5.66</td>
<td>1.45</td>
<td>-2.85</td>
<td>97</td>
<td>&lt;.005</td>
</tr>
<tr>
<td>MF</td>
<td>6.89</td>
<td>2.98</td>
<td>8.89</td>
<td>3.56</td>
<td>3.55</td>
<td>97</td>
<td>.382</td>
</tr>
<tr>
<td>MG</td>
<td>6.84</td>
<td>2.77</td>
<td>4.89</td>
<td>2.14</td>
<td>4.52</td>
<td>97</td>
<td>.293</td>
</tr>
<tr>
<td>MH</td>
<td>7.48</td>
<td>1.94</td>
<td>6.59</td>
<td>1.96</td>
<td>10.44</td>
<td>97</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>MI</td>
<td>5.62</td>
<td>1.84</td>
<td>4.17</td>
<td>2.02</td>
<td>3.33</td>
<td>97</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
Discussion

The purpose of this study was to examine the implicit and explicit differences in attitudes men and women had towards three specific body images: obese, skinny, and muscular. The first hypothesis under study was that men and women would make more positive implicit attributions for the socially ideal body shapes (muscular men and thin women). The second hypothesis under study was that men and women would make more negative implicit attributions for body shapes that deviate from the ideal body shape (obese men and women, muscular women and thin men). Finally the third hypothesis was that men and women would differ in their implicit and explicit attitudes toward body shapes, especially those that deviate from the social ideal.

Fundamental errors in regard to the use of the IAT became apparent immediately upon analyzing the data. One of the intentions of this study was to examine the different views concerning men and women’s body images by men and women. The methodology used in this study combined the body images of men and women into three individual constructs: obese, skinny, and muscular. Because of limitations imposed by the IAT software, however, as discussed in the introduction, men and women view images of men and women differently, even when classified simply as muscular, obese, or skinny. Muscular men are desirable while muscular women may not be. Combining muscular pictures of men and muscular pictures of women prevented a true set of data that would allow the ability to accept or not accept the first two hypotheses. By default, this study then became a 3 (body shape: muscular, obese, skinny) X 2 (participant gender: men, women) rather than an intended 3 (body shape: muscular, obese, skinny) X 2 (gender of pictures: men, women) X 2 (participant gender: men, women).
All prior research involving the IAT supports the idea that the exemplars (pictures) relating to the category (muscular, obese, skinny) form an individual construct (Nosek et al., 2005). The IAT software is not designed to tease out separate factors of a construct. This grave error has an overwhelming effect of preventing this research to truly present any data in a responsible manner that could be offered to either support or deny any of the first two hypotheses.

In consideration that each of the three constructs could not be separated to accurately represent two different sub-constructs (i.e., muscularity by gender), the data were analyzed using the construct as developed. Both genders did not respond significantly differently when congruent ideals of muscle and good were presented together, compared to when congruent ideals of skinny and good were presented.

Pictures of muscular men and women, presented simultaneously with positive attributes, did not cause significant cognitive dissonance, even when presented against skinny pictures and negative attributes. It was expected that a positive image of muscularity and an attribute such as “good” would generate a positive construct. Conversely the simultaneous pairing of skinny with “bad” was expected to generate a poor construct. These two constructs, when paired on opposite sides of a computer screen, were expected to allow the participants to respond more rapidly to exemplars than what the data actually stated. In reality, participants demonstrated minimal dissonance with any combination of pairings.

This lack of dissonance would suggest several things. First, it could be that the interpretation of pictures and words were not significant to develop a mental construct usable by the participants to affect the speed of their responses. The muscular pictures,
while definitely on the high end of any conceivable continuum of muscul arity, did not
generate the implicit recognition of being positive, in comparison to skinny pictures.
However, the inverse could be true as well. The skinny pictures did not generate the
expected bad implicit construct to significantly produce significant dissonance, reflected in
the lack of differences in the IAT scores. Again, the methodology used in this study
combined the men and women pictures, thus seriously distorting the intended constructs.

A more plausible explanation is that since men and women view pictures of
muscular men and women differently, their opposing attitudes of the genders would skew
the data’s means toward the middle. Thinness in women is desirable, but undesirable in
men, and muscul arity in men while desirable, is not in women.

The second hypothesis results follow the same line as the first one. Since there were
no significant differences in comparing muscular bodies with thin bodies, no inferences of
differences can be made. Explicitly, prior research supports muscul arity as a positive
attribute in comparison to that of skinny, but this was not supported in our implicit data
analysis.

One of the theories proposed by Wilson et al., (2000) is that explicit attitudes and
implicit attitudes are different. Although in his double-dissociation model, both implicit
and explicit attitudes are stimulated by similar stimuli; the actual response mechanisms are
different. Wilson et al., (2000) argued that it was the situation that dictated the type of
attitude to react, not simply the difference in stimuli. Since both sets of data in the present
study were presented in the same low threat environment, the responses were geared
toward the explicit nature of responding.
The third hypothesis was supported with mixed reviews. The main point of the third hypothesis was that men and women would have different views in their implicit and explicit attitudes towards body shapes. While there were no differences between men and women in regard to their implicit attitudes of body images, there were significant differences in explicit attitudes. This study’s intentions were that there would be some measurable differences in their implicit views; however, there were definite differences in their explicit views on body shapes. The strongest reason again for this lack of measurable differences was that the implicit constructs were not created as initially intended.

The analysis of explicit views towards body images generated significant results. There was a definite difference between men and women’s current body image and their ideal body image. Simply stated, more individuals considered another body image more favorably than what they perceive as their own body shape. This distinction was clearer when comparing women’s ideal body image to their current body image than when comparing men’s ideal body image to their current body image. One could argue women suffer more dissonance when it comes to their own body image than do men.

Men and women also differed on rankings of ideal male body images. Men and women ranked images of the nine male and nine female body images, and both genders ranked the following as most desirable: ME, MH, and MI. However, men and women disagree on how they ranked ordered the three body images. Men ranked the ME picture as less desirable then did the women. In the extreme male image demonstrating the most extreme muscle definition, men rated this image as more desirable did than women. This would suggest that men thought the extremely defined muscular image was more desirable. In regard to the MI drawing, which was one step down from the severely musculearly
defined image, men again ranked this drawing as more desirable than women did. Both of
these images are on the extreme upper end of muscularity. This suggests, explicitly
speaking, men think the ideal body image is one of extreme muscularity, but women tend
to rank the toned, less-defined male body image as most desirable.

The gravitation of men towards a more muscular body tone is consistent with the
literature concerning men's body images (Schillinginman, 1993; White & Gillett,
1994). There were no differences in the ranking of women's body images. This is
contradictory to the findings of past research (e.g., Fallon & Rozin, 1985).

Limitations

The initial design of the questionnaire requested that participants rank order their
attitudes towards pictures of male and female body images in order of least desirable to
most desirable. This rank order prevented better use of the means of each score. A Likert
scale format should have been used instructing each participant to rate each picture on a
scale of 1 to 9.

During the design of the implicit measures, further defining muscularity by gender
might have had the effect we were seeking. In hindsight, we should have divided each
construct by gender; thus, instead of a single muscular construct, we would have presented
only male pictures or female pictures to develop a concise male muscular construct and the
same for a female muscular construct. We should have separated the other two constructs
(skinny, obese) as well by gender. This separation would have allowed us to analyze the six
constructs by the gender of the pictures as well as the gender of the participants.
**Future Studies**

The IAT presents an interesting methodology for assessing implicit attitudes towards a wide variety of ideas and constructs. There are some concerns that need to be addressed by researchers who choose to use this instrument in their research. The IAT requires an intensive amount of focus to provide accurate responses, and thus lengthy or multiple IAT administrations can become quite burdensome and fatigue can set in quickly.

Researchers will want to consider spreading multiple IAT administrations over several days or limiting their constructs to two or four at the most.

**Conclusion**

The results of the present study support that men and women differ in their explicit attitudes towards the ideal body images of both men and women. In regard to male body images, men rank muscular male body images more highly than women do. In regard to women body images, there were no differences between male and female participants. The implications of this research would suggest a disparity between the ideal male body images of both sexes. While men may desire to have a more muscular appearance, it is not necessarily because women exhibit some higher attraction to that particular body shape.
References


that do and do not emphasize the cultural ideal of thinness. *British Journal of Social Psychology, 43,* 477-497.


Greenwald, A., & Farnham, S. (2000). Using the implicit association test to measure self-


Appendix A

Body Image Study (Demographics)
Body Image Study

DEMOGRAPHIC INFORMATION

1. In order to compare the scores from this questionnaire to your scores on the computer task, we need to be able to identify both sets of scores. Please write the first initial from both your first and last name, and then the last 4 digits of your social security number.

   Code________ For example: John Doe SS# 212-23-2323 Code:JD2323

2. What is your age? ________________

3. Gender (circle one): Male  Female

4. Please indicate your race (circle one):
   Caucasian  African American  Asian  Hispanic  Pacific Islander  Other

5. Please indicate your current education level (circle one)
   Freshman  Sophomore  Junior  Senior  Graduate Student

PLEASE REVIEW THE BODY IMAGES CAREFULLY ON THE SECOND SHEET OF THIS QUESTIONNAIRE.

1. In regards to your own body image, which drawing best represents your current body image? _____

2. In regards to your own body image, which drawing would you like to have as a body image? _____

3. Which body image best represents your personal view on what the ideal body image should be? Male _____  Female _____.

4. Which body image best represents your personal view on the most unfavorable body image should be? Male _____  Female _____.

5. Which body image best represents what you think the opposite sex would view as the most favorable? Male _____  Female _____.

6. Which body image best represents what you think the opposite sex would view as the most unfavorable? Male _____  Female _____.
Appendix B

Body Image Questionnaire
1. In regard to your own body image, which drawing best represents your current body image?

2. In regard to your own body image, which drawing would you like to have as a body image?

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="A" /></td>
<td><img src="image2" alt="B" /></td>
<td><img src="image3" alt="C" /></td>
<td><img src="image4" alt="D" /></td>
<td><img src="image5" alt="E" /></td>
<td><img src="image6" alt="F" /></td>
<td><img src="image7" alt="G" /></td>
<td><img src="image8" alt="H" /></td>
<td><img src="image9" alt="I" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image10" alt="J" /></td>
<td><img src="image11" alt="K" /></td>
<td><img src="image12" alt="L" /></td>
<td><img src="image13" alt="M" /></td>
<td><img src="image14" alt="N" /></td>
<td><img src="image15" alt="O" /></td>
<td><img src="image16" alt="P" /></td>
<td><img src="image17" alt="Q" /></td>
<td><img src="image18" alt="R" /></td>
</tr>
</tbody>
</table>
1. In regard to your own body image, which drawing best represents your current body image? 

2. In regard to your own body image, which drawing would you like to have as a body image?
From your perspective, please rate the following row of male drawings from 1-9: (least desirable 1 2 3 4 5 6 7 8 9 most desirable). Place your number in the block directly above the drawing.

From your perspective, please rate the following row of female drawings from 1-9: (least desirable 1 2 3 4 5 6 7 8 9 most desirable). Place your number in the block directly above the drawing.
From the perspective of the opposite sex, please rate the following row of male drawings from 1-9: (least desirable 1 2 3 4 5 6 7 8 9 most desirable). Place your number in the block directly above the drawing.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the perspective of the opposite sex, please rate the following row of female drawings from 1-9: (least desirable 1 2 3 4 5 6 7 8 9 most desirable). Place your number in the block directly above the drawing.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appendix C

Muscular Photographs
Muscular Pictures

Muscular Female 1

Muscular Female 2

Muscular Male 1

Muscular Male 2
Appendix D

Thin Photographs
Thin Pictures

Thin male 1

Thin Male 2

Thin Female 1

Thin Female 2
Appendix E

Obese Photographs
Obese Pictures

Obese Male 1

Obese Male 2

Obese Female 1

Obese Female 2
Appendix F

Informed Consent Document
Project Title: College Student's Reactions to Different Body Images

Investigator: Kenneth Brasel, Psychology, Tate Page Hall #261, 270-786-1964

You are being asked to participate in a project conducted through Western Kentucky University. The University requires that you give your signed agreement to participate in this project.

The investigator will explain to you in detail the purpose of the project, the procedures to be used, and the potential benefits and possible risks of participation. You may ask him/her any questions you have to help you understand the project. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have.

If you then decide to participate in the project, please sign on the last page of this form in the presence of the person who explained the project to you. You should be given a copy of this form to keep.

1. Nature and Purpose of the Project: We are exploring the preferences of men and women in regards to a variety of body images.

2. Explanation of Procedures: You will be asked to fill out a simple questionnaire, and then participate in a computer-based task that requires you to respond to a variety of pictures and word concepts. This will involve pressing one of two keys on a computer keyboard to record your responses. The total time of your participation should not exceed twenty minutes.

3. Discomfort and Risks: There are no known risks involved in this study.

4. Benefits: You will be given a coupon for a free smoothie from the on-campus franchise of “Freshens.” You will be given a debriefing form that details the purpose of our study in more detail, as well as the contact information should you desire to review the final results of our study.

5. Confidentiality: You will be given a 5-digit code to record on your questionnaire and computer task, your name will not be associated or stored with your responses. All data will be kept by Dr. Rick Grieve for a period of three years, and will then be destroyed.

6. Refusal/Withdrawal: Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.

You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.

__________________________________________   ________________
Signature of Participant                     Date

__________________________________________   ________________
Witness                                      Date

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT
THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY
THE WESTERN KENTUCKY UNIVERSITY HUMAN SUBJECTS REVIEW BOARD
Dr. Phillip E. Myers, Human Protections Administrator
TELEPHONE: (270) 745-4652
Appendix G

Debriefing Form
Debriefing Form

Thank you for your participation in our study. We are attempting to examine the preference of men and women towards their ideal body image of the opposite sex. We are also looking at biases that most of us have towards certain body images. You may have noticed it was easier to make some positive associations towards a favored body image; this can manifest itself in a variety of different ways in our daily life. If you would like a copy of our completed study, please send an email requesting such a copy to Kenneth.Brasel@wku.edu.

To find out more about biases, visit one or more of the following sites:

www.implicit.harvard.edu/implicit

www.understandingprejudice.org/iat

www.tolerance.org/hidden_bias
Appendix H

Human Subjects Review Board Approval
Kenneth Brasel  
TPH 261  
Department of Psychology  
WKU

Dear Kenneth:

Your revision to your research project, "Determining the Explicit and Implicit Biases of Various Body Images," was reviewed by the HSRB and it has been determined that risks to subjects are: (1) minimized and reasonable; and that (2) research procedures are consistent with a sound research design and do not expose the subjects to unnecessary risk. Reviewers determined that: (1) benefits to subjects are considered along with the importance of the topic and that outcomes are reasonable; (2) selection of subjects is equitable; and (3) the purposes of the research and the research setting is amenable to subjects’ welfare and producing desired outcomes; that indications of coercion or prejudice are absent, and that participation is clearly voluntary.

1. In addition, the IRB found that you need to orient participants as follows: (1) signed informed consent is required; (2) Provision is made for collecting, using and storing data in a manner that protects the safety and privacy of the subjects and the confidentiality of the data. (3) Appropriate safeguards are included to protect the rights and welfare of the subjects.

*This project is therefore approved at the Expedited Review Level until May 15, 2006.*

2. Please note that the institution is not responsible for any actions regarding this protocol before approval. If you expand the project at a later date to use other instruments please re-apply. Copies of your request for human subjects review, your application, and this approval, are maintained in the Office of Sponsored Programs at the above address. Please report any changes to this approved protocol to this office. Also, please use the stamped Informed Consent documents that are included with this letter. A Continuing Review protocol will be sent to you in the future to determine the status of the project.

Sincerely,
Sean Rubino, M.P.A.
Compliance Manager
Office of Sponsored Programs
Western Kentucky University