

Title: What is the Interrelationship between eating behaviors, BMI and body composition in adults?

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### **Abstract**

The aim of this narration is to provide an evidence-based review of the interrelationships that exist among eating attitudes, Body Mass Index and Body Composition and Image in a result-oriented manner. The intricate nature of the components is studied with clear definitions determined early on. Critical concepts and the context is detailed to aid better understanding of the interrelations that are later determined and justified through evidence-based practices. Once descriptions and inherent nature are described, the inter-relationships between Body Mass Index and Body composition / Image, Body composition / Image and eating behavior and Body Mass Index and eating behavior is determined through the lens of a variety of published and reputable books, research publications, journal articles and case studies. The important factors together with the way forward are consequentially discussed and presented in order to highlight important findings; key topics underlined to direct future researches at the end to conclude the narrative review.

*Keywords:* Interrelationships, Body Mass Index, Body Composition, Body Image, eating behavior



## 1. Introduction

Dietary patterns, exemplified by balanced meals constituting of high nutritional value, are cardinal influencers of overall health and holistic wellbeing for any individual (Delgado, et al. 2016). The healthy management of it elicits multifarious benefits, such as reduction of the risk of chronic diseases, maintenance of a healthy lifestyle and insurance of consistency in multiple avenues of business and pleasure (Beale, 2017). On the contrary, absence of it has been determined to be quite adverse, with direct correlation with obesity found in both adults and adolescents. It has even proven to be fatal for those who maintain a healthy weight, making them vulnerable to the risks of type 2 diabetes, high blood pressure (heart disease), osteoporosis and multifarious cancers (Marso & Stern, 2004).

With increasing incidence of risk factors about adult chronic diseases, such as type 2 diabetes and hypertension, seen in younger ages (Allen, et al. 2009); it is imperative to cement healthy dietary patterns in childhood to ensure their eventual progression into adulthood. The link between healthy weight and good nutrition cannot be disregarded, and the aim of this review is to provide an in-depth study of the multiple perspectives and research surrounding the interrelationship between Body Mass Index, body image, and composition together with the presiding eating behaviors adopted across the globe by adults.

## 2. Nature of Central Concepts

The intricate relationship between Body Mass Index (BMI), dietary patterns and body image has been a diverse subject garnering much debate and research (Rolfes, et al. 2016). This is due to the fact that BMI is a measure used to calculate the percentage of body fat about the height (Warrell et al. 2003); encompassing issues related to both obesity and anorexia together with a cadre of cognitive perceptions and psychological determinants that regulate these relationships.

For instance, women have been commonly associated with resorting to unhealthy eating habits to pursue an ideal BMI (Steen & Thomas, 2015). Such habits are generally associated with dissatisfaction with their body image, found yielding damaging pursuits of thinness amongst adult women as well as excessive dieting to the point of self-induced starvation. Furthermore, many studies have identified lack of self-esteem as the primary catalyst for such behavior (Kearny & Trull, 2014). This highlights the convoluted nature of the interrelationship between Body Mass Index and eating



habits, and how multifarious factors can influence the inception of these relationships as well as the impact of its results. These factors include many facets of anxiety and depression surrounding body composition that affect many areas of psychological functioning. Impairment of social functioning, bullying, and lack of confidence; all have been found contributing to unhealthy dietary patterns in both clinical and non-clinical women regardless of their BMI score (Kliegman & Stanton, 2016). This is further augmented by the value that is given by the Western society to slim physiques as the ideal body composition to attain, specifically by women (Ferrera, 2006), thereby effectively constructing an eating pathology based on an entirely sociocultural model. Many types of research have justified the existence of this sociocultural perspective and how it propels the notion of disorderly eating in response to the prevalent cultural trend (Collins et al. 2002). This emphasis on slim figures being a major component of beautification in this era has adversely affected the adoption of healthy dietary regimes. The medium for the exertion of this sociocultural pressure is none other than close family and friends (Fox, 1993). Mass media provides a sanctuary for these notions and abets the internalization of this process to effectually encourage discontent amongst the women regarding their physique and BMI (Childers, 2016).

With declining threshold of ideal weight and rising rate of obesity, men too have become susceptible and vulnerable to become victims of their disorderly diet regimes. In contrast to the opposite gender, there was a relationship found between weight control behaviors and BMI (Foody, 2000). However, both genders did exhibit a relationship between “perceived” weight and the enactment of consequential control behaviors. Adults who perceived themselves to be overweight did find incentive and motivations to restrict their calorie intake, use laxatives, purge, diet pills, exercise and even self-medicate (Deanda, 2013). This is partly due to obesity being seen as a serious health problem, with the World Health Organization categorizing overweight individuals as  $25 \text{ kg/m}^2$  and obese adults greater than or equal to  $30 \text{ kg/m}^2$  (Wadden & Bray, 2018). It is evident that their perceptions regarding their respective body composition are of much greater importance to induce healthy behavior than the BMI score.

To cater to a comprehensive analysis, the following sections outline the central concepts of this narrative, aiming to define and signify relations with one another. Both clinical and non-clinical adult populations shall be addressed to outline the rationale.

## 2.1 Eating Behaviors



These include attitudes and thoughts about the whole spectrum (i.e., dieting, gluttony, and anorexia). Abnormal eating behavior and attitudes are dietary approaches that differ from the societal norm and increase the risk of disease and illnesses (Macfie & Meiselman, 2012). A recent study established a significant association between developments of disturbed eating attitudes with parental ignorance (Kerfoot & Butler, 2016). These attitudes, if unhealthy, tend to pose significant health problems together with a risk of acquiring eating disorders.

There are two common measures used to measure disturbed eating behaviors, such as the EDI (Eating Disorders Inventory), a semi-structured assessment interview to detect physiopathology concerning specific eating disorders and EAT (Eating Attitudes Test) self-report measure designed to examine various symptoms of eating disorders (Baer & Blais, 2009). These have been employed by many studies with many modification and variations existing in the respective research discipline.

## **2.2 Body Composition and Image**

The perceived evaluation and mental image assessment regarding the personal physical appearance by the presiding socio-cultural norms regarding the ideal body composition is known as body image identification. Evidently, it has an inherent link with the actual composition of the body and both of them work together to influence the overall sense of self and general importance associated with healthy habits adopted by the individual. Their influence is exhibited and justified for both adult men and women in disseminating incongruities between perceived body shape and actual body shape. Research has highlighted the degree to which body misperception determines the quality of life enjoyed by an adult (Charlinton, 2008). In University students, it has been reported to administer negative effects on the individuals grooming, exercise regimes, confidence, self-esteem and dietary patterns. This resulting dissatisfaction of body composition and image yields significant risk of developing eating disorders as well.

There exist multiple assessment techniques such as the BDDE (Body Dysmorphic Disorder Examination) (Vashi, 2015), BSQ (Body Shape Questionnaire) and BESA (Body Esteem Scale for Adolescents and Adults) (Stromboig & Olsen, 2004).

## **2.3 Body Mass Index**

The ratio of weight to height; Body Mass Index is considered as the best assessment for body fat in the market. A BMI of 20 – 24.9 is considered normal with anything above it considered



analogous to obesity, and anything below it is equivalent to being underweight. Both extremes have been commonly associated with morbidities and mortalities. Strong associated has also been exhibited with many other diseases as well, such as hypertension, gallstones, heart diseases, psychological and eating disorders (Goldstein, 2007).

### **3. Interrelationships**

#### **3.1 Body Image and Body Mass Index**

The relationship between BMI and body image and composition has been thoroughly explored, with elevations in the BMI found highly correlated with social and body image discontent, primarily amongst senior year female college students (Anderson, 2016). The study sample was taken from a reputable college renowned for its academic prowess and high achievements. Similar, research conducted by Dr. Koff and Dr. Sangani found that a negative body image is most likely to be perceived in cases with higher BMI ratios (1997). With evidence-based strong association, Body Mass Index has further proven to be both a long term and short term predictor of body image in a socioeconomically diverse Caucasian sample.

This relationship is profoundly deterministic according to gender. Women have been found to have much more vulnerability to dissatisfaction from this relationship when compared with men from similar age groups (Grogan, 2016). However, negative consequences have been associated with both genders in regards to body dissatisfaction and elevated BMI (Cash & Smolak, 2012). Examples of the adverse effects include smoking, forced dieting and adoption of unhealthy weight control strategies. Its relation has also been found producing negative effects on the self-esteem of an individual, regardless of gender. Negative perceptions about BMI and body image successfully internalized psychological symptoms such as anxiety, depression, somatization, peer relations and healthy social functioning.

To summarize, the way a person perceives his body composition and image is susceptible to multifarious factors. There is strong association present between normal and high weight BMI together with body composition. It is related to gender with the females found at greater risk. The impact of this perceptions is cardinal due to its lasting effects on the quality of life enjoyed by any individual.

#### **3.2 Eating Behaviors and Body Image**



The relationship between body image and eating behaviors has also been found to be gender specific. Dieting is more prevalent amongst women than men as a greater correlation between disturbed body image and dietary patterns have been determined. This relationship has been studied across different socioeconomic statuses, diverse ethnicity, and multi-cultural backgrounds only to yield the same results. There is a greater likelihood of disturbed eating attitudes if there is a presence of higher body composition and perceived dissatisfaction with body image. Western culture is also seen to play a vital part as a confounder, augmenting the perceptions held by women across the developed world. A recent study found no significant difference between Australian and Hong Kong women regarding eating behaviors and attitudes (Paludi, 2010). It is seen that idealization of a thin frame did produce image dissatisfaction but tends not to produce any adoption of healthy eating attitudes.

The resulting image dissatisfaction is quite common amongst women, but differences are seen in western and Asian cultures. Asian women tend not to be haunted by the society fuelled idealistic perspective of a leaner physique, but this adversely affects them as there is an absence of a diagnostic criterion that identifies eating disorders and influences healthy dietary regimes. Therefore, the over-reliance of fear concerning obesity has exhibited itself as a greater influence in broader cultural settings (i.e., the western society) than in the Asian ones.

To summarize, the largely negative influence of the internalization of lean physiques on women perceptions regarding body shape has grown into an enduring issue. Not just limited to adults, even children are becoming victims of this ordeal as the individual views regarding body composition plays a cardinal role in shaping dietary regimes.

### **3.3 Eating Behaviors and Body Mass Index**

Most of the research studying the patterns of association of dietary behavior do so in a context of Body mass index and body image with clear correlation always highlighted between eating attitudes and BMI. Greater food preoccupation is seen amongst populations of adult women with elevated or high Body Mass Index (Buist & Mapp, 2003). These studies included Caucasian, Native American and African American individuals in the sample. Eating disorders have also signified a positive correspondence with obesity and overweight BMI (Buist & Mapp, 2003).

However, the Malaysian studies have highlighted another factor that links BMI and eating attitudes - perceived body weight dissatisfaction (i.e., self-loathing). The sample. Comprising of



Chinese and Malay individuals, exhibited disordered eating as better indicators of low self-satisfaction than actual body composition (Edman, 2004).

To summarize, elevation of BMI has produced a significant correlation between preoccupation with food with disturbed and unhealthy dietary patterns commonly attributed to a desire for being leaner. Both adults and children are affected by the disastrous effects of its relationship.

#### **4. Discussion and Conclusion**

The desire to be slim and lean, fueled by the prevailing socio-cultural pressures, produces an onslaught of negative effects on both the quality of life enjoyed and the eating pathology adopted by the individual. There is an immense need of awareness creation and greater research on each of the subsequent factors highlighted in this review to shed further light onto the psychological processes underpinning the efficacious development of these issues.



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