# CAUSES OF EATING DISORDERS

Karan Vannia, Mohammad Murtaza Mehdia\*

<sup>a</sup>Department of Molecular Biology, School of Bio-engineering and Biosciences, Lovely Professional University, Punjab-144411 <sup>b</sup>Department of Biochemistry, School of Bio-engineering and Biosciences, Lovely Professional University, Punjab-144411

\*Corresponding Author
Dr. Mohammad Murtaza Mehdi
Assistant Professor
Department of Biochemistry,
School of Bio-engineering and Biosciences,
Lovely Faculty of Technology and Sciences,
Lovely Professional University, Phagwara-144411,
Punjab, India.

Email: mehdibiochem@gmail.com

## **ABSTRACT**

Eating disorders – anorexia nervosa and bulimia nervosa are one of the multi factorial disorders which are affected by genetic, neural, social and psychological factors. These factors themselves don't have independent existence and found to interfere with each other in order for the development of disorder. In this review, causes of eating disorders is been mentioned. Both of the major disorders also don't have independent nature and are connected to each other. It acts like a cycle of symptoms where one symptom brings to the other kind of disorder. These disorders are not something new and dates long back to history. Importantly, recent times have created a keen interest among biologists and scientist to know genetic basis of these disorders where the information enrichment is also going on by hormonal and neural changes which are slowly and slowly accessed. Certain hormones such as leptin, adiponectin found to be affected in the case of disorder. Societal and familial aspects are also reviewed which is of obvious importance. This review is important for Biology, Psychology and Sociology point of view.

Keywords: adiponectin; cholecystokinin; dihydropianrosterone; leptin; hydroxytryptamine

## **INTRODUCTION**

Eating disorders are the psychological disorders associated with the impaired behavior associated with eating. Eating disorders generally have their causes unknown and undetermined as there are many behavioral and other complex factors associated with it. Eating disorders can be classified into two broad conditions either in too much of eating or too less. In both of the cases, these kind of diseases lead to affect on overall health of the body and social life of the patient including effect on work performance. Eating disorders are age dependent as most of the cases are of adolescent as adolescent is the age of huge consciousness or of carelessness. Certain kind of disorders is also related with the sex of the individual and women are affected in certain of them (anorexia nervosa). It is reported that women have 10% more chances to suffer with eating disorder. Eating disorders can begin with either compulsive less eating or over eating and in some cases stopping eating for a significant amount f time. Luckily these disorders are curable and initial treatment can lead to better recovery. Eating disorder include anorexia nervosa, bulimia nervosa, obesity, body

dysmorphic disorder which ultimate lead to anorexia nervosa and binge eating would certainly lead to bulimia nervosa(Bruch and Bruch ,1973).

Table 1: Symptoms of Eating Disorders (Piggot et al, 1991)

Tuble 1. Symptoms of Earling Disorders (11880) of any 1991)	
SYMPTOMS OF BULIMIA NERVOSA	
Over exercise and usage of laxatives	
Over eating and then forceful vomiting (	
binge and purge)	
Cognitive biasness including over eating for	
stress reduction. Considering food to be	
ultimate stress reliever and then vomiting it	
out of fear.	
Calorie obsession ( latter stages)	
Obesity and increment of BMI (body mass	
index)	
Fatigue, too much fat around the body	
Discolored teeth, hands with scars along	
with development of chip monk cheeks	
Hiding oneself during eating	
Vomiting after meals and going to bathrooms	

## ANOREXIA NERVOSA

The onset and first report of the disorder started back in 1960 in western societies where middle and upper class women were starve sometimes till death and later bulimia nervosa was reported. Previous records showed women doing similar kind of activity in hellinistic era ( meditteranean history) various women figures dated back in history such as queen of scots and Catherine of heina are found to be affected by a similar kind of disorder. In medical history the earliest description include found to be done by Richard morton but accepted as a medical condition in late 19th century where Ernest-Charles Lasegue and William gull, two of the medical professionals wrote on the disorder simultaneously where making it a global awareness dates back to Hilde bruch (20th century). Anorexia nervosa start with the consciousness about one looks. Most of the women and girls give a lot of importance to their physical appearances. Many people self confidence is dependent on other people perspectives including how people are looking on them and judging them instead of self thoughts and inner self. This onset of emotions initiate to bring the emotions to be thin in case if thinning is the perspective of beauty in the mind of individual. Development of personal desire lead to stress and stress leads to development of an obsession and in certain cases becomes a life threatening situation. Person suffering from this problem always find themselves overweight and can't understand their problem. In this condition patient refuses to have food and as a result does not able to maintain proper weight according to age and height. This can be measured by the aid of body mass index and other parameters. It also result is practicing over exercise and underneath. The condition can further bring out other medical problems including damaging of kidneys, heart failure, osteoporosis, air fall etc. symptoms of anorexia nervosa include loss of weight to greater extent, lying patterns for food, dry skin, fatigue and excessive exercises, swelling of arm and skin and over visualization of oneself in mirror. It is a kind of self deception that is being developed as a result of false self perception and self perception can only be removed by the self. The condition includes less than 85% of the weight which is considered normal as per height and age (Blumberg, 2000, Thomas, 2009).

#### Causes of Anorexia Nervosa

Detection of anorexia nervosa is very difficult as in diseases which are associated with psyche has very complex etiology. Generally the disorder is prevalent in adolescent group as this age group is more prone to social influences and biological changes along with psychological. Three of the factors psychological, social and biological found to interact with each other for the development (Poliyy and Harman, 2002).

#### **Genetic Factors**

Genome wide association studies shows this disorder to be associated with inheritance. Family, twin and adoption studies also aid in this. Various studies show certain genes which are associated with this are exhibiting linkage. Certain studies show that genes responsible for the disease maybe located on chromosome number 1 and X chromosome. The inheritance is to be shown between 58 to 74 percent. It is well known fact that body mass index passes from parent to progeny along with certain symptoms such as force vomiting, dieting found to show heredity between the ranges of 32 to 70 %. Individual responses toward dietary stimulus actually has genetic determinant which also has association with obesity. Dissatisfaction with oneself is the main onset. Genetic factors contribution to disease not only solely affect and the genetic causes are also affected by the environmental transmission. It is also found that it has susceptibility to twin children (from the observation of skin thickness trait).5 to 10% of probability of the disease transmission to the first generation relatives of the affected person. Studies on various groups of twins (affected) have reported that there is a certain proband of triplet which is found in all of them. Extent of vulnerability for the transmission on genetic basis is still not determined by the scientific community (Skiore, 1988).

## **Thinking Patterns and Neural Development**

People with siblings have likely to develop disorder including single childes which are over protected. Children including lower birth weight are more prone and premature baby to certain extend. It is found that children who does not getting properly nutrition before birth and after the birth are more likely to affect by this disorder. Insecure attachment with the parent including parental anxiety and stress also contribute to the factor. These all factors can be explained by the study of epi genetics which include all notable changes which are caused due to secondary changes in the makeup of human system without genetic alteration Anorexia nervosa is also found to have associated with epigenetic dysfunction. The comparative study of anorexia nervosa and bulimia nervosa has helped in better understanding. However, still the cause on the basis endocrine function is poorly known. It is thought that hypothalamus whose secreted hormones. Patients from anorexia nervosa generally suffer from hydroxytryptamine activity as well as serotonin (Sieger, 2004) Hydroxytryptamine has receptor HT1 A which overall activity get affected. However, these are still found to exist even after the recovery of patient as obsessive nature remains throughout life but later endocrine tests are also showing that recovery from over secretion from hydroxytryptamine activity but the most important hormone affecting is serotonin which needs more studies to be established. It also includes impairment of olfactory receptor including reduction in taste conditioning along with gastric bloating. Development of a kind of less eating addiction is also considered but not supported. Reduction in trypthophan due to less eating is obvious which stimulates the serotonin production. dihydroepianrosterone and dihydroepianrosterone ratio sulphate ratio levels are found to be decrease along with the growth hormone. Proteins and peptides such as adiponectin (Khalil and Khazim, 2014) which has role in insulin sensitivity modulation and leptin which has role in making balance of energy during adolescent changes gets increased and decreased respectively (Heberbrand et al, 2007).

# **Social Responses**

there is a certain stereotype and body image which is developed among the society by the aid of western media, advertisements and movies where thin females and muscular males are considered to be perfect ideals which has compelled girls to get prone to these disorders. As per environment and ethnicity is being concerned Asian females are less reported of these cases as compared to females of Caucasian because of different body images perception developed in the regions. Peer pressure most importantly contributes to it. People with adverse childhood experiences including sexual assault also have reported cases of this disorder (Skiore, 1988).

# **Psychological Factors**

There are lot of psychological factors which are involved in either occurrence and development of disease. Low self esteem and negative and pessimistic approaches leading to develop the disorder. Mood disorders and the eating disorders have found to have strong o relation with each other. Body dissatisfaction also aids in that which comes through the actual body weight and ideal image which is created in the individual. Negative body imaging and misperception together brings body dissatisfaction. Other sort of confusions such as about life, poor ambitions, seeking for short solutions and shortcomings for achieving what one wants and other life problems also aids in the person psyche to move towards disorder development. Over thinking and obsessive thoughts such as there are 74% of the affected think about obsessive thought more than 3 hours a day. People who strive hard to get perfect develop and slowly and slowly gets biasness even for listening food names where the body even start respond faster to resist food even after listening the name of the food items. This is a sort of cognitive biasness and rejection. It is for sure that eating disorders majorly bulimia nervosa and anorexia nervosa find close association where they can affect in a cycle in which low self esteem brings anorexia nervosa and high brings bulimia nervosa. However it is disputed that both the disorders have opposite and contrasting traits (Of and Of, 2002)

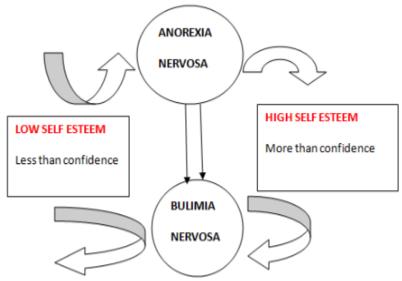


Figure 1: Repeated cycle of Eating disorders

#### **BULIMIA NERVOSA**

It is simply a continuous and long term habit of over eating and then getting rid of that food by vomiting. The similar kind of disease is mentioned around 370BC but the diagnosis treatment was in the late 1979. Before 20 centuries forceful part of vomiting was the part of habit, healthy practice and as well as culture. In Egypt people used to vomit for three days at least in a month to keep them fit and fine. Rich and elite class of Romans used to indulge in eradication of food by purging in order to have food in several banquets in a single day, it is recorded that roman king Claudius was also affected by bulimia .in ancient asceticism of west it is found that there is a mention of over eating as spiritual and religious practice including Babylonian Talmud. After the advent of 20<sup>th</sup> century the situation got changed; around 1930 anorexic patients were found to have new habits that was also among two different kinds of patients —one with habit of over eating and another with forceful vomiting. Yet at that time the habits were not considered to be a separate disorder. This was first coined by Geralled Russel in the year 1979 and got significance in 1980 when it was added in the diagnostic and statistical manual of mental disorders along with certain psychologists considered to be a risk for all those who were born in that decade (Russell, 1997). Bulimia suffering people will not only eat more and vomit but also do over exercise and use laxatives. Actually this disease can be a post term effect after the anorexia nervosa where after the significant reduction of weight one might get over confidence and start over eating. The regular condition include that because of stress and other factor person will eat more in the initial where in later one will vomit because of developed guilt and shame developed due to over eating.

## Causes of Bulimia nervosa

#### Genetic

This disease has three stages, stress of less eating is somewhat considered to be an acquired trait whereas over eating is considered to have inheritance and genetics as a secondary cause whereas forceful vomiting has something well to do with genetics. In one of the study it was reported that there were only 3.4 and 2.2 percent chances of inheritance only. There are although very less study which is done on the genetic association of this eating disorder. It is found that there is strong association between people who binged and purged where this association was found to be 46 and 72 %.bivariate twin modeling studies have enabled for a better understanding. This was also affected by environmental factors as well. It is believed that genetic factors of both of them have overlapping nature. It is inheritable in twins but the precise genes are still not determined. The obsessive compulsive disorder also found to be associated with genetics which is found to be associated with bulimia nervosa. Certain genes if not specifically causing the disorder they are less or more likely to bring similar kind of symptoms giving a possibility for genetic association of the disease. Just like people of Africa like larger physiques it is prevalent that women are more likely to get a habit of over eating which later develops into a disorder (Kendler et al., 1991; Morgan, Curtis and Sullivan, 1998, Kaye, 2008)

# **Social Responses**

Generally bulimia nervosa occurs in society where food is not abundant and rotund body shape becomes an ideal. It is just that people are obsessive to achieve what is not possible. It is also reported that in societies where there is a portrait image of thinness which leads to pressure on the adolescent and other people who are not able to differentiate between right and wrong start develop an habit of over eating for stress bursting and then vomiting. Families also involve in this which include poor parenting (maternal competition, jealousy and paternal seductiveness). Mothers who have bulimia nervosa have a negative perception for food eating practices and affect eating habits for children causing as a "habit inheritance". Childhood abuse has much to do with bulimia (Of and Of, 2002).

## **Neural Development**

There is a sort of craving or addiction (addiction word is generally avoided by the psychologists) for consumption of food. This is because of increasing cephalic activity which leads to mind hunger making patients in the practice of over eating. Although hormone studies in eating disorders is completely co relational it is found that study of bulimia nervosa is even more difficult as compared to anorexia nervosa. Cholesystokinin and leptin are the key enzymes which have role in the bulimia nervosa. Cholecystokinin(Hannon ,2012) and leptin get decreased in the patients of bulimia because generally protein intake gets reduced(Jimerson et al 2000) Imbalance in the diet involves decrease concentration of various important macromolecules gets affected as a result bringing to emotional instability. Contrast to anorexia; in bulimia there is significant decrease in hydroxytryptamine activity. The signal receptor which is associated with it is less responsive in the case of bulimia nervosa. Serotonin is a kind of neurotransmitter which is important in appetite regulation. There is a significant level in the increment of serotonin in the bulimia patients (Seiger , 2004). Increase weight will increase insulin level (Of and Of, 2002, Walters et al., 1992)

# **Psychological Responses**

Poor self-image and negative perception toward life bring the disorder. People with this disorder have habit of getting emotional relief by over eating. The foremost important factor includes starvation. This also involves continues cycle of repelling food and then over eating it and then trying to get rid out of it. Bulimia patients generally have high hostility as compared to people with anorexia patients. People with the reported case of binging and purging have been found to have reduced stress level after the activity. Slowly and slowly it becomes an effective method of anger management and controlling for the affected people. Thus people with bulimic responses have less anger as compared to anorexic patients. Low self esteem and high perfectionism including body dissatisfaction also contributes to this. These three features are similar in both of the disorders. Starvation and negative emotions brings out a combination of eating and vomiting. Binging and purging brings obesity which further brings negative emotions worsening the state. Obesity brings low confidence and poor self image which will force the person to exclude the intake food. It also brings the person to immediate go for excreting food immediately after eating. People with bulimia nervosa have found to spend more time in washrooms (Kaye, 2008).

## **Multifactorial Development**

Bulimia is much more complex so there is a need of a model system in order for better understanding. One of the developed model is fair burn model which explains bulimia causes and techniques for long term enhancement and short term reduction. But for the causative factor to be determined most of the times there is aneed of individualistic and person to person specific studies(Waller and Sheffield, 2008)

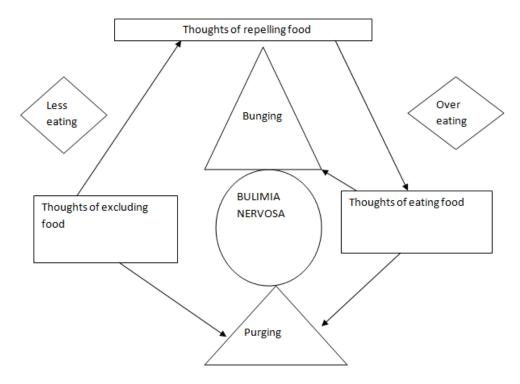


Figure 2: Psychological Trait of Bulimia Nervosa (Kaye 2008)

Various studies showed that obesity and Diabetes are also responsible for eating disorders (Sharma et al 2014, Jangra et al. 2020, Kumar et al. 2020a, Kumar et al. 2020b, Maidullah and Sharma 2019, Singh et al. 2010, Kumar et al. 2020c, Banerjee et al. 2020, Bashary et al. 2020, Khursheed et al. 2019, Sharma et al. 2019, Garg et al. 2019, Shafi et al. 2019, Prabhakar et al. and Khatik et al. 2019).

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