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Understanding the Cultural, Social, and Biological Environment Where Eating Disorders Thrive

Poper Rose McMillin

University of Colorado Boulder

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Understanding the Cultural, Social, and Biological Environment Where Eating Disorders Thrive

Piper Rose McMillin

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Advisor:
Heather Williams, Anthropology

Committee Members:
Doug Bamforth, Anthropology
Ryan Bachtell, Psychology and Neuroscience
Abstract

In a world of immense variety and dramatic difference in physical beauty, western cultural conceptions of attractiveness have gone against the grain by shunning those whose appearance falls outside of the narrowly defined ideals. Slender, toned bodies, well-defined jaw lines, and strong features represent attractiveness in this culture and are propagated through constant reminders in popular media. In this environment, a person who meets the high standards of beauty and body size also demonstrates good health, self-control, moral integrity, drive, and a number of other qualities that are praised and desired in this culture. Ironically, the increase in glorification of an ultrathin, toned body coincides with an increase in average body weight and caloric intake, due to industrialization, economic changes, and mass production of cheap, unhealthy, calorie dense foods. This incongruity between what is being demanded and what is being consumed has led many individuals to become fully immersed in obsession over food, appearance, and mechanisms through which they can control their bodies. For some, this obsession leads to healthy eating and increased activity levels, for others it becomes a revolving door of crash diets and weight-loss medication, and in extreme cases eating disorders.

Within this paper, I suggest that in an environment where being physically attractive means everything, there may be a biological precursor that drives a person to eating disorder pathologies. Research suggests that prevalence rates for some other disorders, such as mood, anxiety, and personality disturbances, are relatively high in persons with eating disorders and vise versa. While these maladaptive practices have not been restricted to late 20th century western culture, they are contained in areas where these high standards of beauty perpetuate. Unfortunately, in the wake of a globalized culture, dieting behaviors and eating disorders emerge internationally.
**Introduction**

The understanding of mental disorder has been of medical importance for over a century in American history. According to the American Psychiatric Association, classification of psychological disorders began before the World Wars because of its importance in gathering statistical information. In 1952, the American Psychiatric Association Committee on Nomenclature and Statistics published the first edition of the *Diagnostic and Statistical Manual: Mental Disorders (DSM-I)*. This publication provided information to medical personnel on the descriptions, and criteria for diagnosis of many mental disorders. Since that time, the DSM has gone through a number of revisions, which changed criteria, added disorders, and classified more of the unknown (American Psychiatric Association).

In the initial publication of the DSM, anorexia and bulimia served as supplementary terms for psychological disturbances that affected the digestive system. At this stage, the DSM described anorexia as the loss of appetite and bulimia as an excessive appetite. However, these definitions have changed and the most current version of the DSM (DSM-IV-tr) contains specific defining criteria for eating disorders, more specifically know as: anorexia nervosa (AN), bulimia nervosa (BN), and eating disorders otherwise not specified (EDNOS). In general, the symptoms of patients with eating disorders are abnormal patterns of consumption (not eating, eating too much, vomiting up what they are eating, etc.), and a recurrent mental obsession with what they are or are not eating and how their body looks (American Psychiatric Association 2000).

Although there are similarities across the range of eating disorders, the differences are more important in their classification within the DSM. For a diagnosis of either anorexia
nervosa or bulimia nervosa, a patient meets the specific criteria of that disorder. When a patient displays parts of a disorder, for example binge eating without purging, they receive an EDNOS diagnosis (Costin 2007). As the DSM goes into its most recent revision, due for release in Spring 2013, the criteria will again change to be more encompassing of the many variations of these disorders. This revision is extremely important to the understanding of eating disorders because it will expand the knowledge base and research pool. This will be accomplished through the diagnosis of more patients with anorexia nervosa or bulimia nervosa and reduction of the number of EDNOS diagnoses.

**Eating Disorders in History**

In order to understand modern eating disorders one must also understand their origins, and the environment in which they thrive. Fasting and expelling food from the body are not new phenomena. In Ancient Greece, religious practices used fasting for contacting supernatural forces and avoiding entry of evil forces (Kerndt 1982). In ancient Egypt the people would limit their food intake through fasting or vomiting to maintain their health (Siculus and Herodotus in Haslam); and in the Christian tradition, fasting has been used as a method for bringing people together, paving the way to a great feast, healing, and expelling demons (Russell 2005). Patterns of food and beverage consumption and patterns of abnormal eating behaviors in history are important because they evolve and occur for varying reasons, which are often situated in time and space.

For example, one of the earliest recordings of abnormal eating and psychological disturbance occurred in 1694. In his description, Richard Morton wrote about an 18 year-old patient, who he diagnosed with nervous atrophy/nervous consumption. Her symptoms, which included a lack of appetite, upset digestion, fainting fits, and extreme thinness
closely mirrored the current DSM criteria for anorexia nervosa. However, he never discussed the mental fixation of this patient on weight or personal worth in regards to her weight, because of this it is hard to classify her with modern anorectics of western culture (Morton 1720, Costin 2007). Regardless, this case provides insight into the vast complexity and variation of the symptoms throughout history, situations, and in specific cases.

In 1933, Ellen West, at the age of 33, took her life. Before this tragic ending, she was checked into Binswanger’s Bellevue Asylum in Switzerland in an attempt to put her mental torment at bay. At this time, Dr. Binswanger treated her for schizophrenia. When Ellen did not respond to his treatment Dr. Binswanger released her as ‘incurable’ and left her to her own devices, and almost inevitable death. Years after publishing the doctor’s analysis along with her diaries, medical professionals were able to reclassify her disorder. In Dr. Albrecht Hirschmüller’s *Ellen West: Eine Patientin Ludwig Binswanger's zwischen Kreativität und destruktivem Ledien* (2004), he composed a new diagnosis of her mental disorder. Understanding her symptoms of preoccupation with thinness, fear of weight gain, and rapid weight loss he made a diagnosis of anorexia nervosa. This hallmark case may very well mark the beginning of an era where people struggle against their natural body and mind, in pursuit of an unrealistic and not necessarily healthy version of themselves.

**Drivers for Eating Disorders and Dieting Behavior**

Determining how eating disorders and compulsions toward food and weight fit into society and human tendency is a key factor in recognizing the causes. Sheila Reaves’ essay “Rethinking Visual Ethics: Evolution, Social Comparison, and the Media’s Mono-Body in the Global Rise of Eating Disorders” (2011), describes quite eloquently the correlation between adaptive human nature and the recent increase in belittling beliefs of personal appearance.
and worth. In short, she states that humans have a biological inclination to be in constant selection mode because of brain activity responses to object registration; this causes humans to attend to selected media images. The ancient human brain evolved and adapted to be able to read the face and body for cues that determine another person's demeanor, emotions, and status. Reaves suggests that this mechanism plays a major role in the current tendency to compare and judge oneself based on the qualities of another. The outcome of coupling this evolutionary habit with other socio-environmental factors that enhance comparison can have negative consequences.

One such socio-environmental factor is changing gender expectations, especially in the United States. This shift over the last century may allude to the increased focus on attractiveness. Earlier in history, the family unit determined status, and women were married off to an appropriate suitor in order to increase the family’s standing. Due to social and technological shifts, this practice dissolved and a practice where individuals could accumulate personal status and choose their future partner replaced it (Littlewood 2004). This individualized focus on success and prosperity gave men and women the ability to create their own story, as long as it fell within the confines of the culture. In the expanding industrial society of the early 20th century, men made up the majority of the labor force and women took over the work within the domestic sphere. Nevertheless, this was a crucial turning point in women’s role within society (Harrison 1997). After the Great Depression, more women joined their male counterparts in paid work. During WWII, this number grew substantially as women came in to cover the jobs that troops left behind. However, when these men returned home, they took back their jobs and women returned to the home (Harrison 1997).
The 1950’s classic ‘Leave It To Beaver,’ showed an all-American family with June, clad in pearls, vacuuming the living room and cooking dinner for her loving husband Ward, who had just returned home from a long day at the office. In this era, cultural expectations of maintaining a home and a family restricted women. Nevertheless, there were culturally acceptable jobs unmarried women could hold, but these were limited to nurse, stewardess, and receptionist. The Second Wave Feminist Movement of the 1960s and 1970s brought about the Equal Employment Opportunity Commission, which opened up a world of potential for women. However, with this also came a reconstruction of social relationships and an increase in expectations for women. Not only must women maintain the home, but they must also challenge the original gender restrictions by having a job (Littlewood 2004). This quote from Susan Bordo’s book *Unbearable Weight* highlights the contradictory idea presented during and following these social changes:

> On the one hand, the lean body represents a rejection of the fifties ideal of cuddly, reproductive womanhood, and an assertion of a post-feminist, non-domestic identity. On the other hand, the steadily shrinking space permitted the female body seemed expressive of discomfort with greater female power and presence.”(xxi:2003)

Women’s emergence in the public sphere occurred at the same time as new techniques for processing foods developed. This technological shift resulted in drastic changes in the types and amounts of food consumed. When men abandoned the farm to work in industrialized supercenters, they replaced their self-sufficient subsistence with commercial agriculture, food produced by the few for the many. The introduction of government farm subsidies in the years following the First World War allowed farmers to produce and invest in higher productivity (Delpeuch et al. 2009), and many farmers produced extreme surpluses. In order to get these surpluses off the shelf and into the
consumer’s cart, advertising worked to spark the desire of the buyer. By compacting the surpluses into calorie dense commodities the industry and advertisers drew the consumers in (Delpeuch et al. 2009, Pollan 2003). As America gradually increased the intake of these convenience foods and calories—an approximate 10% calorie gain in the last four decades (Pollan 2003)—weights across the country and demographics increased. According to the Center for Disease Control and Prevention, in the last forty years the average weight of an American has increased by 25 pounds, and the 2009-10 census reported that 35.7% of U.S. adults are obese. Although these statistics are specific to the United States, this problem is not solely an American one. The World Health Organization reports that, “obesity prevalence is increasing worldwide at an alarming rate in both developed and developing countries. In many developing countries, obesity coexists with undernutrition. It is still more relatively uncommon in African and Asian countries, but is more prevalent in urban populations than in rural populations.”(16:2000)

Even as obesity rates increase and overweight becomes the norm, the golden standard body weight remains low. Personal worth can be determined in concordance with how one measures up compared to others surrounding them, and with how they measure up in society. Thus, others characterize people based on their weight and exterior strengths rather than their internal capabilities. Obesity then, represents a character flaw not just an aesthetic misalignment (Spitzack 1990). Western culture has linked obesity with undesirable traits such as lack of self-control, laziness, stupidity, and failure (Ogden 2010). In general, people try to escape these stereotypes by aligning with societal expectations. The desire to meet sometimes unrealistic goals and standards has resulted in booming industries surrounding dieting, cosmetic surgery, and weight loss in general.
This environment fuels low self-esteem, constant self-judgment, and degrading beliefs. For individuals who have psychological imbalances, this environment and these societal pressures may trigger eating disorders. A vast amount of research explores the comorbidity rates of eating disorders with a number of other psychological disorders, such as personality, anxiety, mood, and substance abuse disorders. An analytical review by Karina O’Brien and Norah Vincent (2003) looked through many statistics on comorbidity of different psychological syndromes with DSM-IV anorexia nervosa and bulimia nervosa. In their essay, they conclude, “a possibly inherited susceptibility to OCD and/or major depression, may combine to facilitate the expression of an eating disorder,” (2003:68). Their research also looked at the existence of Axis II personality disorders, as defined by the DSM-IV, and substance abuse in eating disorder patients and found higher percentages of women with eating disorders presenting comorbidity with another psychological disorder than with women in a control group. Although their study did not look at the prevalence of comorbid psychological disorders in patients with Binge Eating Disorder other research on this idea reports similar results. Dr. Walter Kaye also suggests this possibility in his NIH article on the neurobiology of anorexia and bulimia nervosa. “Symptoms may be a susceptibility factor that make people vulnerable to developing an ED. Malnutrition tends to exaggerate premorbid behavioral traits, not cause them.” (3:2008) He suggests that the susceptibility factor is the prevalence of obsessive compulsive disorder or behaviors, perfectionism, and anxiety. The research on comorbidity will be looked at in greater depth later on.

Through exaggerated social media and other mass media outlets broadcasting, the frequency of slender ideals and eating disorders increases. The globalization of western
culture and media that glorifies physical attractiveness while perpetuating the negative stigma around excess weight demonstrates this incidence. The literature commonly refers to Fiji as an example of the globalization of slender ideals and the increasing prevalence of dieting behaviors and eating disorders because of the convincing evidence. In Anne Becker’s essay, “Television, Disordered Eating, and Young Women in Fiji” (2004), she looked at a rural population during the introduction of western media concurrent with a time of social and economic change. In short, she suggests that regardless of longstanding cultural support of larger bodies, the young girls saw the western images and quite rapidly showed a shift in aesthetic ideals. However, she also suggests that the drive for thinness differed from that in western culture. Instead of desiring thinness as a means of procuring success and avoiding negative stigma, Fijian girls were driven by the desire to improve domestic productivity and increase Fijian impact in the global economy. By placing her research into time and space, she was able to use the shifting culture to understand why the media images were playing such a role. Her work is not alone in the understanding of the acculturation of glorified thinness and negative perception of “fat,” studies on this topic have been done all over the world with similar results.

Anthropologically, it is very important to understand the relationship between socio-cultural environment and biology and its impact on people, the dieting industry, and eating disorders. This understanding brings to light the trouble with promoting a mono-body image in the media and as a culture, as well as the hypersensitivity to appearance and stereotypes about character based on physical appearance. Globally, the stigmatization of obesity and fat is spreading. Alexis Brewis and her team collected data from urban areas in ten countries around the world, their findings report an acculturated idea of body weight
as a basis for “judging the social and personal qualities of the individual,” (273:2011). In addition, research must keep in mind that neither science nor social understanding alone can answer all of the questions surrounding disordered eating, and the answers will come from a more comprehensive approach. Understanding these pathologies within the cultural context may grant greater potential for prevention and treatment. Further collaborative research in the field of eating disorder studies is extremely necessary due to the high mortality rate of individuals afflicted with them and prevention being a clear possibility.

**Eating Disorders Clinically Defined**

The National Eating Disorders Association reports that 10 million females and one million males in the United States suffer from anorexia nervosa (AN) or bulimia nervosa (BN), and millions more suffer from other disordered eating pathologies. Furthermore, the association states that a large majority of these sufferers will not seek or receive treatment. In addition to staggeringly high rates of morbidity, Birmingham et al. (2005) report high mortality rates associated with eating disorders. In this study, they report 25 deaths out of 954 patients over an 8.7-year period; seventeen of these deaths were of patients diagnosed with AN, and tragically seven ended with suicide. Reportedly, AN has the highest mortality rate of all mental illnesses because of both medical and psychological disturbances (Sullivan 1995). Given the severe health complications and suicidal deaths associated with eating disorders, it is extremely important to improve our understanding of these disorders, including the symptoms, and underlying socio-cultural and biological causes.

Before addressing the underlying causes of disordered eating, it is first important to define what is meant by the term eating disorder from a clinical perspective. The current *Diagnostic and Statistical Manual of Mental Disorders DSM-IV-TR Fourth Edition* has been in
use by clinicians and psychiatrists since 2000. All recognized mental health disorders are classified within five different categories: Axis I: Clinical Syndromes, Axis II: Personality and Mental Retardation, Axis III: Medical Conditions, Axis IV: Psychosocial and Environmental Problems, Axis V: Global Assessment of Functioning. The criteria for eating disorder diagnoses are found under Axis I: Clinical Syndromes.

Three sub-groups make up the larger category of eating disorders; these include anorexia nervosa 307.1, bulimia nervosa 307.50, and EDNOS 307.51. “To be officially diagnosed with an eating disorder, one has to meet the clinical diagnostic criteria delineated in the current edition of the Diagnostic and Statistical Manual for Mental Disorders IV TR (2000), but the specific definitions therein do not encompass all of the syndromes health professionals treat.”(Costin 2007:4) Disordered eating comes in many forms, and symptoms of these mental disorders can manifest themselves in ways that are not included in the current criteria. Table 1 provides the full list of criteria for diagnoses as presented in the DSM-IV-TR.

Anorexia Nervosa 307.1

The DSM-IV-TR classification of anorexia nervosa (AN) restricts the diagnosis of individuals to those who demonstrate the following symptoms: weight falls below 85% of what is expected for that individual’s age and height, intense fear of gaining weight, distorted perception of how one’s body looks or is experienced, and missing menstrual period in females of appropriate age (based off of three consecutive missed periods). Within this diagnosis, there are two types, the restrictive type and the binge-purge type. A restrictive type will refrain from calorie consumption in order to lose or keep weight off,
whereas, a binge-purge type will regularly over-consume and then use inappropriate behaviors to remove food before absorption can occur.

**Bulimia Nervosa 307.51**

The DSM-IV-TR diagnosis of bulimia nervosa (BN) is restricted to individuals with the following symptoms occurring two times a week for three months: episodes of binge-eating with loss of control, episodes are characterized by eating unusually large amounts in short periods of time, and are followed by inappropriate methods of compensation, including forced vomiting, laxative and diuretic use, fasting, excessive exercise etc. A patient with BN assesses themselves through their perception of their weight and body, and tends to judge their self worth based on their shape. Bulimia nervosa also comes in two forms the first type utilizes purging, i.e. self-induced vomiting, laxatives, diuretics, or enemas, the second type utilizes alternative forms of calorie compensation, i.e. excessive exercise or fasting.

**EDNOS 307.50**

The DSM-IV-TR diagnosis of Eating Disorders Otherwise Not Specified (EDNOS) covers a very large range of symptoms. This classification is used for patients that display eating disorder pathologies that lie outside of the specific criteria for AN and BN, or display only some of the AN or BN symptoms. These symptoms include, but are not limited to: all criteria of AN except amenorrhea (missed period), all criteria of AN except normal weight and regular menses, all criteria of BN except behaviors occur less frequent than two times per week for a duration of three months, using inappropriate methods to expel small amounts of food, and chewing and spitting out food so as to avoid normal calorie intake.
Also defined within the EDNOS category is Binge Eating Disorder (BED), patients with this disorder endure reoccurring episodes of binge-eating, with a sense of lost control, but do not use inappropriate methods of compensation. Increased curiosity on this disorder flags it as one in need of further study, and research surrounding it is important.

**Problems with Clinical Definitions and Diagnosis**

Although, the narrow requirements of the DSM-IV-TR can be advantageous through prevention of over diagnosis, they can also cause problems in identification of mild or moderate disorders, as well as create a gap in research. Several criteria that can be problematic with anorexia nervosa currently include the requirement of amenorrhea and weight below normal. With bulimia nervosa the criteria are no less problematic including issues with the ill definition of ‘binge’ and the time requirement for recurrence of episodes (Wilfley et al. 2007:125). As a result of the narrow definitions of anorexia nervosa and bulimia nervosa a large majority, approximately 50-70% (Walsh and Sysko 2009:1), of patients receive EDNOS diagnoses. This statistic is troublesome because research is typically only done using patients who receive AN or BN diagnoses. Also, EDNOS is much too vague and covers too large a range of symptoms (Walsh and Sysco 2009:1). For instance, a woman who meets all of the criteria for AN, but maintains normal menses, falls into the same category as a man who binge-eats, with lost control, five nights a week.

The negative ramifications of the limits of the DSM-IV-TR eating disorder diagnoses have led to an effort to redefine and reorganize the disorders. In search of more encompassing categories for use in the DSM-V, Timothy Walsh, MD and Robyn Sysko, PhD, utilized current studies to reclassify the disorders into the Broad Categories for the Diagnosis of Eating Disorders (BCD-ED). They suggest that the new diagnoses include all

Their proposal takes into consideration the fact that these disorders are extremely complex, vary between persons, and occur in different severities. Table 2. shows the lengthy definitions for AN, BN, BED, and EDNOS as suggested by Sysko and Walsh.
### Table 1. DSM-IV-TR Criteria for Eating Disorders

<table>
<thead>
<tr>
<th>1. <strong>Anorexia nervosa</strong></th>
<th>2. <strong>Bulimia nervosa</strong></th>
<th>3. <strong>EDNOS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The DSM-IV TR Diagnostic Criteria for 307.1</strong></td>
<td><strong>The DSM-IV TR Diagnostic criteria for 307.51 Symptoms of Bulimia Nervosa</strong></td>
<td><strong>DSM-IV TR Diagnostic criteria for 307.50 Eating Disorder Not Otherwise Specified</strong></td>
</tr>
<tr>
<td><strong>Symptoms of Anorexia Nervosa</strong></td>
<td><strong>A. Recurrent episodes of binge eating characterized by both:</strong></td>
<td><strong>The EDNOS category is for disorders of eating that do not meet the criteria for any specific Eating Disorder. Examples Include:</strong></td>
</tr>
<tr>
<td>A. Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., less than 85 percent of that expected or failure to make expected weight gain during period of growth leading to body weight less than 85 percent of that expected)</td>
<td>- Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances</td>
<td><strong>1. All of the Criteria for Anorexia Nervosa are met except that, despite significant weight loss, the individual’s current weight is in the normal range.</strong></td>
</tr>
<tr>
<td>B. Intense fear of gaining weight or becoming fat, even though underweight.</td>
<td>- A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).</td>
<td><strong>2. All of the criteria for Bulimia Nervosa are met except that binge eating and inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than three months.</strong></td>
</tr>
<tr>
<td>C. Disturbance in the way in which one’s body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.</td>
<td><strong>B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.</strong></td>
<td><strong>3. The regular use of inappropriate compensatory behavior by an individual of normal body weight after eating small amounts of food (e.g., self-induces vomiting after the consumption of two cookies).</strong></td>
</tr>
<tr>
<td>D. In postmenarcheal females, amenorrhea, i.e., the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration) <strong>Restricting Type:</strong> during the current episode of Anorexia Nervosa, the person has not regularly engaged in binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).</td>
<td><strong>C. The binge eating and other inappropriate compensatory behaviors both occur, on the average, at least twice a week for three months.</strong></td>
<td><strong>4. The patient engages in repeatedly chewing and spitting out, but not swallowing, large amounts of food.</strong></td>
</tr>
<tr>
<td><strong>Binge-Eating/Purging Type:</strong> during the current episode of Anorexia Nervosa the person has regularly engaged in binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).</td>
<td><strong>D. Self-evaluation is unduly influenced by body shape and weight.</strong></td>
<td><strong>5. Binge-eating disorder: recurrent episodes of binge eating in the absence of regular inappropriate compensatory behavior characteristic of Bulimia Nervosa.</strong></td>
</tr>
</tbody>
</table>

(From Diagnostic and Statistical Manuel of Mental Disorders DSM-IV-TR 2000)
Table 2. BCD-ED Categories for consideration in DSM-V classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Diagnostic Criteria</th>
</tr>
</thead>
</table>
| nnn.1 Anorexia Nervosa and Behaviorally Similar Disorders (AN-BSD)       | 1. Severe restriction of food intake relative to caloric requirements leading to the maintenance of an inappropriately low body weight for the individual taking into account their age and height.  
  2. Clinically significant distress or functional impairment related to the eating disturbance.  
  3. Not better accounted for by another Axis I disorder or a general medical condition. |

| nnn.2 Bulimia Nervosa and Behaviorally Similar Disorders (BN-BSD)         | 1. Recurrent out of control eating and the recurrent use of inappropriate purging behaviors after eating to control weight or shape and/or the absorption of food.  
  2. Clinically significant distress or functional impairment related to these behaviors.  
  3. Not better accounted for by another Axis I disorder of a general medical condition.  
  4. Does not meet criteria for nnn.1. |

| nnn.3 Binge Eating Disorder and Behaviorally Similar Disorders (BED-BSD)   | 1. Recurrent episodes of out of control eating, during which the individual feels as if he/she cannot control eating behavior.  
  2. Clinically significant distress or functional impairment related to these behaviors.  
  3. Not better accounted for by another Axis I disorder or a general medical condition.  
  4. Does not meet criteria for nnn.1 or nnn.2. |

| nnn.11 Typical Anorexia Nervosa                                         | A. Severe restriction of food intake relative to caloric requirements leading to maintenance of body weight below a minimally normal weight for an individual taking into account age and height (e.g., 85% of that expected).  
  B. Evidence of intense fear of gaining weight or becoming fat, even though underweight.  
  C. Disturbance in the way in which one’s body weight or shape is experienced, undue influence of body shape or weight on self-evaluation, or denial of the seriousness of current low body weight.  
  Note: amenorrhea is not required |

| nnn.21 Typical Bulimia Nervosa                                          | A. Recurrent episodes of binge eating (the consumption of a large amount of food in a discrete period of time accompanied by a sense of loss of control.)  
  B. Recurrent inappropriate compensatory purging behavior after binge eating to prevent weight gain (self-induced vomiting, abuse of laxatives, diuretics, or enemas).  
  C. The binge eating and inappropriate purging behavior occur, on average, at least once a week for three months.  
  D. Self evaluation is unduly influenced by body shape and weight.  
  E. Does not meet criteria for nnn.1 |

| nnn.31 Typical Binge Eating Disorder                                    | A. Recurrent episodes of binge eating (large amount of food in a discrete period of time accompanied by a sense of loss of control).  
  B. The binge eating occurs, on average, at least once a week for three months.  
  C. Does not meet criteria for nnn.1 or nnn.2 |

| nnn.12 Anorexia Nervosa, without Evidence of Distortions Related to Body Shape and Weight | A. Severe restriction of food intake relative to caloric requirements leading to maintenance of body weight |

| nnn.22 Bulimia Nervosa, Low Frequency                                   | A. Recurrent episodes of binge eating (large amount of food in a discrete period of time accompanied by a sense of loss of control).  
  B. Recurrent inappropriate compensatory purging |

| nnn.32 Binge Eating Disorder, Low Frequency                             | A. Recurrent episodes of binge eating (large amount of food in a discrete period of time accompanied by a sense of loss of control).  
  B. Does not meet criteria for nnn.1 or nnn.2 or nnn.31. |
<table>
<thead>
<tr>
<th>nnn. 13 <strong>AN-BSD, with Significant Weight Loss at or above a Minimally Acceptable Weight</strong></th>
<th>nnn. 23 <strong>Purging Disorder</strong></th>
<th>nnn. 33 <strong>Subjective Binge Eating</strong></th>
</tr>
</thead>
</table>
| A. Severe restriction of food intake relative to caloric requirements in order to avoid weight gain.  
B. Evidence of intense fear of gaining weight.  
C. Disturbance in the way in which one’s body weight or shape is experienced or undue influence of body shape or weight on self-evaluation.  
D. Body weight at or above minimally normal for an individual taking into account age and height.  
E. Does not meet criteria for nnn.11 or nnn.12. | A. Recurrent inappropriate compensatory purging behavior following out of control eating.  
B. Self evaluation is unduly influenced by body shape and weight.  
C. Does not meet criteria for nnn.1 or nnn.21. | A. Recurrent episodes of out of control eating that do not involve the consumption of objectively large amounts of food.  
B. Does not meet criteria for nnn.1 or nnn.2 or nnn.31 or nnn.32 |

<table>
<thead>
<tr>
<th>nnn. 14 <strong>Disorders Behaviorally Similar to Anorexia nor otherwise Classified</strong></th>
<th>nnn. 24 <strong>Disorders Behaviorally Similar to Bulimia Nervosa not Otherwise Classified</strong></th>
<th>nnn.34 <strong>Disorders Behaviorally Similar to Binge Eating Disorder Not Otherwise Classified (BED-BSD-NOS)</strong></th>
</tr>
</thead>
</table>
| A. Severe restriction of food intake relative to caloric requirements leading to maintenance of body weight below a minimally normal weight for an individual taking into account age and height (e.g., 85% of that expected)  
B. Does not meet criteria for nnn.11, nnn.12, or nnn.13. | A. Recurrent out of control eating.  
B. Recurrent use of inappropriate behaviors to control weight or shape and/or the absorption of food.  
C. Does not meet the criteria of nnn.21, nnn.22, nnn.23 | A. Recurrent episodes of out of control eating, during which the individual feels as if he/she cannot stop or control eating behavior.  
B. Does not meet criteria for nnn.1, nnn.2, or nnn.31-33. |

<table>
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<tr>
<th>nnn.4 Eating Disorders Not Otherwise Specified (EDNOS)</th>
<th></th>
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<tbody>
<tr>
<td>Each broad category for clinically significant eating disorder not meeting criteria for one of the categories above. Possible example: recurrent chewing and spitting of food, night eating syndrome.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(From Walsh and Sysko Broad Categories for the Diagnosis of Eating Disorders (BCD-ED) 2009)
**BCD-ED Anorexia Nervosa**

Walsh and Sysko’s redefined category of anorexia nervosa would cover all persons who restrict food intake and as a result maintain very low body weight relative to height (approx. 85% of expected). Unlike the current DSM-IV criteria, they suggest dropping the requirement for amenorrhea. This reconsideration is extremely important as it helps remove the gendered assumptions currently held by the DSM-IV, and opens up the diagnosis to women who have not reached that severity in their own disorder. The extension of their categories also widens to include persons who do not have the same mental disturbances, fear of weight gain and/or body dismorphia, but practice the same behaviors of food restriction.

**BCD-ED Bulimia Nervosa**

Walsh and Sysko’s organization of bulimia nervosa is similar to DSM-IV in the requirement for recurrent episodes of out-of-control eating and compensatory methods for altering absorption of food. However, their reclassification would also include individuals whose out of control eating may not be classified as binging, as well as cases where the individual displays bulimic behaviors without the mental disturbance.

**BCD-ED Binge Eating Disorder**

Because the DSM-IV does not distinctly classify Binge Eating Disorder and it currently makes up a large percentage of patients falling into the EDNOS category, the suggestions on this disorder are very important. Walsh and Sysko’s BED diagnosis includes individuals who engage in recurrent episodes of out-of-control eating, without the use of compensatory behaviors. Their suggestion does not specify how much food an individual consumes in an episode of out-of-control eating or for how long they practice the behavior to diagnose BED. Beyond this, they also define a Night Eating Syndrome, which consists of
eating an unusually large amount of food after dinner (25% of the days calories); practicing this behavior helps one to sleep.

**DSM-V**

Though not yet released, the fifth version of the *Diagnostic and Statistical Manual* will contain revised criteria for AN and BN, as well as a new classification for Binge Eating Disorder. These changes come from assessments of published works within the *International Journal of Eating Disorders* (Keel 2011: 553). With the new classification, professionals will be able to give a greater number of individuals diagnoses and reduce the number of EDNOS diagnoses. To reiterate, the importance of reducing the number of EDNOS diagnoses lies in opening up the research to a broader spectrum of symptoms and diagnoses. In addition, it will give professionals wider guidelines through which they can understand a patient and their symptoms.

Classification of these disorders can be quite complex with the varying mental disturbances, severities, and individual’s expressions. Understanding that the cause is deeply rooted in an interaction of socio-cultural environment and an individual’s biology, genetics, and experiences may indicate why they express themselves the way they do, how to treat them, or better yet how to prevent them.

**Understanding Nutrition, Human Biology, and Food Implications**

The growing field of nutrition study has brought about a wealth of knowledge on how and what people should and should not eat in order to live long and healthy lives. The very complex food system in the Western world creates a number of contradictions about consumption of foods and beverages; many of which the eating disorder patient battles with everyday. At the most basic level, eating disorders temper with the bodies needs for
energy and nutrients to function properly. Beyond that, they facilitate the cultural demand to maintain a slender physique and control one’s intake, and ultimately their life.

**Nutrition and Human Biology**

Food and beverages provide energy and nutrients essential to growth, development, and maintenance of bodily functions. However, the types of foods and beverages people consume vary according to necessity, availability, preference, digestibility, etc. Actual energy and nutrient requirements are determined by age, size, activity level, reproductive state, and genetics. Evidence based recommendations for meeting these requirements have been established by The Food and Nutrition Board of the Institute of Medicine (IOM), and are published as the *Dietary Reference Intakes (DRI)*. Every five years, they update and review these recommendations. Adequate diets meet the minimum recommendations and are defined as, “the amount of nutrients required by an individual to prevent signs of clinical deficiency,” (Barasi 2003:41).

The foods and beverages that make up human diets are composed of two categories of nutrients: macronutrients and micronutrients. These nutrients allow the body to perform all of the crucial functions. Macronutrients include carbohydrates (starch and sugar), fat, protein, and alcohol, and make up the largest component of the diet because they provide energy (Eastwood 2003). The energy content of a food or drink is measured in calories, the amount of heat required to raise one gram of water one degree Celsius (Eastwood 2003), and varies according to the quantity of each macronutrient in its makeup. Micronutrients include all vitamins and minerals, and while they are only required in very small amounts, they play a crucial role in a number of biological processes including but not limited to immune function, brain function, and eyesight (Eastwood
Both macronutrients and micronutrients are essential to an adequate diet, and they are highly interdependent. Thus, individuals must keep sufficient amounts of all nutrients in the body (Eastwood 2003).

Even with adequate energy intakes, it is possible for a person to suffer from nutrient imbalances. When nutrient consumption is unbalanced, individuals can suffer from malnutrition, either by consuming too much of a particular nutrient (overnutrition) or not consuming enough (undernutrition). Imbalances resulting from malnutrition can lead to a number of poor health outcomes including: obesity and obesity related diseases (excess macronutrient intakes), rickets (Vitamin D deficiency) and blindness (Vitamin A deficiency)(Barasi 2003). Given the adverse effects associated with malnutrition, understanding the appropriate amounts of nutrients and the importance of keeping them in balance, for both immediate use and storage requirements (Eastwood 2003:52), has been a major focus of medical research in recent decades, and has led to an expanding knowledge in the field.

As previously mentioned, the Dietary Reference Intakes (DRI) published by the Food and Nutrition Board, “comprises a set of reference values for specific nutrients, and each category of which has special uses.”(DRI 21) The set of reference values include: Recommended Daily Allowance (RDA), Estimated Average Requirement (EAR), Upper Tolerable Limit (UL), Adequate Intake (AI), and Estimated Energy Requirement (EER). An RDA is the estimated amount of nutrients for 97-98 percent of the individuals of a certain age and gender. Calculation of a standard deviation of the Estimated Average Requirement (EAR) reports these numbers. The DRI defines an EAR as “the intake value that is estimated to meet the requirement, as defined by the specified indicator or criterion of adequacy, in
half of the apparently healthy individuals in a life stage or gender group,” (23). Nutrients that do not have enough scientific data for an RDA receive an AI value proposal based on requirements of healthy individuals. The tolerable upper intake level demarcates the greatest amount of certain vitamins and minerals a person can consume without adverse effects. These values are typically used for fat-soluble vitamins because the fat and body store them, which make them more likely to reach toxic levels.

The estimated energy requirement (EER) establishes numbers that achieve equilibrium between energy intake and energy expenditure (i.e. energy balance). The energy intake part of energy balance refers to the amount of energy consumed from macronutrients in foods and beverages. The energy expenditure part of energy balance refers to total daily energy expenditure (TDEE); this is the sum amount of energy expended in a 24-hour period through the three components of energy expenditure: Basal Metabolic Rate, thermic effect of food, and physical activity. Basal Metabolic Rate (BMR) is the amount of energy required to perform all basic metabolic functions in a post-absorptive, resting state. Body size, body composition, age, gender, nutritional state, and variability in hormone production influence BMR (Institute of Medicine 2005). The thermic effect of food (TEF) is the metabolic cost necessary to digest, handle, and store ingested nutrients, and contributes to about 10% of total energy expenditure. Physical activity is the amount of energy used for moving the body around. This is the most variable component of energy expenditure, and can fluctuate between individuals and day to day. For example, in a sedentary individual, physical activity may only contribute to 1/3 of total energy expenditure. On the other hand, in a highly active individual energy expenditure can be two times as high because of physical activity (Institute of Medicine 2005).
When the amount of calories in (energy intake) does not equal the amount of calories out (energy expenditure) there is an energy imbalance. Consumption of more calories than needed results in positive energy balance, this causes the extra calories to be converted to adipose tissue, aka fat (Barasi 2003, DRI 2005, Eastwood 2003). The energy excess stored in fat serves as a backup supply in periods of inadequate intake for survival over the course of several months of deprivation depending on the amount stored (DRI 111). Negative energy balance results from fewer calories consumed than used. In this situation, the body relies on stored energy to compensate for the imbalance and keep the body running. This system of energy balance is the result of a long history of evolution in times when resources were not always predictable and periods of scarcity followed periods of plenty (Haslam 2007). In modern times, these imbalances account for most peoples weight gain and loss.

The DRI also provides recommendations for intakes of micronutrients and water. These, like macronutrients, vary according to the individual and according to the nutrient. The most important piece to be noted about vitamins and minerals is unlike excess energy which is stored as fat and useable by the body in times of need a number of the essential micronutrients, ones that must be obtained through the diet, are not stored with the body so they must be consumed on a regular basis (Eastwood 2003). These are known as water-soluble because they water carries them through and out of the body. Consuming these nutrients less often increases the likelihood of procuring a deficiency.

**Nutrition and Side Effects of Eating Disorders**

With this brief description of human nutritional requirements, a number of physical side effects caused by eating disorders can be clearly seen. For instance, a person with
restricting-type anorexia nervosa is not consuming enough calories to maintain energy balance, thus, resulting in weight loss. Also, this same individual may not be getting adequate amounts of daily vitamins and minerals, which can lead to deficiency and the resulting complications. Beyond the nutritional side effects, women who have AN may lose their regular menses because of low body weight (Copeland et al. 1995).

A person who has bulimia nervosa (BN) may experience binges where they consume more than adequate amounts of vitamins, minerals, and macronutrients. However, a purge following this behavior can excrete a large amount of the consumption. It is important to point out that an individual with BN is likely to be of normal weight or above weight, which suggests that persistent low energy intakes are not a common behavior, but self-induced vomiting, laxatives, and diuretics are common. These particular behaviors can have many complications of their own; including, but not limited to, dehydration, electrolyte imbalances, and acidic erosion of teeth or esophagus (Rome and Ammerman 2003). Lasater and Mehler (2001) report differences between BN patients based on the method for compensation, or purging. BN patients who purge through self-induced vomiting may experience a direct loss of potassium, chloride ions, and gastric acid; whereas individuals who purge through laxative use lose potassium and bicarbonate.

In individuals who suffer Binge Eating Disorder, or perhaps BN compensated with exercise or self-deprivation, it is likely they consume too many calories and possibly too many vitamins and minerals. Most of these people will see drastic increases in weight due to excess energy intake unmatched by energy output. In addition, because the nature of a binge episode differs from overeating in that it occurs in a short amount of time, these individuals may reach toxic levels of fat-soluble vitamins. As the news and mass media have
popularized, there are major health complications that accompany extreme weight gain including increased risk for diabetes, coronary heart disease, and sleep apnea (Haslam 2007).

With such dangerous side effects, the tactics of eating disorders demonstrate the disconnect between human biology, including the necessity of certain macro and micronutrients, and the way humans perceive consumption. Food and beverage play an important role in human culture and this role does not always match up with the biological necessity. These differences may account for why people around the globe treat food and consumption in a multitude of ways. It may also bring light to some of the reasons for the development of eating disorders in western culture.

**The Shift from ‘Eat to Live’ to ‘Live to Eat’**

Most animals eat purely as a means to survive; humans, however, have changed the connotation of subsistence. Among humans, food and food consumption patterns have social, cultural and economic significance. Throughout human history, people have used eating and drinking to signify times of day, status, hegemony, identity, and a large range of other cultural implications.

Ancient Egypt, during the reign of King Djoser, endured a seven-year drought during which time the king was able to display his authority and prominence by providing the people food from a surplus he obtained and controlled (Shaw 2000). This display of power occurred all over the ancient world and is not unknown today. In modern-day Japan, women and children demonstrate their subservience to society by creating and eating obentos. These beautifully crafted lunches are an obligation of mothers that prove their maternal abilities, and serve as a platform for judgment by authoritative figures. For the
children, these lunches, which must be finished in a timely manner at the table with all of the other children, prep youngsters for the society they will be entering. Thus, these lunches serve a purpose that goes well beyond biology and control the actions of many members of the population (Allison 1991).

In Richard Lee’s article Eating Christmas in the Kalahari (1969), he discusses the practice of undervaluing large kills of hunters in order to prevent ego and hierarchy in the !Kung San Bushmen. Even if a kill is very large and will sustain the population for a long period of time, they deny the hunter or provider this glorification because they do not want to facilitate the growth of his pride. In this hunter-gatherer, egalitarian society, the people denounce kills to avoid obtaining status through hunting success. In other cultures, food can do just the opposite. For instance, caviar is not especially energetically potent which makes it biologically or evolutionarily low-cost. However, Western culture ascribes very high value to caviar and as a result it marks personal status.

A cultural creation that appears biological is the assertion of certain times in the day when food is eaten. In the United States, morning is associated with breakfast, noon with lunch, and evening with dinner, and these meals roll around regardless of a persons nutritional requirements or appetite. People sense hunger due to cues from their brain and the release of signaling hormones, but this reaction is not always because of true bodily need for provisions. Rather, it is due to the creation of habits or another outside stimulation (Barasi 2003). In the United States, patterns of food and beverage consumption reside in a web of cultural meaning spun from historical, social, and biological equations. Throughout societies this dichotomy between biological value and cultural value shows up in varying degrees.
“Fat” in the United States

In the two and a half century history of the United States, trends in dietary consumption and lifestyle have seen a number of changes as the result of social, political, economic, and biological factors. Outlining these shifts allows for a general understanding of the increasing American body weights, the social concern for this epidemic, and the disgrace of being “fat” in the United States.

Changes in Production and Consumption

In the 1850’s, the number of farms on American soil was around one and a half million and grew quickly on into the 1930’s where it peaked at nearly seven million. Farms at this time did not increase much in size and averaged out around 150 acres (figure 1). However, following the 1930’s the number of farms drastically decreased and the size of the farms increased. The USDA reports an increase in farms holding 500+ acres from the late 1800’s well into the late 1900’s. Concurrently, the numbers of farms with acreage from 1-49 and 50-499 saw increases until 1935 and have since experienced steady decrease. These numbers suggest that the rapidly increasing American population relied on a decreasing number of

Figure 1. Farm size in acres and number of farms from 1850-1997. (From: USDA Agricultural Fact Book 2003)
farms to provide them with sustenance.

The agricultural period between the late 1700’s and early-mid 1800’s utilized the earliest crops of corn, wheat, barley, tobacco, and others for any commercial use, but also depended on smaller garden plots for subsistence (Schlebecker 1975). However, as the population expanded westward, travel routes improved, and new farming technologies were introduced, the ways of many American farmers changed. The nineteenth century brought with it a number of equipment improvements that lowered costs of production, boosted agricultural productivity, reduced the use of hired labor (Post 1997). The introduction of enhanced planting techniques, like Dickey’s Improved Patented Corn Planter and the Grain drill planter, allowed for more efficiency and less hand planting of crops (Schlebecker 1975). Another implement of great magnitude during this time was mechanized harvesting and processing. After the mid nineteenth century, farmers adopted reapers to cut and bundle the grain and threshing machines to clean it; these inventions drastically decreased the number of man-hours required for the same amount of return (Schlebecker 1975). The desire for commodities, increased land holdings, and paying off accumulated debts, prompted the espousal of these technologies by family farmers (Post 1997).

When industries started developing in the nineteenth century and demanded employees from the rural farming lands, the population densities of urban centers boomed. By 1860, over 30% of the people living in cities (classified by having 2,500 people or more) made up cities of over 100,000 people, and by 1890, 35.1 percent of the United States population lived in a city (US Census Bureau). The labor change from manual farming to industrial line work encased a very dramatic lifestyle shift; most line work did not entail
the same amount of physical activity that farm work once had, work hours ran from 9-5, and they ate lunch on the job (Delpeuch et al. 2009). When America joined the world market having enough energy to sustain a growing population that would increase productivity in the factories became very important (Grigg 1987). As was standard for the time, agricultural giants and industrialized techniques replaced the small production farms, and the self-sufficient system dwindled.

With steady income and less work put into a farm, men and families started to rely more on outside sources of food. Farms and their output grew exponentially, but with changing economic situations and dietary preferences, the market was in constant flux. As a result, presidents Hoover (1929-33) and Roosevelt (1933-45) both introduced programs that would collect taxes for the subsidizing of farmers (Folsom 2006). Initiation of these subsidies freed farmers of concerns about crop failure or commercial variability and the money provided by government to farmers allowed for the production of food surplus and the feeding of the nation’s masses (Delpeuch 2009).

The American diet quickly embraced the early crops of corn, cereal grains, and sugar beets produced by industrialized farms (Schlebecker 1975). As the Second World War began in the earliest part of the 1940's, America was struck with concern about keeping the industry laborers and soldiers sufficiently fueled (Levenstein 2003). This demand of food for US soldiers and the Allies, and changing productivity led to government establishment of rations and food insecurities (Schlebecker 1975). The years that followed post-war saw an increase in black market sales of butter, sugar, and meats (Levenstein 2003); the desire for these foods only grew after the years of uncertainty and fluctuation of WWII.
When the market was able to reboot and America’s farmers out produced the needs of the population, the prices of the crops dropped and the industry had too much food. Much of the surplus was exported to the world market and subsidized for countries suffering depression in the post-war era (Schlebecker 1975). However, there was also an increase in consumption of animal meat products and a decrease in fresh fruit and vegetable consumption at this time (Schlebecker 1975). Accordingly, there was a rise in production of calorie dense convenience foods, a growing variety of foods to be found at the local supermarket, and more meat than ever before, all accompanied by a relative decrease in price per calorie.

The American household consumed many a commodity post war; however, eating home-cooked meals did not lose importance. Mothers concocted beautiful dinners spending about twice the time both cooking and cleaning than they do today (Cutler et al. 2003). This is likely because the average American dinner consisted of a starch, meat, a vegetable, a salad, and a desert (Levenstein 2003). Yet, as women moved from domestic work to the work force, time to prepare these extravagant meals decreased, leading to dependence on easier and quicker calorie sources (Delpeuch et al. 2009), see figure 2.

<table>
<thead>
<tr>
<th>1. Only one bowl to wash!</th>
<th>2. One rising! Right in the baking pan!</th>
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<tr>
<td>3. No kneading! No punching down!</td>
<td>4. Better than a Mix!</td>
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Figure 2. shows an advertisement for Gold Medal Flour from 1953. This piece appeals to women as delicious cook and homemaker, while also highlighting the decreased effort necessary for preparation and clean up. Notice the numbered section stating “1. Only one bowl to wash! 2. One rising! Right in the baking pan! 3. No kneading! No punching down! 4. Better than a Mix!”
Divergence from whole food sources (i.e.: fresh fruits, vegetables, and less fatty meat cuts) to convenient frozen, premade, packaged, and fast foods resulted in exploitation of that demand by the capitalist economy. The 1950’s saw an increase in the production of packaged cereals, cake mixes, frozen dinners, instant coffee, and prepared entrées all laden with compacted calories (Tillotson 2003). Foods consumed prior, including: whole or mashed potatoes, vegetables, and meat would constitute a lower calorie content than their condensed counterparts. However, the ease of ready bake lasagna, frozen vegetables, and General Mills© dinner rolls made them alluring prospects for many homes. Yet, the desire for easier foods was not restricted to homemade dinners.

The people soon demanded instant snacks and faster meals for the quickening pace of their lives. Manfred Garhammer’s paper “Pace of Life and Enjoyment of Life,”(2002) outlines the evidence for increasing time pressure and hastening pace of life in modern societies. His work brings attention to the notion that people in modernized countries appear to be happy and satisfied in their lives, however 40% of full time American employees said they always felt rushed, as did 46% of employed Germans. Garhammer points out that the time-crunch sensation people are feeling may be the result of multi-tasking in order to get everything done in a certain time frame. In order for people to get all of the tasks of the day done in a reasonable manner, time for certain activities has to be cut short. Reliance on faster food production and consumption allows people, especially women, to allocate more of their time to other components of their life.

Unfortunately, with mass and fast production come unintended consequences. Foods provided in this manner must be produced more inexpensively, thus, there is an increase in fat content and a decrease in micronutrients (Delpeuch et al. 2009). In the
1980’s, the relative price for energy rich foods fell, and the prices of vegetables, fish, fruit, and milk increased (Levenstein 2003). Because of this shift, production of energy dense products like hamburgers, potato chips, and sugary beverages can occur in large quantities for low prices (Delpeuch et al. 2009). The last half of the century saw an expansion in the amount of producers taking advantage of cheap calories and this amount continues to grow today.

**Convenience Foods in the United States**

When evaluating America today it is safe to say that the large majority consumes convenience foods. In a study by Harris and Shiptsova they found that the number of new convenience products introduced between 1987 and 2002 to the American market was over three thousand, and this number does not represent every item in every new flavor (2007). Of these new items, meals, entrees, pizza, hot snacks, and sandwiches make up 26.4 percent, 7.9 percent soups, and 7.8 percent pasta and pasta side dishes. They also approximate that the average American consumes 71 frozen dinners a year. Their research suggests that nominal dollar sales on convenience foods increased 53 percent from 1987-1998 and continues to grow. From 1977 to 1996 the amount of calories consumed at home from salty snacks increased from 127cal- 206cal; a similar pattern was also seen in desserts, 302cal-324cal, sodas 130cal-158cal, and pizza 493cal-628cal (Nielsen et al. 2003).

The increase of at home convenience food and calorie intake is accompanied by growing rates of fast food, take-out, and dine-in consumption as well. Approximately 50% of the money families allocate to food is spent on eating out, and one in five American’s eat fast-food daily (Holdsworth 2009). According to a study by Nielsen et al. (2003), American adolescents (12-18 years old) in the late 1970's were eating 74.1 percent of their meals at
home with only 6.5 percent of their calories eaten at a restaurant or fast food joint. Even the generation of young adults at this time, 19-29 years old, was only consuming 14.3 percent of their energy from restaurants or fast food. By 1996, the percentages of calories eaten in the home decreased for both groups, adolescents ate 64.8 percent at home, and young adults ate 54 percent. An increase in restaurant/fast food calorie consumption accompanied this for both groups by 10.9 percent and 21.3 percent respectively.

 Nowadays, people can find fast food chains and restaurants in all corners of the world. McDonald’s alone has locations in 118 countries, over 34,000 restaurants, and they claim to provide food to 69 million people (McDonalds.com). When looking at an average American McDonald’s meal there are a number of very cheap calorie sources utilized. For example, a Big Mac© has a bun produced with enriched flour (cereal grains), high fructose corn syrup (corn), and soybean and/or canola oil (soy/ rapeseed), topped with a 100% beef patty, pasteurized processed American cheese, Big Mac sauce, shredded lettuce, pickle slices, and slivered onions (McDonald’s ingredients list). The sandwich alone amounts to 550 calories, which is actually on the lower end for their burgers. When this is paired with a medium French fry and Coke the meal total is 1140 kcal, accounting for over half of the average person’s daily calorie requirement. The relative cost of this meal per calorie is inexpensive, especially when compared to a salad or vegetable dish made at home, and acquiring/enjoying requires little time and effort. A consumer culture that promotes indulgence fuels the desire for easy foods that appeal to the taste buds (Bordo 2003). Advertising that stimulates the senses and prompts desire bombards people. This scenario does great things for boosting the economy of food and beverages, but may come at the cost of people’s health. However, the calorie dense food is not solely to blame.
If the population were consuming these foods in amounts that did not reach their caloric intake necessity then there would be less dramatic weight gain. This can be seen in a rural Amazonian population of lower class women where there is an increasing dependence on animal protein, fats, and convenience foods and decreasing consumption of traditional fruits, vegetables, legumes, and tubers. Over the course of a seven-year study, this population saw an increase in percentage of foods purchased not produced, but also saw a decrease in average daily calorie intake (Piperata 2011).

In the United States, where the majority of people purchase their sustenance and enjoy a large variety of salty, sweet, fatty calorie dense commodities, they have a tendency to consume too many calories. Over the last forty years calorie consumption and portion size has increased not only at restaurants and fast-food places but in the home as well (Nielsen et al. 2003). The USDA reports that in 2000 approximately 3,800 calories were produced and supplied per person per day with an approximate 1,100 calories lost to waste, leaving the average consumption at 2,700 calories. This number is up 24.5 percent from the averaged consumption of the 1970's, which had already seen an increase from the 1950’s (USDA 2003). This increase in calorie consumption does not match an increase in physical activity or metabolic demand. Thus, the body stores the excess energy as fat.

Recent research suggests that the desire for fatty foods may actually be a neurobiological response similar to addiction. Nora Volkow preformed a study at Brookhaven National lab looking into dopamine levels in people classified as obese. She found that their levels of dopamine were lower in response to the fatty foods and more of the food was required to get a similar neurotransmitter response; these findings mimic the response an addict has to their chosen remedy (Nutrition Action Health Letter 2012). A
project headed by Eric Stice of the Oregon Research Institute’s Eating Disorders and Obesity Prevention Lab compared rats fed a diet high in fat and sugar with rats fed the same amount of calories, but lower sugar and fat content. They report that the dopamine response in mice fed a high fat high sugar diet was lower than in those fed a lower fat and sugar diet (Nutrition Action 2012). In a separate study, done by Mark Gold at the University of Florida, animals given high fat foods for an hour of the day would binge on them even though other foods were available all day long (Bell 2012). The results of such tests suggest that there may be a biological reason for desire of high fat and sugar foods in increasing quantities. It is a fair conclusion that a number of things contribute to over consumption not just a single trigger.

**Obesity by the Numbers**

Since 1985, the average calorie intake by Americans has increased by approximately 300 calories, with grains, fats, and added sugars making up 93% of these calories (Putnam et al. 2002). As was stated in the section on nutrition, fats, carbohydrates, and protein provide energy; when a food is taken from its original state, the potato for instance, and is then processed with added oils (fats) and sugars (carbohydrates) the calorie content increases. This increased calorie consumption alongside a decreased calorie expenditure, likely related to transportation and sedentary jobs, resulted in the loosening of belts across the country.

The Center for Disease Control and Prevention (CDC) reports from the early 1960’s show 31.5% of the US population ages 20-74 as overweight, 13.4% as obese, and just less than 1% as extremely obese. These statistics are based off Body Mass Index reference ranges of 25-30, over 30, and over 40 respectively. In just 50 years, as reported for 2009-
These numbers have jumped to 33% overweight, 35.7% obese, and 6.3% extremely obese. Figure 3 shows the CDC statistics that track the progression from 1960-62 through 2009-10.

All demographics of America present growing percentages of individuals classified as overweight, obese, or morbidly obese. Ogden et al. (2012) report on the National Health and Nutrition Examination Survey (NHANES) from 2009-2010 shows that in children and adolescents ages 2-19, high BMIs are prevalent in Hispanic populations, Mexican American populations, non-Hispanic white populations, and non-Hispanic black populations. In total, they report 16.9 percent of U.S. minors were obese in 2009-10, with 31.8 percent maintaining a BMI that suggests a status of overweight or obese. An earlier study by Flegal et al. (2010) looked at the NHANES to record obesity and overweight prevalence in adult populations of the United States. As of 2007-2008, obesity classified 33.8 percent of US adults over 20 and 68 percent of the population is either overweight or obese. Interestingly, the study also reports that from 1999-2008 the percentage of the population...
with BMI in obesity range had not increased at the same rate that it had in the previous studies covering 1988-2000.

Since the greatest increase has come in the percentage of people that are obese, it warrants concern. However, the increase in physical weight is not the only side effect of cheap calories. The burden also manifests in social and cultural reaction.

**The Cultural and Social Response**

In the early years of processed snacks, convenience meals, and high calorie commodities obesity and its side effects were not major cause for worry. However, in the recent expansion of knowledge about nutrition science, a number of medical issues associated with these types of foods and dietary patterns have become an area of major social and public health concern (Tillotson 2003). As a nation, decreasing the number of people classified as obese is of grave importance. These reasons come in many forms including health, aesthetics, and moral well-being. Ideas about obesity culminate and become engrained in the culture with the help of the scientific world, media, and popular opinion.

Scientifically, the research says that bearing extra weight is damaging to the heart, joints, blood stream, etc. (Haslam 2007). The basic understanding of the relationship between obesity and chronic disease has also become embedded within consumer knowledge through every advertising method imaginable.

Body Mass Index (BMI), calculated using weight and height, is a measure commonly used to identify overweight and obese patients and populations; this measure considers an individual with a BMI over 30 obese. Doctors all over the country frequently encounter patients with high BMIs, who are facing many of the medical complications of obesity.
These complications can include but are not limited to: type-2 diabetes, coronary heart disease, stroke, and sleep apnea (Kopelman 2007). Obesity related health complications could be life threatening, and tend to be the result of not only high calorie diets, but sedentary lifestyles as well. However, controversy surrounding the science on obesity and weight gain has gotten attention in recent years.

In order to discuss these fears and the controversies, it is important to briefly describe some of the obesity related conditions, which underlie these perceptions. Type-2 diabetes or insulin resistance has recently become a major public health concern and has been the focus of a great deal of research. The condition is the result of too much adipose tissue, aka fat, producing factors that contribute to the development of insulin resistance in large amounts (Kahn et al. 2006). Insulin, produced by the pancreas, helps the body to regulate the levels of sugar in the blood, when a person is insulin resistant or type 2 diabetic their body cannot control these levels (Kahn et al. 2006). A person with type-2 diabetes may require daily dosage(s) of insulin in order to control their blood sugar and avoid the potential for negative health responses.

Cardiovascular disease is also a major concern. The heart can be very troubled by increased weight because it has to supply oxygenated blood to a larger amount of area covered by lean tissue mass and metabolically active adipose tissue (Kopelman 2007). Compensation for the rest of the body sends the heart into overdrive. This puts stress on the walls of the heart, causes change in the intake and output pressures, and leads to the left side mass increasing (Kopelman 2007). Not surprisingly, this can result in heart failure, stroke, and ultimately death.
Sleep apnea is an ailment where the excess weight sitting on top of the chest while sleeping leads to a reduced lung capacity and alters the amount of force needed to get air into and out of the lungs. This pressure can result in stopping of breathing during sleep, which leads to decreased oxygen concentration in blood, aka hypoxia (Kopelman 2007).

However real these problems may be, there is some disagreement in the air. In her article *Obesity: How Big a Problem?*, Wickelgren argues that obesity and health complications may not necessarily be a cause for worry for every person who carries extra weight. Rather, she argues that there are factors beyond a person’s BMI that determine health and predict potential health risks. Some of these factors include: location of additional fat and fitness level. A number of studies suggest that having a lower BMI attributes to lower mortality rates, but these studies may not take into account factors outside of weight such as activity level, habits with vice, other illnesses, and body shape (Wickelgren 1998). Also, it is important to point out that the degree to which someone is overweight may determine his or her risk for associated illness.

Mike Mitka’s article *Obesity’s Role in Heart Disease Requires Apples and Pears Comparison*, discusses the potential for body shape as an indicator of health risks associated with obesity. This argument states that persons who gain weight around their mid-section, in and around their organs, may be at a higher risk for cardiovascular disease than a person who is pear shaped and carries excess fat around their hips and thighs. He ends his article by underlining the fact that this is still a topic for debate, and will likely continue. The proposition that location of body fat is important in determining the health consequences is also highlighted in a study by Kahn et al. (2006), which states that lean individuals who have more fat in the abdominal and chest area are more likely to be insulin
sensitive than lean individuals with fat located peripherally. They go on to suggest that this discrepancy may be the result of genetic codes in intra-abdominal fat, which cue the secretion of proteins that influence insulin resistance and type-2 diabetes.

The association between weight and health outcomes is very common in the medical world and can often lead to potential bias from health care providers. For example, in Robert Darryl’s documentary, *America the Beautiful 2*, a woman who carries excess weight visited a medical professional who described her as unfit and at potential risk for disease. However, this woman in particular was highly active, dancing many hours a day and had no negative health complications. This example demonstrates how concerns about obesity and weight gain go beyond strict clinical definitions and can influence health care providers in their recommendations or diagnoses.

Beyond the medical profession, ideas about obesity and stereotypes associated with different body sizes and shapes are deeply embedded in western culture, and these perceptions often develop at early ages and remain into adulthood. For example, when asking nine-year-old children to describe four different silhouettes AJ Hill (1995) found that they were more likely to assign the overweight body shape descriptions of poor health, diet, and lack of fitness. Along with these physical attributes, the children recognized societal determinants such as lower social ranking and poorer educational success. Furthermore, it is not uncommon for people with high BMIs or of large body size to be stereotyped as lazy, overindulgent, unintelligent, unhygienic, unattractive, and lacking in self-discipline (Puhl et al. 2007). Many, if not all, of these traits are considered undesirable within western culture and can be seen in the ways people are regarded in social
situations, the work place, and in love. Obviously, not every individual in every state of their life holds these ideas, but they are widespread enough to cause distress and response.

Being insecure about one’s body is not an unusual feeling for most Americans. Smolak (1996) suggests that as many as 80% of women are dissatisfied with their appearance. One result of these perceptions and anxieties about weight has been the long-standing popularity of diets, which claim to result in rapid and excessive weight loss. Dieting fads began to grow in popularity at the beginning of the 20th century, and continues today. In the 1920’s with the movement of “Flapper” style attire, woman began desiring more slender figures, and the consumer economy capitalized on this. Advertisers solicited all types of slimming techniques from stimulating belts to reducing brushes to packaged diets and laxatives each of which would decrease her weight and increase her happiness (Fraser 1997). Marketing schemes played cultural stigmas against women to increase their vulnerability and indulge their insecurities.

Yet, with changing times and changing fashions come changing ideals and standards. In the years following the Second World War women in the media spotlight demonstrated increasingly curvaceous bodies with few imperfections. Miss America’s dimensions went from being 32-25-35 in the 1920’s to 35-25-35 in the fifties and sixties (Fraser 1997). These large breasted women with slender waists and round hips were the epitome of beauty emphasized in figures like Marilyn Monroe and Jayne Mansfield. However, the standards fell quite a distance from American averages. Based on 1988 measurements of U.S. Army female recruits the average woman measured 36-31-38, well above the measurements of Miss America only several decades earlier (Urla and Swedland 1995). With the bar set so high women take drastic measures to reach it.
Recent trends in diet culture lures customers with guilt. When people indulge in culturally or socially unacceptable dietary behaviors, it results in guilt and the diet industry offers relief for that sensation (Stearns 1997). In addition to guilt relief, the diet industry offers promises of quick weight loss by simply avoiding certain foods, or restricting consumption to special foods or a single food type. Health.com and everydiet.org provide a brief glimpse into the history of dieting in the US as well as the characterizations of some of the most popular, or “fad” diets. In the 1930’s, the Grapefruit diet caught fire in Hollywood and quickly spread. This diet called for grapefruit at every meal, accompanied by meat and vegetables with very limited carbohydrates. Behind this diet was the idea that grapefruit had properties which sped up digestion, and increased metabolism; nevertheless, it is also very low calorie with most of the calories coming from the protein and fat of the meat and some carbohydrates and protein from the fruit and vegetables. In the 1950’s, a new diet called the cabbage soup diet became popular. The diet suggested a loss of 10 to 15 pounds in a week, which resulted from eating a cabbage soup made of fibrous vegetables and onion soup-mix occasionally paired with fruits or some other vegetables. In 1975, Dr. Siegal of Florida designed the Cookie diet. He prescribed six cookies a day, which were supposed to help abate hunger and manage appetite. The diet also recommended a dinner high in protein from white meat or fish and a cup of vegetables. In 1977, Slim-Fast, a meal replacement shake was developed. The benefit of this diet was that it rewarded the buyer with sweetness for two meals (the shakes) followed by a proper dinner. Even more recently, in 1992 Dr. Atkins published his take on a high protein- low carbohydrate diet. All of these diets promise weight-loss if the user follows the rule; however, the problem with all of them is they tend to provide very low daily calorie consumption and low variety, thus
resulting in limited nutritional benefit and unintended failure. However, Americans are attracted to the quick fix and the dieting industry provides these cures typically without regard for the long-term health of the customer (Spitzack 1990).

In addition to “crash diets,” a popular trend has been the development of more holistic diet plans like Weight Watchers, Jenny Craig, and The South Beach Diet. These, although less extreme, still promise results when followed properly. The key here is following properly, in order to obtain the freedom of weight loss and slenderness one must be self-disciplined, controlled, and at ease with deprivation; failure in these departments attributes to the failure of dieting (Spitzack 1990, Bordo 2003).

Although much of the research in the past demonstrates this as an issue primarily seen among women in western culture, there is increasing evidence that more and more men also hold anxiety about weight as well. Cultural expectations for male physique represent the most attractive males as ones that are slender, and muscular, but not overly muscular (Grogan 1999). This body type represents the cultural values of men as strong, active, daring, hard working, etc. (Grogan 1999). Men may sense slightly different body insecurities than women, for example, men may desire to gain weight or musculature in order to achieve the toned and slender body type that is deemed most attractive. Regardless, meeting the standard is the goal for both genders.

Frank Mort points out that the cultural change, which brings light to the male body as a representation of him, may be the result of advertising aimed at men and the increased consciousness of themselves in comparison to others (Grogan 1999). For example, there are a large number of commercials on television directed specifically at men for weight loss and muscle building. One such commercial, Nutrisystem for Men shows two prominent male
figures of American culture, football players Terry Bradshaw and Dan Marino both of whom were very talented and lucrative members of the NFL, and discusses their success at getting “skinny”, or back down to “playing weight.” This association of success with aligning to societal demands for achieving attractiveness standards demonstrates the diminishing line of gendered expectation in maintaining a certain physique.

Other industries have also taken advantage of the cultural importance of weight-loss and maintaining a particular body size, shape, and appearance. Some of these industries include those that promote intense exercise regimens, plastic surgery, and even the health food push. In recent decades, with scientific and medical development, cosmetic surgery has blossomed into a $1.75 billion a year industry with 1.5 million people undergoing procedures annually (Bordo 2003). These surgeries range from liposuction to breast implants, to calf implants and beyond, each of them understood as an elective process for improving their aesthetic appeal.

Despite the ubiquity and popularity of fad diets, not all programs have called upon unhealthy or unnatural methods to accomplished weight-loss goals. In 1982, Jane Fonda released her exercise video *Workout: Starring Jane Fonda*, as a major player in the media spotlight she gained an enormous following and really got to ball rolling for physical activity (Spitzack 1990); the jazzercise craze followed shortly thereafter (Health.com). The most current trend has been the development of easily accessible or inexpensive gyms, recreation centers, or exercise studios, which promote the benefits of physical activity. When driving down the road through a recently developed urban or suburban area, it is not unusual to spot a 24-Hour Fitness just down the street from the YMCA and the local
recreation center. People all over the country are signing up for Bikram yoga, kickboxing, and spin classes to get their heart rates up, their legs toned, and their bellies in check.

There has also been a shift toward the anti-diet, which rests on the belief that losing weight is not a diet but a lifestyle and attitude change (Spitzack 1990). Across the country, the health food industry of organics, pesticide free, hormone free, and whole food can be seen. Retailers such as Whole Foods, Sprouts, and Trader Joes provide consumers with healthy alternatives to supplement an improved lifestyle and potential weight loss. On a national and governmental scale, the USDA and the Center for Nutrition Policy and Promotion has provided Americans with a pamphlet outlining the basics for a balanced diet. They suggest that people require a variety of foods, using fats and oils sparingly, 2-3 servings of dairy and meat, 3-5 servings of vegetables, 2-4 servings of fruit, and 6-11 servings of whole grains daily.

Although science reports that being overweight puts people at risk for greater health threats it is not the only precursor for weight-loss. A person maintaining a weight that falls within the range of healthy BMI, 18.5-24.9, provided by the National Institute of Health, may still desire to lose weight. This desire may be prompted not by health, but rather yearning to achieve an appealing appearance and increased success, as defined within a local or national context. In our consumer culture, increased success is associated with appearance, relationships, and monetary value. By maintaining a more slender, fit body, an individual is not only considered to be healthier, but is also viewed as more attractive, more controlled, more driven, and ultimately worth more. Mass media outlets maintain this belief by keeping slender, beautiful, successful, high ranking individuals in the social spotlight. It is not uncommon to walk by the newsstand and see a magazine bashing
the weight gain or celebrating the weight loss success of a celebrity and these images may become imprinted.

Recently, Judge and Cable (2010) compared body weight to average income. They found that women who weighed 30 pounds less than the national 164 pound average, made $10,000 more annually than women who were 30 pounds over the average did. In fact, the heavier women not only had a lower income than the lower weight women, they earned less than the $40,000 yearly average income for women in the United States. In contrast, men with lower than average body weight earned below average incomes, and there was no association between obesity and pay decreases. However, height seems to have a stronger association with income among men than women. In 2005, the Federal Reserve Bank of St. Louis reported the average height of CEO’s in Fortune 500 companies at three inches taller than the American average and 30% of them measured at least 6’2. The importance here, is not weight or height, it is that these studies reflect the strong emphasis placed on aesthetics in the workplace as opposed to work performance. Thus, the body acts as a representation of the person as a whole and allows for instant perception by another.
According to the Social Comparison Theory, comparing one’s perception of the physical attributes of another to their own is an adaptation that may have developed out of necessity for being able to size-up a competitor and propel the self and the group (Gilbert et al. 1995). The tendency for people to compare themselves to their neighbor or competitor may then go beyond just cultural shaping, and reflect an innate human characteristic. In this culture, being thin is assumed advantageous. Mass media and cultural standards further this assumption and have set a high bar for individuals. Meeting these high standards comes with many benefits, including higher social status, popularity within a social circle, and in many cases, increased income. Thus, it is understandable why the weight loss industry has boomed in recent decades. Besides, who doesn’t want to lose weight and “get their life back”? (See Figures 4 and 5)
When Culture and Biology Clash

Human behavior has added connotations to eating, cuisine, and physical appearance for a very long time. In western culture, a great amount of attention is placed on maintaining a slender body and meeting cultural standards of appearance. Given this emphasis on physical appearance, it is not hard to understand why millions of people devote countless hours and thoughts to preparing healthy meals, going to the gym, taking weight-loss enhancers, undergoing surgeries, etc. However, many people take weight loss and achieving a slender appearance to the extreme through the use of disordered eating behaviors. These individuals have a tendency to resort to all means to lose weight or change their appearance, regardless of the health consequences. This is exacerbated by the abundance of easily accessible and detailed information about dangerous weight loss techniques that is available to people who may be susceptible to eating disorders. The situations people create through eating disorders are not ideal and can result in long-term or permanent biological and psychological damage, thus making it important to understand them more fully.

It has been suggested that eating disorders are culturally created and culturally bound syndromes. This is assumed because the prevalence of dieting behavior and eating disorders outside of western culture, especially in developing countries where food resources are not always reliable, are low (Barlow and Durand 2009). However, if eating disorders were purely a symptom of cultural stress then the question of why only some people experience them would be more easily answered. The etiology, or causation, question has been raised often in consideration of eating disorders because of the rates at
which they appear in society and their tendency to be culturally situated (Littlewood 2004).

Seeing as eating disorders are very complex and affect individuals differently, a multidimensional approach, utilizing socio-cultural and biological drives, seems to be the most accurate way to answer this question. This approach is anthropological because it analyzes how culture, biology, and social situations work to shape each other, but it applies to psychology as well. In Barlow and Durand’s book *Abnormal Psychology*, they utilize the integrative approach, which analyzes psychological, biological, and social aspects of a person in order to understand their behavior. In cases where behavior is not “normal,” a person may be qualified for a diagnosis of psychological disorder. In order to meet the requirements for psychological disorder a behavior demonstrates a “psychological dysfunction within an individual that is associated with distress or impairment in functioning and a response that is not typical or culturally expected.” (Barlow and Durand 2009:2).

In the case of eating disorders, “the distress or impairment in functioning” tends to come from eating and body shape, and the “response that is not typical or culturally expected” is the mental fixation on food, on worth based on body shape, and the many dangerous coping mechanisms. The suggestion that eating disorders are a result of multifactorial influences is not unusual. However, the research on a biological trigger for eating disorders is very broad and covers many ideas, and is not often coupled with social influences. For example, Lawson et al. (2011) suggests that women with eating disorders show increased levels of cortisol and peptide YY, both hormones engaged in appetite regulation, regardless of BMI. This study suggests that the hormones may be triggering
eating disorders, or they may be out of whack as a bodily reaction to the eating disorder. Another suggestion made by Michiko et al. (2012) proposes that the level of brain-derived neurotrophic factor, which is involved in brain augmentation during development, are relatively lower in patients with eating disorders and thus are involved. Neither of these studies looks at how the culture interacts with the biology, which may provide greater insight.

Here, it is suggested that predisposition to, or morbidity of a psychological disturbance may be the biological or genetic piece that is shaped by the cultural environment to result in disordered eating behaviors. Due to high rates of comorbidity, morbidity being the state of living with disease, of eating disorders with other psychological disorders it seems plausible that the cultural environment, where people are constantly bombarded with reasons to desire to be thinner, cues a psychological dysfunction of a mood disorder, anxiety disorder, or something else, to result in atypical eating behavior and mental perception.

To reiterate, individuals with eating disorders practice behaviors that are not normal when it comes to eating and drinking. Some avoid food at all costs; some lose control when they eat and lose connection with biological responses to eating; others induce vomiting or other forms of purging behavior after over consumption (DSM-IV-TR 2000). Beyond the physical behaviors, persons with eating disorders tend to spend countless hours obsessing over food, their body, comparisons with others, etc (Costin 2007).

There has been a vast amount of research completed on the presence of comorbidity of other psychological disorders with eating disorders. One study by Blinder et al. 2006
reports that of 436 patients with anorexia nervosa subtype binge-purge 98% presented another comorbid psychological disorder at some point in their life (Table 4). Another study by Yanovski et al. (1993) reported that 60% of obese patients with BED had another psychological disorder in their life. The prevalence rates range across the different eating disorders (AN, BN, BED, and EDNOS) and different psychological disorders, but the frequency is undoubtedly elevated.

Tables 3, 4, and 5 show the prevalence rates from four studies of each anorexia nervosa, bulimia nervosa, and Binge Eating Disorder with one or more Axis I affective disorder. These include mood disorders, specifically major depressive disorder (MDD); anxiety disorders, specifically panic disorder, specific phobia, social phobia, obsessive-compulsive disorder (OCD), and post-traumatic stress disorder (PTSD); and substance abuse/dependence disorders, specifically alcohol and general drug abuse and dependence. Although these are the only psychiatric disturbances noted here, they are not the only ones reported in the literature. However, these disorders seem to be the most often found in the studies and typically have the highest comorbidity rates with eating disorders. Other disorders found in the literature are bipolar disorder, generalized anxiety disorder, impulse control disorder, attention deficit/hyperactivity disorder, and personality disorders (Halmi 2010).

In the majority of the studies examined here, the most common comorbidity with an eating disorder was major depressive disorder. In the studies on Binge Eating Disorder, lifetime prevalence comorbidity rates of at least one other comorbidity were 46.8% (Grilo et al. 2009), 51% (Zeltich et al. 1993), 32.3% (Hudson et al. 2007), and 58% (Wilfley et al. 2000). The anorexia nervosa studies reported similar lifetime rates with 39.1% (Hudson et
al. 2007), 40% AN-Restrictive (ANR) 50% AN-Binge-Purge (ANBP) (Blinder et al. 2006), 63% (Jordan et al. 2008), and 32.4% ANR 72.7% ANBP (Braun 1994). The studies on bulimia nervosa again reported elevated lifetime comorbid psychological disorder rates with 50.1% (Hudson et al. 2007), 46% (Blinder et al. 2006), 51% (Jordan et al. 2008), and 45.1%(Braun 1994).

The literature showed some patterns within the different eating disorders and the different psychological comorbidities. Most of the studies reported high rates of AN and OCD: 29% ANR 28% ANBP (Blinder et al. 2006), 21% (Jordan et al. 2008), and 3%ANR 13.6% ANBP (Braun 1994). With bulimia nervosa, several of the studies reported relatively high rates of comorbidity with specific and social phobias, as well as PTSD. Hudson et al. 2007 reported 50.1% of BN patients had comorbid specific phobia, 41.3% social phobia, and 45.4% PTSD. Blinder’s (2006) study reported that 23% of BN patients presented PTSD comorbidity, but only 3% social phobia comorbidity. Finally, the Jordan et al. (2008) study reported 30% of the BN participants had comorbid social phobia and 27% specific phobia. Studying these patterns in the future could provide insights into eating disorder etiology, duration, and severity.

On the whole, the studies should probably not be used to suggest a single number or rate because there are many differences in the experiments. Between the studies, the research premise is similar in trying to identify the number of patients who have eating disorders that also have another morbid psychiatric disorder. However, they cover a broad range of demographics, including age ranges, symptom severities, socio-economic status, biological sexes, etc., and they do not all compare the comorbidity findings to a control group. Nevertheless, the discrepancy in rates observed amongst the demographics and the
disorders may provide valuable information in understanding correlation and causation. For example, Blinder et al. (2006) report that 28% of 436 patients treated for anorexia nervosa sub-type binge purge had comorbid obsessive-compulsive disorder. This number was relatively higher than the 16% of 882 patients receiving treatment for bulimia nervosa. What causes an individual with binge-purge behavior to lose the extra weight and fall into the category of AN as opposed to BN?

The lack of data recording onset ages for each of the disorders presents another problem. Ultimately, having this information more readily available could highlight trends in the morbid disorders and answer questions such as: which disorder(s) appear first? At what age does the disorder most commonly start? Could one be a precursor for the other? Could one influence the creating or severity of the symptoms of the other?

Having more uniform criteria across studies in the future may benefit the study of eating disorders as a whole. If there is mass information recording the age of onset, the duration, the socio-economic status, the difference between sexes, and the comparison to a control group of persons without eating disorders, the patterns will be more easily spotted and could shed light on some of the current uncertainties.

It should be noted that the suggestion of Axis I disorders, or a specific disorder, as the cause of or precondition for eating disorders is not unique to this paper (Pallister 2008, O’Brien and Vincent 2003, Kaye et al. 2004, Garcia 2009, and others). Also, several studies discount this idea. In a literature review by Godart et al. (2007), the team examined 55 studies on comorbidity between 1985-2006. Their research dismisses the suggestion due to the lack of control groups in the majority of the studies, demographic inconsistencies,
## Table 3. Binge Eating Disorder

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Any Axis I</td>
<td>73.8%/42.8%</td>
<td>60%</td>
<td>78.9%</td>
<td>77%/-2</td>
</tr>
<tr>
<td>All Mood Disorders</td>
<td>54.2%/26%</td>
<td>--</td>
<td>46.4%</td>
<td>61%/22%</td>
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<tr>
<td>Major Depressive Disorder</td>
<td>46.8%/18%</td>
<td>51%</td>
<td>32.3%</td>
<td>58%/16%</td>
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<tr>
<td>All Anxiety Disorders</td>
<td>37.1%/24.5%</td>
<td>65.1%</td>
<td>29%/16%</td>
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<tr>
<td>Panic Disorder</td>
<td>15.3%/3.7%</td>
<td>9%</td>
<td>13.2%</td>
<td>13%/1%</td>
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<tr>
<td>Social Phobia</td>
<td>9.2%/6.2%</td>
<td>5%</td>
<td>31.9%</td>
<td>6%/4%</td>
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<tr>
<td>OCD</td>
<td>2.7%/2.2%</td>
<td>2%</td>
<td>8.2%</td>
<td>1%/1%</td>
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<tr>
<td>PTSD</td>
<td>6.7%/4.0%</td>
<td>0%</td>
<td>26.3%</td>
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<tr>
<td>Specific Phobia</td>
<td>9.9%/8.9%</td>
<td>--</td>
<td>37.1%</td>
<td>10%/7%</td>
</tr>
<tr>
<td>Substance Dependence/Abuse Disorder</td>
<td>24.8%/2.7%</td>
<td>12%</td>
<td>23.1%</td>
<td>33%/4%</td>
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<tr>
<td>Alcohol Abuse/Dependence</td>
<td>20.3%/1.5%</td>
<td>9%</td>
<td>21.4%</td>
<td>23%/3%</td>
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<tr>
<td>Drug Abuse/Dependence</td>
<td>14.6%/1.2%</td>
<td>7%</td>
<td>19.4%</td>
<td>18%/1%</td>
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</table>

### DSM-Version NUMBERS/DEMORAPHICS/CONTROLS/

<table>
<thead>
<tr>
<th>DSM-IV</th>
<th>DSM-III-R and DSM-IV</th>
<th>DSM-IV And ICD-10</th>
<th>DSM-III-R on 28 Male and 134 Female Patients</th>
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</thead>
<tbody>
<tr>
<td>94 Male and 310 Female patients average age 45</td>
<td>33 Obese Females Ages 18-49 Both African-American and Caucasian participants Compared against control group of 56 F without BED and 29 M without BED Control used</td>
<td>2980 Male and Female Participants of National Comorbidity Survey ages 18+ no control</td>
<td>93% Caucasian 60% Married Overall well educated, mean income of $40K-$50K annually No control</td>
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<tr>
<td>82% Caucasian 84% attended college no control</td>
<td>10 Obese Males Ages 18-49</td>
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</tr>
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Table 4. Anorexia Nervosa

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Any Axis I Disorder</td>
<td>56.2%</td>
<td>96%/98%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>All Mood Disorders</td>
<td>42.1%</td>
<td>93%/95%</td>
<td>68%</td>
<td>41.2%/81.1%</td>
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<tr>
<td>Major Depressive Disorder</td>
<td>39.1%</td>
<td>40%/50%</td>
<td>63%</td>
<td>32.4%/72.7%</td>
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<tr>
<td>All Anxiety Disorders</td>
<td>47.9%</td>
<td>55%/59%</td>
<td>55%</td>
<td>35.3%/40.9%</td>
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<tr>
<td>Panic Disorder</td>
<td>3%</td>
<td>3%/6%</td>
<td>25%</td>
<td>11.8%/13.6%</td>
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<tr>
<td>Social Phobia</td>
<td>24.8%</td>
<td>4%/2%</td>
<td>30%</td>
<td>3%/13.6%</td>
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<tr>
<td>OCD</td>
<td>0</td>
<td>29%/28%</td>
<td>21%</td>
<td>20.6%/18.2%</td>
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<td>PTSD</td>
<td>12%</td>
<td>10%/25%</td>
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<tr>
<td>Specific Phobia</td>
<td>26.5%</td>
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<td>30%</td>
<td>0/13.6%</td>
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<tr>
<td>Substance Dependence /Abuse Disorder</td>
<td>27%</td>
<td>5%/20%</td>
<td>34%</td>
<td>5.9%/11.8%</td>
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<td>Alcohol Abuse/Dependence</td>
<td>24.5%</td>
<td>3%/14%</td>
<td>24%</td>
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<tr>
<td>Drug Abuse/Dependence</td>
<td>17.7%</td>
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<tr>
<td>DSM-Version NUMBERS/ DEMOGRAPHICS/ CONTROLS/</td>
<td>DSM-IV 94 Male and 310 Female patients (examined for all disorders) average age 45 82% Caucasian 84% attended college No Control</td>
<td>DSM-IV 56 female patients with AN-R and 436 AN-BP 95% Caucasian &lt;1% African American 2.8% Hispanic &lt; High school-45% High school/college-55% No control</td>
<td>DSM-IV 56 female patients ages 17-40 no control</td>
<td>AN-R 34 females AN-B 22 Females Diagnosed with SCID 16+ years old mean age AN-R 24.8 and AN-B 24.2 no control</td>
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<tr>
<td>Disorder</td>
<td>Hudson et al. 2007 Lifetime</td>
<td>Blinder et al. 2006 Lifetime</td>
<td>Jordan et al. 2008 Lifetime</td>
<td>Braun 1994 Lifetime</td>
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<td>-----------------------------------------------------------</td>
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</tr>
<tr>
<td>Any Axis I Disorder</td>
<td>94.5%</td>
<td>97%</td>
<td>--</td>
<td>--</td>
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<tr>
<td>All Mood Disorders</td>
<td>70.7%</td>
<td>94%</td>
<td>71%</td>
<td>64.5%</td>
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<tr>
<td>Major Depressive Disorder</td>
<td>50.1%</td>
<td>46%</td>
<td>51%</td>
<td>45.1%</td>
</tr>
<tr>
<td>All Anxiety Disorders</td>
<td>80.6%</td>
<td>55%</td>
<td>50%</td>
<td>29%</td>
</tr>
<tr>
<td>Panic Disorder</td>
<td>16.2%</td>
<td>4%</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>Social Phobia</td>
<td>41.3%</td>
<td>3%</td>
<td>30%</td>
<td>16.1%</td>
</tr>
<tr>
<td>OCD</td>
<td>17.4%</td>
<td>16%</td>
<td>3%</td>
<td>12%</td>
</tr>
<tr>
<td>PTSD</td>
<td>45.4%</td>
<td>23%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Specific Phobia</td>
<td>50.1%</td>
<td>--</td>
<td>27%</td>
<td>0%</td>
</tr>
<tr>
<td>Substance Dependence/Abuse Disorder</td>
<td>36.8%</td>
<td>34%</td>
<td>49%</td>
<td>41.9%</td>
</tr>
<tr>
<td>Alcohol Abuse/Dependence</td>
<td>33.7%</td>
<td>26%</td>
<td>46%</td>
<td>--</td>
</tr>
<tr>
<td>Drug Abuse/Dependence</td>
<td>26.0%</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>DSM-Version NUMBERS/DEMOGRAPHICS/CONTROLS</td>
<td>DSM-IV 94 Male and 310 Female patients (examined for all disorders) average age 45 82% Caucasian 84% attended college No Control</td>
<td>DSM-IV 882 female patients 95% Caucasian &lt;1% African American 2.8% Hispanic &lt; High school-45% High school/college-55% No Control</td>
<td>DSM-IV 132 female patients age 17-40 No Control</td>
<td>DSM-III-R 31 Females 16+ years old Average age was 25 Did look at onset ages for all disorders No Control</td>
</tr>
</tbody>
</table>
as well as scarce and conflicting results. A second report by Strober and Katz (1987) suggests that although affective disorders may predispose adolescents to eating disorders it is also possible that depression and other affective disorders could be the result of starvation and catecholamine function in genetic risk for eating disorder. These arguments are valid. Regardless, the cause of eating disorders is very complex, and understanding that there are cultural, environmental, biological factors that play into their etiology is important.

Currently, there appears to be a gap in the research, which would bridge the cultural causation and the biological psychological predisposition to eating disorders. In order to move forward with eating disorder research a multidisciplinary cooperation will be necessary. These disorders are multidimensional; they arise in areas where culture promotes slenderness as a means for beauty, success, and control and they manifest into psychological disturbances that can disrupt and take the enjoyment from life. Questions that need to be asked and may be answered through an interdisciplinary approach include: Why does the culture only influence these behaviors in certain individuals? Why don’t some individuals who have a biological predisposition develop an eating disorder in this environment? How can treatment be more successful with the understanding of underlying biological predispositions?

Finally, treatment of these disorders can be very difficult because they are rewarding. If an individual loses weight it is rewarding; if they overeat and experience guilt, it is rewarding to relieve that guilt through purging; if they think negatively about themselves they may temporarily relieve it through excessive consumption. Thus, this research points out the need for socio-cultural change because changing biology may not
be possible. Soliciting the idea of the body as a vector for the mind and not a representation of worth could bring social change that results in decreasing prevalence of eating disorders and dieting behavior as well as increasing health across the board.

**Globalization and Dieting/Eating Disorders**

Looking at populations across the globe that did not express concerns about body slenderness until western culture reached its shores can support the proposal that eating disorders are a culturally bound syndrome.

In the 1990’s, Anne Becker did one of the most commonly referenced works on dieting, eating disorders, and globalization. Her research took place in Western Fiji where she analyzed the effects of western television and media on adolescents and women living in this rural area. In 1989 she found that women when asked questions like “How well do you like your body?” “Would you like to trade your body for another?” and “How critical are you of your shape? Others shape?” reported high numbers for appreciation of their body, pride in their body, lower criticism of their shape and others bodies. When she utilized these questions nine years later, and three years after the introduction of western television, she found that women had a lower appreciation of their body, and were more critical of their own and others bodies (2002). During the time of her study, she also reported higher rates of overweight and obesity within the 1998 sample. These numbers she suggests are representative of population that are seeing cultural shifts from appreciating a more robust shape to acknowledging the possibility of reshaping the body and motivating Fijians to maintain body weight. A second study Anne Becker (2004) led was on the impact of western television on adolescent Fijian school girls, in this study she reports that girls are demonstrating a preoccupation with weight and body shape, purging
behavior to control weight, and body dissatisfaction all of which were not experienced to this extent prior to exposure.

Outside of Fiji there are many other people facing similar effects from globalization and a promoted ideal of slender body shape. Sarah Trainer’s article “Body Image, Health, and Modernity: Women’s Perspectives and Experiences in the United Arab Emirates” (2010) discusses the increase in overweight and obesity in the UAE, and the coping mechanisms women in this area employ to deal with all of the changes associated with it. She states that the women are often criticized for sticking to the traditional ways by ignoring the health risks associated with excessive body weight. However, there is contradictory pressure “because ‘being modern’ is equated with consumption of fast food, employment of servants, use of cars, and so on, but on the other hand, they are increasingly exposed to Western ideas about body image and weight.”(Trainer 2010:61S). This contradiction shows a cultural construction of the same paradox facing Western civilizations. The results of her study show that young Emirati women, in her sampling, understand thin as being an indication of beauty, and that being ‘fat’ was no longer a positive reflection of a person, like it had been in their grandparents era. This cultural shift may be associated with the socioeconomic changes the UAE has been undergoing, including growing dispensable incoming, changing roles for women, better health care, and inclusion in the growing global market.

Another study by Viren Swami and Martin Tovée looked at a cross-cultural comparison of female physical attractiveness in Britain and Malaysia (2004). Their conclusion states that BMI is a reliable source for determining physical attractiveness in areas. However, they also found lower BMIs represent attractiveness in industrialized
areas of society. Conversely, in semi-industrialized or rural societies the BMIs seen as most attractive tended to be slightly higher. They suggest this difference could be due to preferred BMI in certain environments, for certain health outcomes, and cultural definitions (2004:123). The industrialized areas, where social change is rampant, may have experienced greater exposure to westernized ideas and standards such as demands to strive for career accomplishment and maintenance of physical attractiveness (2004:125). Although this study did not do explicit research on the effect of westernization, it does suggest the imposition of similar ideals on women in industrialized, global market areas.

Todd Jackson and Hong Chen (2007) completed another interesting study to consider in globalization and the causes of eating disorders. Their research compared the experience of social pressure, comparison, teasing, and concern with facial features in Chinese adolescents and young adults with eating disorder symptoms to similar aged participants with no ED symptoms. Their results demonstrated that participants with eating disorders reported greater social pressure, more teasing, more comparison of and concern with appearance and facial appearance. They suggest that the social pressure in the People’s Republic of China places stress in facial appearance, as opposed to the more Western focus on body shape and weight. This demonstrates how society shapes and assimilates the symptoms of eating disorders through the specific cultural demands and standards of appearance.

Finally, in support of psychological disorders predisposing individuals to eating disorders, research by Lee et al. (2005) demonstrates that even across cultures persons with eating disorders also display comorbid disorders. This study looked at 126 cases of anorexia nervosa in Chinese, Malay, and Indian individuals being treated at an eating
disorder clinic over an eight-year period. The research reported that the number of AN cases from 1994 to 2002 increased dramatically, and in these patients 25.4% presented depression. Other patients presented with obsessive-compulsive disorder, and/or anxiety disorder. They also note that the incidence of AN is higher in the Chinese than in Malay or Indian populations, contrary to the results of a national health survey that reported the highest rates of obesity in Malays (2005:278). Socio-cultural protection through a less emphasized thin ideal or lack of knowledge about the disorders lends hand to this discrepancy (2005).

The increasing prevalence of these potentially fatal disorders across the globe should be cause for concern and acknowledgement of the cultural force that is creating an environment where these disorders thrive. The increasing globalization and world market has many positive effects, such as creating jobs, changing social requirements, and enhancing many living conditions. However, as with any change there are or can be unforeseen consequences, and the preoccupation with weight, body shape, dieting, and eating disorders may be part of these consequences.

**Conclusion**

Throughout this paper, I have suggested that Western societies, through a lens of the United States, have faced a number of drastic changes in the last century; these changes have come in many social, economic, cultural, and biological shapes. Because of these changes Westerner's and on an increasing scale globally, there has been a dramatic increase in the number of people who are classified as overweight and obese. Along with this numerical increase, there has been a negative social stigmatization of body weight and a booming growth in the dieting and fitness industries. Cultural and media depictions of
body weight as a direct representation of a person’s integrity, morality, and potential for success, paired with an economy that insists upon indulgence results in an environment of inconsistency and constant battle.

This environment acts as the perfect breeding grounds for low self-esteem, body dissatisfaction, self-denigration, and eating disorders. The creating of disordered eating pathology appears to be culturally restrained, but is a very rampant problem afflicting millions of people globally. Affliction of only some individuals in the population with eating disorders suggests a cause that goes beyond just social distress. Here I suggest the possibility that people who develop eating disorder pathologies do so because they have existing, or predispositions to, other psychological disorders. The evidence provided could not conclude that this is an absolute; rather, it demonstrates that there are high levels of comorbidity with eating disorders and affective disorders, such as depression and OCD, and this is an avenue of research in demand of more information.

Further investigation of the psychological disorder comorbidity with eating disorders has at least two potential avenues that can each provide different insights. One route explores more specific and individualized information amongst the disorders. The complexity and diversity between each individuals experience with an eating disorder and another psychological disturbance may provide information on why their disorders manifest the way they do, why they started when they did, why they were possibly more susceptible to an eating disorder, etc. By understanding the disorders on a more specific level it could open up new forms of treatment and coping mechanisms. A second avenue of research can be done to collect more large-scale, generalized data. This would take demographics from all spectrums of the disorders and determine patterns within the
diagnoses. This type of study could shed light on the possibility that one psychological disorder is more commonly associated with each eating disorder, or eating disorder behavior.

It would also be very interesting to examine the prevalence of eating disorders and comorbid psychological disorders in other societies. These studies would have to take into consideration the differences in expression of these disorders based on their cultural situation, like the study by Jackson and Chen that reports on facial features and the ties to eating disorders in Chinese adolescent girls. Other cultures may experience these disorders through the shaping of different societal pressures and the criteria must fit. Cross-cultural comparison and similar elevated rates of psychological comorbidity with eating disorders could serve as evidence in support of the hypothesis that initial disorders trigger eating disorders.

Although this paper focuses primarily on female social and attitude changes, this is not strictly a female issue. The number of males afflicted with eating disorders in the United States reported by the National Eating Disorders Association is one million, however, these numbers may not report the true scale of the problem. With the release of the DSM-V in the spring of 2013, there may even be a higher incidence rate of eating disorders in men because of the addition of Binge Eating Disorder, the less restricting criteria of anorexia nervosa, and potentially fewer cases receiving EDNOS diagnoses.

Understanding the etiology of eating disorders is important because it will potentially encourage the expansion of knowledge on prevention, treatment, and cure. It seems to be a well spread perception that the media and cultural view of extreme slenderness can be both unreasonable and detrimental. However, the push to change these
standards has been only somewhat successful. The Dove® Campaign for Real Beauty launched in 2004 released advertisements with fleshy women that urged viewers to “Imagine a World Where Beauty is a Source of Confidence, Not Anxiety.” Their shift to seeing beauty in women of all shapes and sizes has evolved into a movement for self-esteem, which is geared towards inspiring and motivating confidence in women all over the world (Dove® Social Mission). Body dissatisfaction, along with preoccupations about weight or shape, can serve as very restrictive mental blocks; dismissal of these barriers can bring freedom and lend time to more productive and rewarding thoughts and behaviors.

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