

Body Mass Image (BMImage): Attractiveness Ideals, Obesity, and Implications for Weight-Control Interventions¹

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Abstract

Sustainable weight reduction via clinical or community interventions for some Native Americans (and presumably other populations) may be linked to a culture's body image construct, what we call body mass image (BMImage). BMImage is a supplemental concept to the conventional body mass index (BMI) quantitative diagnostic measure, and BMImage is defined as a culturally-specific, historically generated, weight-health-aesthetic and explanatory model. In a study using a nine-point body image scale, 49 Native Americans (26 males and 23 females) responded to 15 questions regarding their perceptions of weight, health and attractiveness ideals in relation to the scale. It was found that the overweight and obese study participants think they have a lower BMI than actually measured; that they are satisfied with their current appearance, and that they think their current weight is not unhealthy. These preliminary findings may indicate a difference in care giver (BMI) and patient (BMImage) notions regarding weight and health. We contend that BMI, as a universal measure, cannot account for culturally specific constructions of body weight and perception that may affect weight control advice and outcomes.

Introduction

While the trite saying that "beauty is in the eye of the beholder" is inarguably true, it is also true that culture plays a powerful role in influencing what individuals find attractive. Just as individuals possess different aesthetic sensibilities, so too are there culture-based differences. In the course of our respective research and care giving experiences over the past decade, this article's authors have heard many Southwest Native Americans say that in Native American communities, the plump, or in the local vernacular, the "cubby" (for children) or "chunky" (for adults) body is the attractive and healthy one. We found this intriguing given the general orientation toward thinness in the United States, and we wanted to examine the significance of these anecdotal asides. The present body image study considers whether the anecdotes on weight and beauty are a reflection of a more widely shared set of body image ideals among a clinical study population of Native Americans and how these aesthetic ideals are linked to health and illness perceptions.

We consider this relationship significant and argue that core cultural values are encoded in

body image ideals, what we call body mass image (BMImage), the culturally-specific, historically generated weight-health-aesthetic and explanatory model serving as a medium of *social value* (Turner 1995). If the social value as expressed in a culture's BMImage is one where health and attractiveness are associated with "chunky" bodies, as is found in some Native or indigenous populations around the world (Gittelsohn et al. 1996; Sobo 1994) then this relationship will have consequences for interventions that advocate limiting or reducing body weight. The social value then, to be Indian in the 21st century, may be to have an overweight though not necessarily obese body. Moreover, we contend that BMImage aesthetic perceptions of attractiveness are linked to understandings of health and illness and therefore such perceptions contribute in complex ways to a person's and community's sense of control over health, wellness practices and the efficacy of disease prevention and maintenance. Understanding the Native community's BMImage and health perceptions is germane because Southwest Native Americans suffer a high incidence and prevalence of Type 2 diabetes, from morbid obesity and a myriad of secondary morbidity concerns (Knowler et al. 1990). This exper-

imental BMIImage research exhibits potential for informing diet/exercise interventions and informing clinicians who must be aware of and contend with other culture's notions of BMIImage to effectively (in a culturally appropriate manner) intervene, especially where body size, diet and exercise are at issue. The use of the BMI measure (Kg/m^2) in the context of clinical and other behavioral interventions, we argue, tells only one part of the weight-health-aesthetic connection. While we do not dispute BMI's value, the formula cannot measure culturally-specific or personal aesthetic values associated with weight. BMIImage, on the other hand, could prove useful for clinicians and other public health workers for advocating for their patients weight monitoring or reduction consultations and programs that are attentive to cultural sensibilities and importantly for assisting community members to better understand the role of weight in cultural perceptions of health, illness and beauty ideals.

Underlying our assumption is that BMIImage is the combined result of political economic, cultural and acculturative forces that shape the field of behavior in relation to diet, activity levels, and disease loads. BMIImage is a historically and contextual product of larger social relations of power whereas BMI is an objective measure of body size. Moreover, the assumption is that effective and sustainable intervention will demand an understanding of both BMI and BMIImage.

Study Background

Research reveals that Native Americans, ethnic minorities, and other indigenous populations around the world (Anderson et al. 1997) have a high incidence and prevalence of diabetes (Knowler et al. 1990). Complications of the disease (Seivers et al. 1992) have a tremendous impact and obesity rates are staggering (Pettitt et al. 1993; Ravussin et al. 1994). All told, diabetes and obesity account for a majority of Native American health concerns. Much has been learned about the physiological, genetic (Hanson et al. 1985), cultural (Garro 1984, 1995; Hagey 1984; Kozak 1996; Lang 1989), disempowerment (Ferreira and Lang 2006), political, and economic (Benyshek 2001) aspects of diabetes and

its co-morbidity in Native American communities. But much remains to be understood regarding the natural history of the disease, and more importantly, about developing sustainable interventions to halt its increasingly devastating impacts (Smith-Morris 2004, 2006).

The economic and political consequences of policies that affect Native American communities are well documented. Dependency, reservation building, periodic food shortages and famines in the 19th and early 20th centuries and the shift toward wage earning eroded the economic and political autonomy and self-sustainability of many Native American communities. Commodity foods such as surplus cheese, peanut butter, lard, white flour, sugar and coffee supplemented or supplanted their more nutritious diet of corn, wheat, beans, squash, and wild game and plants. Successful Native American adaptations to place and diet and self-sufficiency were eventually replaced with high unemployment, television sets, automobiles, fast food, and social problems such as alcohol and drug abuse and interpersonal violence, which are consequences shared with other dispossessed groups in the United States. Native American traditional diet and food getting strategies were displaced. Currently a sedentary lifestyle, obesity and diabetes are serious health concerns.

Acculturative pressures point to the role of economic dependency and unwelcomed culture change in Native American (Ferreira and Lang 2006) and other minority populations (Scheder 1988; Hunt et al. 1998) diabetes etiology. Indications are that bio-medical acculturation has had an unintended effect on this community. For instance, in the process of teaching one community about the genetic foundation (thrifty genotype hypothesis) of the diabetes epidemic, the explanation has influenced how individuals and the entire culture has constructed their own heritage-based diabetes explanatory model. Kozak (1996) first documented and identified the consequences of the genetic explanation among one Native community as a population that views Type 2 diabetes as inevitable, a product of Indian heritage, and that it is eventually fatal. It is not that this community doesn't understand the basic biomedical explanation of diabetes; it's that, in a way, they understand it

too well. If Native Americans conclude that there is little or nothing to be done to prevent diabetes because they think that the disease is genetic, is an Indian disease, then prevention and glycemic control interventions will be difficult to sustain. Weiner (1999) has independently confirmed this finding in another Native community. Despite this, a recent intervention demonstrated the possibility of making at least short term lifestyle modifications with intensive and personal intervention that assisted participants to lose weight and prevent them from developing diabetes (Diabetes Prevention Program Research Group 2002; Narayan et al. 1998). It is unclear if the positive results obtained in this intervention will be translatable into long term, sustainable modifications without continued intensive intervention.

While body image research is quite common in the psychological literature (Heinberg 1996), much of it focuses on white, middle and upper middle class female subjects. The need for more research on body image notions among non-whites has been noted (Gittlesohn et al. 1996) and some contributions made (Anderson et al. 1997; Cachelin et al. 1998; Ferriera 2006; Lieberman et al. 2003; Roy 2006; Yates et al. 2004). Gittlesohn et al. (1996) research is instructive in that they found significant differences between an Ojibway-Cree community and the published record for whites. The Ojibway-Cree, for instance, preferred larger body shapes, females preferred smaller shapes than did Ojibway-Cree men and that age and sex based differences in the community were evident. Olson (1999) notes the ubiquity of the larger body aesthetic as the ideal body in Native communities throughout the world. Nothing has been published on Southwest Native American body image ideals or on their explanatory model as it pertains to notions of wellness in relation to body shape and size.

Methods

Using a convenience sample, our research employed structured and semi-structured interviews and was conducted at the Phoenix Indian Medical Center, in the National Institutes of Health Clinical Research Unit in Phoenix, Arizona. Study participants were recruited from research volunteers who were already admitted

to the Clinical Research Unit for other biomedical-based research protocols and the study has National Institutes of Health approval. During our research, there were approximately 10-12 different protocols being conducted on the Unit. Study participants averaged an in-patient stay of 7 to 14 days. Potential participants were recruited by the three nurse investigators and given a consent form to review and sign if they wished to participate. Recruitment began in October 1998 and by the following January only six participants had agreed to participate. By March 1999 a \$50.00 incentive to participate was offered and a total of 49 participants were recruited and completed the study by October 1999. Participants were scheduled for and completed three different interviews on different days (some completed all of them on the same day). The goal of the overall research protocol was to elicit the participant's health and illness model. The data for the present study derives from the use of one quantitative measure embedded in the larger study. The total time for the three interviews ranged from one to ten hours in length with an average of three hours.

Measures

The nine-point Body Image Scale was adapted from Stunkard et al. (1983). A set of nine, graduated male and nine, graduated female body image silhouettes were slightly modified by two researchers of Native descent (Lomayma, Seumptewa) to reflect body shapes they deemed common to Native populations (Figure 1). Notably, the thighs were thinned down on both male and female images, and on the female images the waist lines were made less defined. Our research conforms to the work of Patt et al. (2002), and the Reese scale (Reese Graphics, Incorporated, Baltimore, Maryland. cited in Patt et al. 2002).

A series of 15 questions were asked of each respondent and were gender specific and several questions elicited responses that were hypothetical as to what the respondent thought the opposite sex or a non-Indian person might find attractive, healthy or ill appearing. Questions were designed to determine gender variations in the study respondents' body image ideals, to discern how body size is linked to health perceptions, and evaluate body image ideals with health

concerns (Table 1). Thus, a major research question we wished to answer was whether there is a difference between respondents' BMIImage (as established in their responses to the scale) and the clinical BMI measure. Demographic data, including gender, age, marital and educational status, height and weight were also collected.

Data Analysis

Data were entered into Microsoft Excel and analyzed with SPSS 11. Demographic data were summarized with means and standard deviations where possible, or percentages for categorical data. For each participant, BMI was obtained from participant clinical files. Results from the scale-related questions were analyzed based on the 9 silhouettes and compared to the BMI from the clinical file. Differences in perceptions of male and female participants were compared with independent *t* tests. Differences in perceptions for subjects were compared with independent *t* tests. Categorical data were compared via Chi Square analyses. Alpha was set at .05 for all statistical tests.

Results

Demographics

Twenty-six male and 23 females completed the scale-related questions. Their ages ranged from 18-49, with an average of 28.5 years (*SD* = 7.3). The average weight was 99.15Kg (*SD* = 29.9). The average BMI was 35.6 (*SD* = 9.9), in the obesity II range (Table 2). Twelve participants (24.5%) had a high school education or equivalent (GED), the majority (74.5%) had not completed high school. 75.5% had never been married, 22.5% were married, and 2% were divorced.

Self-Perception and Health

When participants were asked "which figure looks like you" they tended to under-estimate their own BMI ($p < .01$). Males chose a figure that corresponded to a BMI average of 28.4, and female's average response was a BMI of 28.6, the calculated BMI for the participants was 35.3 (*SD* = 11.2) for males and 36.0 (*SD* = 8.5) for females. When asked "Which figure do you want to look like" the responses differed significantly from their perceived or actual BMI (all $p < .01$). Male participants wanted to look like the figure

corresponding to a BMI of 25.8, and females desired a BMI averaging 22.5. Despite the discrepancy between desired and actual BMI, 53.5% reported being happy with their current appearance. Chi square analyses found that when asked "Are you happy with your current appearance?" participants responses did not depend on actual BMI ($p = .61$).

When asked which figure looked healthy, participants responded with figures that matched the figure they wanted to look like ($p > .05$) (24.3 for male, and 23.1 for female). The NIH guidelines (National Institutes of Health 1998) give a standard for normal (healthy) BMI that ranges between 18.5 and 24.9. Our sample's perception of healthy BMI fell in the upper third of this range, and for males, desired BMI was slightly above the normal range (25.8). When asked which figure looked the most *unhealthy*, an interesting dichotomy was found. While most participants responded as expected, that the heaviest figure was unhealthy (with a BMI of 40), 32% thought the lightest figure was most unhealthy. Clearly a significant proportion of this sample views underweight bodies to be less healthy than overweight bodies.

When asked which figure looked most attractive to the opposite sex, responses corresponded to healthy BMI ratings for men (24.9 for attractive, 24.3 for healthy $p = .90$) but not for women (21.4 for attractive, 23.1 for healthy $p = .01$). Interestingly, the women in this sample indicated that they wanted to look more like the figure they perceived as healthy, and not the figure they rated as most attractive to the opposite sex.

Comparisons of Gender and Ethnicity

As suggested above, there were significant differences in perceptions for male and female subjects. Females tend to want to be lighter than males (22.5 vs. 25.8, $p = .001$). Participants thought that females should be lighter to be considered healthy (22.8 vs. 24.1, $p = .01$) and attractive (21.4 vs. 24.9, $p = .00$).

When asked to speculate, participants also reported that they thought that non-Indian males and females wanted to be lighter than Indian males and females (24.8 vs. 23.4, $p = .006$ for males, 22.8 vs. 20.6, $p = .005$ for females). When comparing the responses for "what do

non-Indian males and females want to look like” to their perception of which figure looks healthy, significant differences were found (23.4 vs. 24.3 $p=.04$ for males, 20.6 vs. 23.1, $p<.001$ for females). These findings suggest that the study respondents believe that non-Indians have different desires in terms of body weight, and that non-Indians are seen as wanting to be thinner.

Discussion

The BMIImage expressed in these data are compelling with regard to how weight and glycemic control might be approached in these study participants in particular and perhaps in their home community and other Native American communities in general. The preliminary findings of this research indicate that in this sample of respondents BMIImage may be a significant component coupled with the standardized BMI measure for developing interventions aimed at lowering a person’s and/or presumably a community’s BMI.

The data suggest that while the majority of the study sample is obese, therefore defined clinically as unhealthy, the participants themselves do not perceive themselves this way. Health or illness in relation to weight is not viewed in clinical diagnostic (BMI) terms. In other words, for these individuals, being overweight is, in general, not thought to be pathological as is found in their response to question 6 and compared to their actual BMI. The participants, significantly, view themselves as lighter than they are, they see their weight as essentially healthy, and they are happy with their current appearance (as defined by their BMIImage).

This finding appears to be inversely related to how sufferers of anorexia view their bodies, that is, as much heavier than they are (Cash and Deagle 1997). This situation implies that public health messages and interventions encouraging

of weight loss, encouraging the consumption of more healthful foods in the low fat, low sugar categories and increasing exercise levels to improve health may seem to these subjects as an unwarranted imposition on clinician culture. If, as our data suggest, they question that the white (or external) standards are not what is most healthy, rejection of that standard makes sense. If lay people do not pathologize a weight that professional outsiders do, then this may unintentionally fuel a culturally-based conflict of social values between patient community and practitioner community. Therefore, we recommend developing a culturally specific tool to aid practitioner and patient in arriving at realistic strategies, based on mutual understanding of body size, disease risk and cultural influences, for weight reduction.

Conclusion

As Kozak (1996), Weiner (1999) and Smith-Morris (2006) have independently demonstrated in Native American communities that differences between lay and professional disease explanatory models not only exist but can have adverse clinical consequences. And it just might be these points that make it so difficult to produce sustainable weight reduction and activity increasing interventions in this and other communities. Given the implications of this research we think it prudent to establish an individual and/or cultural base line of BMIImage to explore the ways that this image is employed in thinking about one’s body, health, and attractiveness. Our findings argue that if the social value is one of overweight bodies symbolizing the attractive and healthy body, then clinicians and health educators are urged to develop strategies that incorporate and draw from the patient population’s culturally-specific BMIImage construct. ○

Figure 1. Body image scale with approximate BMIs



(adapted from Stunkard et al 1983)

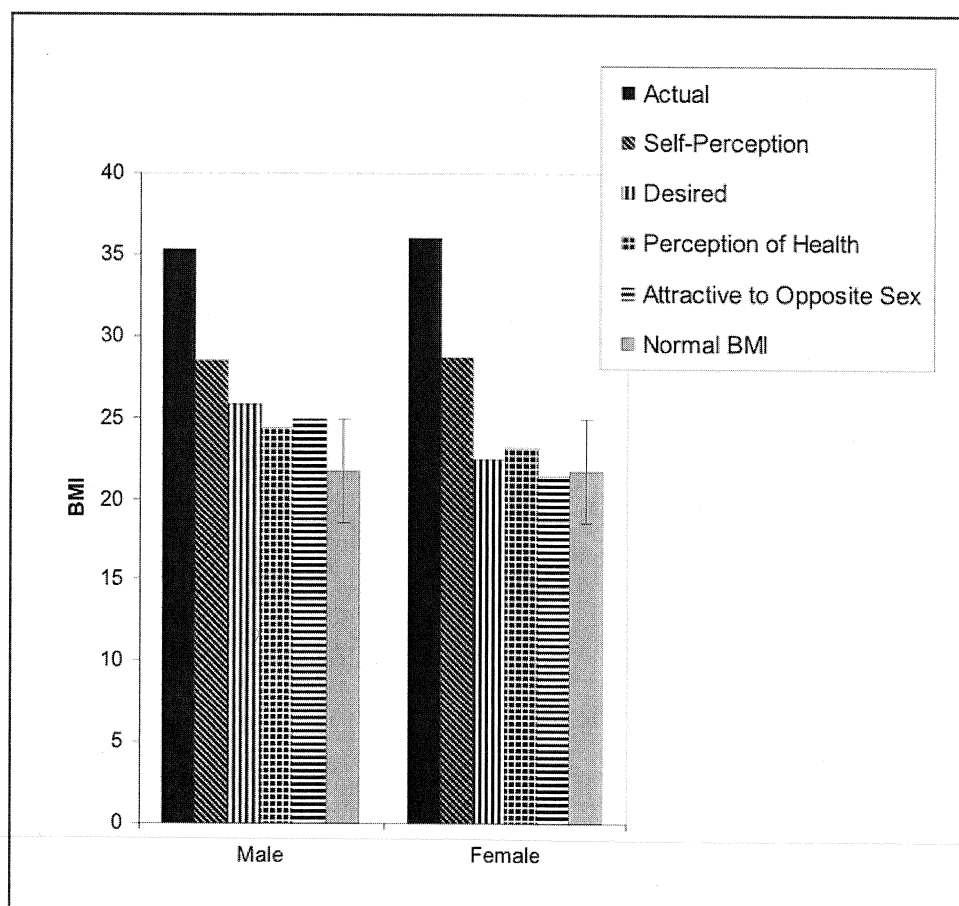
Table 1. Research Questions

1. Which female figure looks most healthy to you?
2. Which female figure looks most unhealthy to you?
3. Which female figure do you think is most attractive to the opposite sex?
4. Which figure do you think that most Indian women want to look like?
5. Which figure do you think that most non-Indian women want to look like?
6. Which figure looks most like you?
7. Which figure do you want to look like?
8. Which male figure looks most healthy to you?
9. Which male figure looks most unhealthy to you?
10. Which male figure do you think is most attractive to the opposite sex?
11. Which figure do you think that most Indian men want to look like?
12. Which figure do you think most non-Indian men want to look like?
13. Which figure (if male) looks most like you?
14. Which figure (if male) do you want to look like?
15. Are you happy with your present appearance?

Table 2. Participant BMI (% of sample)

● Classification	Subject Sample Female	Subject Sample Male	Subject Sample Overall
Underweight <18.5	0%	0%	0%
Normal: 18.5 –24.9	12%	9%	10%
Overweight: 25.0 – 29.9	27%	17%	22%
Obesity I: 30.0 – 34.9	19%	30%	24%
Obesity II 35.0 – 39.9	19%	13%	16%
Extreme Obesity III 40+	23%	30%	27%

Figure 2. BMI Actual and Perceived



Notes

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