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Eating Disorders among Adolescents with a History of Obesity

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Abstract: Eating disorders are conditions characterized by abnormal eating habits and behaviors which may involve excessive or insufficient intake along with the individual's mental and physical health. Anorexia nervosa, bulimia nervosa as well as binge eating are the major type of eating disorders. Parental influence has been shown to be a fundamental component in the development process of eating behaviors of children and adolescents, this effect is shaped by a variety of diverse factors including familial genetic predisposition, dietary choices which is dictated by ethnic preferences or cultural, the parents' eating habits and their body shape. Social isolation has been noted to have a deleterious effect on individuals' emotional and physical well-being. Eating disorders have been shown a higher rate of mortality among socially isolated individuals compared to those with well-established social relationships. Social isolation can be stressful, anxiety-provoking and depressing. These disorders must be treated as soon as possible to prevent more deteriorations, the treatment plan usually include the medial part along with dietary and psychiatry care. Diet is the most essential factor to work on in patients diagnosed with eating disorder, Initial meal plans may be low in calories, in order to build comfort in eating and then food amount can gradually be increased, food variety is important as well when establishing meal plans and foods that are higher in energy density, all these dietary management are needed with supplying different supplements to fulfill the requirements and replenish the decreased stores.

Key words: Eating disorder, anorexia nervosa, bulimia, binge eating, adolescents

INTRODUCTION

Eating disorders are conditions characterized by abnormal eating habits and behaviors which may involve excessive or insufficient intake along with individual's mental and physical health. Anorexia nervosa, bulimia nervosa as well as binge eating are the major types of eating disorders (Hudson *et al.*, 2007). Anorexia nervosa is an eating disorder which is characterized by food restriction, obsession with having thin figure, inappropriate eating habits, distorted body self-perception and irrational fear of gaining weight. Whereas, Bulimia nervosa (BN) is a serious psychiatric disorders that is characterized by consuming a large amount of food within a short period of time followed by (purging) which is an attempt to rid oneself of the food consumed includes mostly vomiting, or sometimes by taking laxatives or stimulant with an extensive concern about the body shape and weight (Constantino *et al.*, 2005). While, Binge eating disorder (BED) is defined usually as eating episode of large amount of food accompanied with a sense of control loss in the absence of the different compensatory behaviors that have been found in both anorexia and bulimia disorders such as self-induced vomiting as well as excessive exercise (Hudson *et al.*, 2007).

Adolescents may take their dietary habits from their parents since they take parents as their role models. That's why the education level of the parents may be considered as a factor that affects the adult's food

choices and nutritional habits (Wickrama *et al.*, 2006). Parental influence has been shown to be a fundamental component in the development process of eating behaviors of children and adolescents, this effect is shaped by a variety of diverse factors including familial genetic predisposition, dietary choices which is dictated by ethnic preferences or cultural, the parents' eating habits and their body shape (Crow *et al.*, 2009). These disorders must be treated as soon as possible to prevent more deteriorations; the treatment plan usually include the medial part along with dietary and psychiatry care. Diet is the most essential factor to work on in patients diagnosed with eating disorder, Initial meal plans may be low in calories, in order to build comfort in eating and then food amount can gradually be increased, food variety is important as well when establishing meal plans and foods that are higher in energy density, all these dietary management are needed with supplying different supplements to fulfill the requirements and replenish the decreased store of many minerals such as zinc, iron, omega 3 and different vitamins including B12, B6 and folic acid (Attia, 2010).

Literature review

Eating disorders diagnosis: Eating disorders are conditions characterized by abnormal eating habits and behaviors which may involve excessive or insufficient intake along with the individual's mental and physical health. Anorexia nervosa, bulimia nervosa as well as

binge eating are the major type of eating disorders (Hudson *et al.*, 2007). There are many causes of eating disorders including biological, psychological and environmental, sometimes media are blamed for the rise the incidence of eating disorders since media images of idealized slim physical shape push individuals to imitate models and celebrities and forced them to attempt and achieve slimness themselves. There are various childhood and adolescence personality traits which are associated with the development of eating disorders due to variety of physiological, social and cultural influences (Biederman *et al.*, 2007).

Social isolation has been noted to have a deleterious effect on individuals' emotional and physical well-being. Eating disorders have been shown a higher rate of mortality among socially isolated individuals compared to those with well-established social relationships, while social isolation can be stressful, anxiety-provoking and depressing. Parental influence has been shown to be a fundamental component in the development process of eating behaviors of children and adolescents, this effect is shaped by a variety of diverse factors including familial genetic predisposition, dietary choices which are dictated by ethnic preferences or cultural, the parents' eating habits and their body shape, the degree of involvement as well as expectations of their children's eating behaviors along with the interpersonal relationship of parent and child (Crow *et al.*, 2009).

Anorexia nervosa: Anorexia nervosa is an eating disorder which is characterized by food restriction, obsession with having thin figure, inappropriate eating habits, distorted body self-perception and irrational fear of gaining weight. Mostly, it involves excessive body weight loss and it is diagnosed around nine times more among females than males. As a result of gaining weight fears, individuals are restricting the amount of food they consume, patients with anorexia nervosa usually experience headaches, appetite loss, drowsiness, dizziness and lack of energy (Carlson *et al.*, 2007). Anorexia nervosa can affect the individuals' way on how they think and evaluate their body image, food intake and habits; they often see themselves as being overweight even when they are already underweight. Whereas, the majority of people diagnosed with anorexia nervosa continue to feel hunger but consume very small quantities of food which present the average caloric intake between 600 to 800 calories per day only (Cooper, 2005).

A person with anorexia nervosa may exhibit different signs depends on the severity of the disorder. Hypokalemia; a drop in potassium level in the blood is the first sign along with abnormal heart rhythms, fatigue, paralysis, muscle weakness and constipation. Approximately 50 to 70% from individuals diagnosed

with anorexia nervosa experience depression and obsessive-compulsive disorder (Ulger, 2006). A person with anorexia nervosa may suffer from many symptoms including excessive body weight loss, obsession with calories and fat content of food. Amenorrhea, a symptom which occurs after prolonged weight loss may lead to stop menses, hair becomes brittle and skin becomes yellow and unhealthy. Food rituals also can be experienced which is known as cutting food into tiny pieces; refuses to eat around others, hides or discards food, they may engage in frequent, strenuous, or compulsive exercises. They might develop hypotension, bradycardia or tachycardia along with depression, abdominal distension, fatigue, hair loss and absence of periods (Attia and Walsh, 2007). This disorder must be treated as soon as possible to prevent more deterioration. The treatment plan usually include the medical part along with dietary and psychiatry care which includes both cognitive behavioral therapy (CBT) as well as cognitive remediation therapy (CRT) and family-based treatment (FBT). Diet is the most essential factor to work on in patients diagnosed with anorexia nervosa, Initial meal plans may be low in calories, in order to build comfort in eating and then food amount can gradually be increased, food variety is important as well when establishing meal plans along with foods that are higher in energy density, all these dietary managements are needed with supplying different supplements to fulfill the requirements and replenish the decreased stores of many minerals such as zinc, iron, omega 3 and different vitamin including B12, B6 and folic acid (Attia, 2010).

Bulimia nervosa: Bulimia nervosa (BN) is a serious psychiatric disorders that is characterized by consuming a large amount of food within a short period of time followed by (purging) which is an attempt to rid oneself of the food consumed includes mostly vomiting, or sometimes by taking laxatives or stimulant with an extensive concern about the body shape and weight (Constantino *et al.*, 2005). There are some signs that can be detected with individuals diagnosed with BN such as: keep counting the number of calories consumed with an extreme consciousness of weight with a poor self-esteem, constant trips to the bathroom and mostly feeling of depression. Since BN is characterized as a psychiatric disorder, this will leave the individual with a false belief that is not ordinarily accepted by others which may lead the situation to be even worse (Sansone *et al.*, 2007). The cycle of eating too much and followed by forced vomiting may be repeated several times a week or, in more serious cases, several times a day which may directly cause Gastroesophageal reflux (GERD), hypokalemia, dehydration with electrolyte imbalance, upper GI inflammation, oral trauma and lacerations, constipation with peptic ulcers and constant weight fluctuations are common (Schmidt *et al.*, 2006).

Although the BN disorder has been linked mostly to the fear of gaining weight, more complex emotions are contributing to this problem which makes no simple answer to the question of what causes BN. Many studies have been noted that BN may be related to having poor self-esteem especially among adolescents since they might believe in losing weight for gaining more self-worth, or it may be linked to media and cultural beliefs of losing body weight in terms of beauty and fashion (Steiger and Bruce, 2007). Sometime, bulimia can be occurred following stressful life events or situations, or it may be linked to psychological problems as well as depression since it has been found that BN is more common among those who have anxiety disorders, post-traumatic stress disorder, obsessive compulsive disorder and personality disorders. In BN situation the first line of the treatment will be both psychological and pharmacological treatments which have been shown to be effective in treating BN (National Institute for Clinical Excellence, 2004). Cognitive behaviour therapy also has been the most intensively researched and currently is the first treatment of choice (Wilson and Shafran, 2005).

Binge eating disorder: Binge eating disorder (BED) is defined usually as eating episode of large amount of food accompanied with a sense of control loss in the absence of the different compensatory behaviors that have been found in both anorexia and bulimia disorders such as self-induced vomiting as well as excessive exercise (Hudson *et al.*, 2007). According to the Diagnostic and Statistical Manual of Mental Disorders (DSM), there are some criteria for BED, at least 3 of them that must be presented in order to classify a person's behaviors as BED, those criteria include: the binge eating should occurs for at least twice a week for 6 months and the person is mostly feeling disgusted, depressed, or guilty after binge eating and often eats alone during periods of normal eating, owing to feelings of embarrassment about food. While, each binge consists of eating in a short period of time with an amount of food that is definitely larger than most other people would eat in a similar period of time under similar circumstances, with a feeling of loss of control (Westerburg and Waitz, 2013).

A correlation between the occurrence of binge eating and dietary restraint has been convincingly shown in several studies investigations. Whereas binge eaters usually seemed to be lacking in self-control, the most reason of such behavior may be linked to dieting practices. Binge eating can begin when individual recovers from an adoption of rigid eating habits and behaviors. When under a strict diet or a starvation, the body will be preparing for a new type of behavior pattern, such as consuming a large amount of food in a relatively short period of time (Hudson *et al.*, 2006). BED is associated with significant morbidity including many

medical complications mostly related to obesity such as increased blood pressure, type 2 diabetes mellitus (DM) and cardiovascular disease (CVD), the complications can be related to psychopathology as well (e.g., body shape and weight concerns), impaired social functioning, psychiatric co-morbidity and reduced quality of life. The treatments of BED target mostly binge eating episodes, preventive of excess weight gain or weight loss, as well as associated eating disorder psychopathology (Rieger *et al.*, 2005).

Dietary habits among adolescents: Nowadays, poor eating habits and nutritional behaviors have become a major public health concern especially among Adolescents. Lack of time, stress and peer pressure, are factors that can strongly affect their eating behaviors and habits. Since the Adolescents' personality starts to develop at that time, unhealthy habits which are picked up at this age may persist in older adults' life and may be difficult to be changed later on (Kurubaran and Sami, 2012). The rapid socioeconomic development that many countries are going through has a large impact on the population's eating habits. Kurubaran and Sami (2012) stated that the healthy dietary habits seem to be decreased among some countries which have got into a paradigm shift to industrialization and cultural change. Furthermore, this rapid economic change can affect the adults' eating habits since the traditional healthy dietary habits may be totally changed to other habits that are brought from other societies which may not be healthy. According to Ayranci *et al.* (2010), most of the Adolescents prefer having meals that seem to be tasty, quick and fashionable despite the health concerns behind their consumption. Most of college students' diet in Turkey is high in fat and low in fiber. Moreover, adults usually select fast food due to its availability, palatability and convenience. Another reason for that is their lack of nutrition knowledge and the rapid socioeconomic development that altered their traditional dietary habits. It has been shown that most of the Adolescents have adopted negative dietary habits due to reduced accessibility and availability of healthy meals in the cafeterias (Pascalle *et al.*, 2008). It was identified that 98% of Adolescents in Ankara consumed fast-food meals in their snacks such as pizza, chicken doner (commonly known as chicken shawarma), burgers and artificial beverages. Even when the healthy meals are available, most of the students preferred fast food, since the healthy meals provided are usually expensive so they would prefer to have those snacks that are more tasty, quick and cheap (Yardimci *et al.*, 2012). Students spend most of their time at the schools, an average of 6-9 hours daily, 5 days a week, for the majority of the year and they have at least one or two meals there. Students have a high degree of exposure to vending machines which mostly provide unhealthy snacks such

as potato chips and others that contain high sugar and fat as well as sugary drinks and soda (Pascalle *et al.*, 2008).

Most of the students acquire poor dietary patterns; they prefer eating fast foods, regularly having their meals outside the home and skipping breakfast. These poor nutritional habits and the increased consumption of high calorie food items can exacerbate the problem of obesity (Keast *et al.*, 2010). Researchers have shown that most of the students in Iran are not familiar with healthy foods that are needed for proper health outcomes (Barzegari *et al.*, 2011). Researchers found that most of the female students who have their regular meals were less hungry, more relaxed, happier and satisfied with their weight and body image (Yardimci *et al.*, 2012). According to Bin Zaal and Musaiger (2009), the student's knowledge on the nutritional value of foods was very poor among female students in United Arab Emirate. This is an example which shows a poor dietary knowledge among the students which can affect their dietary habits, productivity, as well as their health outcomes.

As noted by Tin *et al.* (2011) the country's culture may affect the eating behavior of population; regular meals consumption is important in the Chinese dietary pattern while skipping meals is particularly serious in Hong Kong. Salvy *et al.* (2012) demonstrated that friends, peers and broader social networks influence both eating habits and physical activity during adolescence and adulthood as well. It is consistently found in the Netherlands that in the presence of peers, students eat more than when they eat alone; students eat more when their eating companions eat more and less when their friends eat less. Moreover, similar effects have been found among college students, such that students who were eating with strangers consumed less food than those who were eating with their siblings.

Contribution of social and family factors in adolescents' dietary habits: Adolescents may take their dietary habits from their parents since they take parents as their role models. That's why the education level of the parents may be considered as a factor that affects the adult's food choices and nutritional habits (Wickrama *et al.*, 2006). Witold *et al.* (2011) found that 86.6% from those adults in Poland whose parents having high education level, consumed smaller and more frequent light snacks than those whose parents had only primary education. According to Tin *et al.* (2011), adults with less educated parents would be more likely to skip their meals. Parental factors have strong effects on Adolescents' nutrition knowledge as well as dietary habits and attitudes. Parents are the models for their offsprings when it comes to food choices and consumption. Consequently, parents play a major role in the development of their offspring's

dietary habits, especially within the home environment (Merten *et al.*, 2009). In particular, Wickrama *et al.* (2006) noted that increased likelihood of obesity is more likely among Adolescents from low-income families. In fact, African Americans who are mostly living in poverty, have higher prevalence of obesity than whites, since poverty can limit the accessibility of having healthy meals. According to Brands *et al.* (2012), researchers have found that most of parents in Spain spoke of having regular healthy meals in a general term as being important, without specifying the nutritional composition of the meals. While, the majority of parents in Hungary and Germany mentioned that consuming junk foods that are rich in fat with large portion sizes can lead to lethargy and decreases performance. On the other hand, this was not mentioned by many parents in England and Spain.

As noted by Levin and Kirby (2012), parental eating behaviors and attitudes such as having regular healthy meals can encourage and support the whole family members' dietary habits. Furthermore, recent studies in UK have shown that those Adolescents who live in a two-parent family have positive attitudes regarding their meals consumption. Ayranci *et al.* (2010) reported that families may influence Adolescents' eating behaviors in many ways. Food availability, portion size, cultural values towards the food types, the preparation methods, mealtime structure and feeding styles as well, are all factors that families can influence. Therefore, a family can play a big role in the onset of obesity among Adolescents.

Eating habits and obesity: Obesity is defined as the increased amount of body fat with a body mass index (BMI) of more than 30 kg/m². It is associated with increased risk of medical complications, such as diabetes, stroke, hypertension (HTN), heart disease, some types of cancer, sleep apnea, gallbladder disease, premature mortality as well as osteoarthritis (Tanaka *et al.*, 2008). As noted by Dehghan *et al.* (2005), obesity has reached high levels in most of the developed countries and in some of the Scandinavian countries in Europe, the prevalence of obesity is less compared to Mediterranean countries, while the prevalence of obesity is high in the Middle East as well as Central and Eastern Europe. Anwar *et al.* (2011) reported that young Adolescents have rapid changes in their psychosocial development and physical growth which can put them at risk of increasing their requirements with nutritionally inadequate food that may not meet their dietary needs.

The most negative dietary habits that students may suffer from are skipping meals and eating away from home. University of Tasmania in Australia reported that after adjustment for socio-demographic, age, sex and lifestyle factors, those adults who skipped their meals

had larger waist circumference, higher lab parameters including total-cholesterol (TC), LDL-cholesterol, as well as blood glucose (Kylie *et al.*, 2010). The National Weight Control Registry (NWCR) argued that 78% from those adolescents who eat their regular meals have normal body weight and BMI and there was no increase in their body weight unlike those who skip their meal (Volker *et al.*, 2011). Huang *et al.* (2010) reported that unhealthy eating patterns and lifestyle that include skipping meals, as well as the frequent consumption of the meals eaten away from home have been associated with increasing body weight and having higher body mass index. According to Merten *et al.* (2009), cross-sectional studies reported that skipping meals has been associated with increased prevalence of overweight and obesity among the Taiwanese adolescents even after controlling other variables associated with obesity. Moreover, adolescents and young adults who have their regular healthy meals may be more likely to continue the same attitude during adulthood. Therefore, adolescents who have regular meals are less likely to be obese compared to others who skip them.

The quantity and the quality of meals have been associated with increased level of obesity among adolescents, unhealthy meals i.e., those containing high amount of fat and sugar have been parallel to the rise in the prevalence of obesity among young adults. Increased consumption of ready-to-eat food as well as soft sugar drinks has been proposed as a factor related to the increased development of obesity (Keast *et al.*, 2010).

List of abbreviations:

BMI	Body mass index
CVD	Cardiovascular disease
HTN	Hypertension
LDLc	Low-density lipoprotein cholesterol
TC	Total Cholesterol
WC	Waist circumference
NWCR	National Weight Control Registry
BED	Binge eating disorder
DM	Diabetes Mellitus
BN	Bulimia Nervosa
GERD	Gastroesophageal Reflux disease
CBT	Cognitive behavioral therapy
CRT	Cognitive remediation therapy
FBT	Family-based treatment
ED	Eating disorder

Conclusion: Eating disorders treatment is often delayed until the symptoms progressed, physical and psychological sequences became sever. Youth with significant EDs should have a good care plan since weight loss is a fairly unusual and difficult task for adolescents. Whenever there will be a doubt regarding an individual with ED, symptoms should prompt

immediate intervention along with a referral to the appropriate services, since early identification of EDs is associated with the most positive prognosis for adolescents to ensure that patients' symptoms are addressed with maximum effectiveness. The goal of early detection and intervention is essential and the disordered behaviors must be identified as early as possible since a good health care professionals can improve overall patient health significantly (Swanson *et al.*, 2011).

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