



Review

Emotional eating, the factors that affect food intake, and basic approaches to nursing care of patients with eating disorders

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Abstract

Emotional eating is defined as an eating behavior that is hypothesized to occur as a response to emotions, not because of a feeling of hunger, closeness to meal time, or social necessity. Eating behavior can be regulated using metabolic methods that cause homeostasis, neuropsychological agents such as hormones and neurotransmitters, and hedonic systems. There is an opinion among scholars that the people who have an addiction and/or tendency to overeat specific nutrients or substances may have a shortage of dopamine (DA). Emotional and uncontrolled eating behavior is an important risk factor for recurrent weight gain. Although, emotions are known to be an influential factor on eating functions, food selection, and amount of food consumption, a clear relationship about what affects eating behavior has to date not been proven. Therefore, in this study, emotional factors that affect emotional eating and food intake, other factors affecting nutrient intake (i.e., diseases, natural disasters, menstruation), various theories related to emotional eating, the scales which developed to detect emotional eating behavior, and the basic responsibilities of nurses in the treatment of eating disorders are discussed.

Keywords: Eating behavior; eating disorders; feeding patterns; mood; nursing care.

Emotional eating is defined as a tendency that occurs in response to some emotional states. Usually, emotional states such as anxiety, anger, and depression diminish the appetite; however, when they experience similar emotional states, individuals showing emotional-eating behavior may display excessive eating behaviors. Emotional eating was previously associated with people showing excessive eating behavior, but presently, it is argued that people who are dieting may also be exhibiting emotional-eating behavior.^[1] There are many factors that affect eating behavior; it is difficult to predict how emotions affect eating.^[2] The relationship between eating and emotions may vary according to emotions or other characteristic features of a given person.^[3] Signs of physical hunger and emotional hunger are not similar: while suffering physical hunger, people experience starving and sourness in

their stomach and their blood sugar may decrease; they then achieve satisfaction when are eating. That hunger-appeasing behavior is different from that in persons who display emotional-eating behavior. For example, individuals may relieve their hunger by eating snacks or low-energy foods, such as a vegetable or fruit. However, there is a reverse situation in emotional hunger: it occurs suddenly and does not show the usual physical signals. People eat whatever they find and mostly prefer high-energy foods.^[4,5] Until recently, many hypotheses have attempted to explain the effect of emotional state on eating behavior,^[3,6-8] and various scales have been developed to describe the level of emotional-eating behavior.^[9-13]

Therapy for eating-disorder behaviors requires a multidisciplinary approach. Published literature shows that psychiatric nurses have mostly conducted descriptive studies examining

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eating-attitude behaviors; however, no studies have been carried out to examine a direct intervention for persons in a clinical environment. This review study discusses theories related to emotional-eating behavior. It examines in detail the factors that affect nutrient intake; emphasizes basic scales that are used to identify eating disorder; and discusses the basic responsibilities of nurses for patients diagnosed with eating disorders.

Theories on Emotions and Eating Behavior

Among various theories assessing eating behavior and emotions, the psychosomatic theory (1973) associates excessive eating with a mistaken awareness of hunger. Persons described by this theory understand neither their hunger nor a feeling of fullness. They do not eat in response to inner stimuli such as appetite or their feelings of hunger and fullness: they eat in response to their emotions. These individuals need various external signals to understand when and how much they should eat, because they do not have correct internal programming stimuli about hunger awareness.^[3]

According to Kaplan's^[6] obesity theory (1957), obese people desire to eat excessively to reduce their anxiety when they are nervous and anxious. Obese people cannot distinguish the feeling of hunger from anxiety: they have learned to eat in response to hunger but also display eating behavior in response to anxiety.

Schachter's^[7] internal-external theory (1968) argues that the physical signs of fear and anxiety cause a decrease in food consumption for people with normal body weight, whereas people with obesity do not have that response because there is an insensitivity to inner stimuli. According to this internal-external theory, obese people are not sensitive to their inner hunger and fullness, unlike that of the psychosomatic theory. The most important difference between the external-eating theory and the psychosomatic theory is that there is a reason for starting to eat again. People with an external-eating attitude have a perception of eating only when they are in the same environment with food. They eat excessively because they are impressed by features of foods such as smell or appearance, except in this situation, they do not have a food-oriented perception.^[14]

The basis for the limitation theory developed by Lowe et al.^[8] (2007) includes an excessive-eating desire for foods, but a cognitive effort for limitation resists this desire. People displaying this behavior always complain that they eat excessively and resort to limitation of their excessive-eating behaviors to avoid being fat. This type of limitation does not express a limitation for food intake while eating, but a limitation on making an effort to eat less than they desire. It has been argued that the aim of restrained behaviors displayed by people with normal weight is not weight loss: this limitation is meant to maintain their current body weight. Long-continued behavior of restrained eating overcomes the limitation in time and may turn into attacks of excessive eating.^[15] This situation is a nutritional

behavioral model that is mostly seen among people who limit the energy they consume daily to protect their body weight or to prevent an increase in body weight. In some cases, those who have a restrained eating style may experience a temporarily damaged auto-control (anxiety or depression, for instance).^[16] People with restrained-eating behavior have an increased tendency to suffer from hyperphagia when they are under stress compared to those who do not have limiting-eating behavior.^[17] However, the escape theory argues that emotionally excessive eating is used as an escape mechanism from environments that create a negative awareness.^[17,18]

Neuropsychological Mechanisms Between Eating and Emotions

Eating behavior is regulated by neuropsychological substances such as hormones, neurotransmitters, and metabolic pathways and hedonic systems that maintain hemostasis.^[15] Saper et al.^[19] (2002) argued that eating systems are regulated by two different systems, homeostasis and hedonic systems, and that that all people would be at their ideal weight if nutrition were regulated by only by the homeostatic systems.^[20]

Hedonic eating is displayed when a person has an irresistible desire for delicious meals and eats these meals as a result of having great pleasure in eating.^[21] For those with this eating behavior, enough food and balanced energy and nutrients are not primary reasons for preference. Food preference in people having a tendency for hedonic eating generally is a response to what appeals to their taste buds and provides pleasure.^[22]

It has been argued that people who are dependent on a certain substance or nutritive substance may characteristically suffer from an inadequacy of dopamine.^[23] The study by Davis et al.^[24] (2008) indicated that in people with obesity, excessive eating is a compensatory mechanism that is produced by the brain to amend decreased extracellular dopamine levels. In people with inadequate dopamine, excessive consumption of tasty foods is an alternative metabolic pathway to a biologically increase in dopamine activation. People with inadequate dopamine tend to externally make up this deficiency to feel happiness, and they tend to be dependent.^[25] The food preferences of people showing sensitivity to rewards include high-fat foods and desserts;^[21] similarly conducted animal studies have supported this result. The common finding of these studies is that the brain's reward system is activated as a result of consuming certain meals (sucrose- and glucose-rich).^[26,27] Consuming fat- and sugar-rich mixtures is an eating behavior mechanism that increases secretion of dopamine and opioids.^[28]

The Effects of Emotions On Eating Behavior

There are various opinions on how emotions affect eating behavior. For example, a study examining to what extent negative emotional states are related to high food intake determined that sad emotional states trigger food intake more

as compared to happy emotional states.^[29] Another study on healthy people with normal body weight found that positive emotions have an effect that triggers food intake.^[30] Positive emotional states are generally related to satisfaction of basic personal needs (safety, love, social belonging), an effective emotional management (personal needs and communication skills), increasing accumulation of knowledge, openness to new experiences, showing interest and participating in entertaining activities), adaptability to environmental skills (human relations, positive attitudes and behaviors). The positive-emotions category includes states such as happiness, gratitude, pleasure, enthusiasm, pride, optimism, a healthy life, the ability to expressing feelings. Conversely, negative emotions are related to unmet needs, obstacles to achieving goals (disappointment), insufficient emotional management, having a low capacity for being in touch with personal needs and emotions, dysfunctional cognitions (negative thinking), unpleasant situations perceived as threatening (real or imagined danger), losses, traumatic events, penalties, and limitations. The negative-emotions category includes emotional states such as sadness, discouragement, disappointment, anger, unhappiness, depression, regret, despair, loneliness, sense of guilt, sorrow, embarrassment, disgust, envy, fear, anxiety, worry, agitation, stress, and panic.^[31]

Emotional eating is thus considered to be a source of psychological support in coping with negative emotions. Moreover, having difficulty in describing or perceiving emotions may trigger binge eating attacks. While people intensely feel their emotions, if they have difficulty in determining what their emotions mean in reality, they may think that they could not cope with their present emotional state. For example, the phrase “I feel myself to be bad” is a more general statement, whereas the “I feel myself anxious and feel ashamed” sentence expresses feelings in more detail. If people have difficulty in expressing their feelings, they may display avoidance behavior by distracting their attention from an unsettling situation by consuming foods.^[32,33]

Another study not only emphasized the role of the hormone cortisone and the reward system of the brain in high-energy food intake, but also emphasized that neurological mechanisms on the relationship between stress and eating should be lessened. Moreover, it has been also discussed that the re-

ward system may play a key role in increasing stress-related food intake.^[28] A study conducted with 345 young adults without a balanced eating habit found that stress reduces the response-making ability of individuals to hunger-fullness signals and causes a tendency to enhanced emotional-eating behavior.^[34] The masking hypothesis is another approach to explaining the effect of stress on emotional eating: it argues that eating can cover negative emotions because it is easier to cope with dissatisfaction caused by being excessively full than to overcome the stress arising from more serious problems.^[35]

Some Scales Used to Determine Emotional Eating Behavior

Presently, it is extremely difficult to carry out a study in a laboratory environment with people showing a tendency toward emotional eating because these people generally display normal eating behavior while they are alone and not being observed. Therefore, most of the data on emotional eating has been based on clinical observations and survey studies that have mainly been conducted in a normal clinical population.^[36] Various questionnaires have been developed to measure emotional eating; some questionnaires are directly related to this issue; among them are the validity and reliability studies that have been conducted in Turkey. These studies are discussed in what follows and are summarized in Table 1.

The Dutch Eating Behavior Questionnaire

The Dutch Eating Behavior (DEBQ) questionnaire is a 5-point (never to very often) Likert-type scale; it includes 33 items. This questionnaire has 3 sub-scales measuring emotional-eating behaviors (e.g., Do you eat when someone upsets you?), restrained eating (How often do you attempt not to eat dinner because you pay attention to your weight?) and external-eating behaviors (Do you tend to eat something while preparing a meal?).^[9] The validity and reliability study of this scale was conducted in Turkey on Turkish university students.^[37]

Three Factor Eating Questionnaire

The Three Factor Eating Questionnaire (TFEQ) scale was developed by Stunkard and Messic^[10] in 1985; it includes two

Table 1. Some scales developed to determine emotional eating behavior

Original name of the scale	Turkish name	Scope	Validity/reliability study
Dutch Eating Behavior Questionnaire	Hollanda yeme davranışı anketi	Emotional eating Restraining eating External eating	Bozan et al. (2009)
Three Factor Eating Questionnaire –TFEQ	Üç faktörlü yeme ölçeği	General eating behavior	TFEQ-18: Kırac et al. (2015) TFEQ-21: Şeren-Karakuş et al. (2016)
Emotional eating scale	Duygusal yeme ölçeği	Not being able to stop eating	Bektaş et al. (2016)
Mindful eating questionnaire	Yeme farkındalığı ölçeği	Mindful eating	Köse et al. (2016)

sections, 3 sub-scales, and 51 items. The 36 items included in the first section of the scale were structured in a yes/no format, 14 items were in the 4-point Likert format, and 1 item was structured as an 8-point Likert format. Subscales of the questionnaire assess cognitive restriction of eating (energy intake restriction to control body weight), behavior of a person who cannot restrict/restrain him/herself (having difficulty in stopping or resisting eating in the face of emotional or social events even if he/she is not hungry, not finding power to resist), and hunger state (hunger that a person feels and the effect of this situation on eating behavior. The other 18- and 21-item versions of the scale (TFEQ-R18 and TFEQ-R21) have been used in studies.^[38,39] The validity and reliability study of the 18-item version was conducted by Kırış et al.^[41] (2015), and the 21-item TFEQ-R21, which was revised based on the three-factor eating scale, was adapted to the Turkish culture by Şeren-Karakuş et al.^[40] (2016).

Emotional Appetite Questionnaire (EAQ)

The Emotional Appetite Questionnaire (EAQ) has no cut-off point for emotional eating; it was developed by Nolan et al.^[11] (2007). The emotional appetite questionnaire mainly assesses through which emotions (positive/negative, 14 items) and situations (positive/negative, 8 items) provoke emotional eating. Participants of the study grade appetite-affecting levels of statements of each item as less (1-4), same (5), and more (6-9). The Turkish validity and reliability study of this scale was conducted by Demirel et al.^[36] (2014).

Mindful Eating Questionnaire

This 4-point Likert type scale was developed by Framson et al.^[12] (2009); it includes 28 questions and 5 sub-scales. Using this scale helps to elucidate the relationship between eating behavior and emotional state; it was developed to research how and why eating behavior occurs rather than what is eaten. The Turkish validity and reliability study of this scale was conducted by Köse et al.^[42] (2016).

Emotional Eating Scale

The aim of this scale, developed by Tanofsky-Kraff et al.^[13] (2007), is to assess emotional eating behavior in children and adolescents. It is a 5-point Likert-type scale (1-5); it includes 25 questions and 3 sub-scales. Turkish validity and reliability study of this scale was assessed by Bektas et al.^[43] (2016).

The Menstrual Cycle and Emotional Eating Relationship

Ovarian hormones are a series of biological factors which play a role in the etiology of excessive eating and eating disorders. During the middle luteal phase, emotional-eating behavior may be related to high levels of progesterone and estradiol. A study determined that fluctuations in body weight in women

during 45-day menstrual cycle are mostly seen in premenstrual (-3th day) and during menstrual (between +2nd and +5th days) periods. However, it was found that there is no significant relationship between emotional states and ovarian hormones during the menstrual cycle.^[30]

Studies have not as yet explained clearly why emotional factors or ovarian hormones are more effective in body weight gain; however, various opinions have been expressed. One study determined that emotional-eating attacks are triggered in women who feel anxiety about change in body weight during the menstrual cycle.^[44] Various studies have reported that these attacks are seen at higher levels, especially among women who display restraining-eating behavior or feel guilt after an eating attack.^[45-47] Psychological, hormonal, physiological and biological changes that occur during the menstrual cycle may increase anxiety about body weight change. When underlying reasons have been discussed, the possibility has been put forth that increasing levels of progesterone and estradiol during the middle luteal phase in the menstrual cycle may be related to emotional-eating attacks.^[48] Moreover, physiological factors such as edema and fluid retention occurring during the menstrual cycle may also cause an increase in body weight; this situation may aggravate the anxiety level.^[49] Also, longitudinal studies have revealed that leptin levels are at the highest level in the luteal phase of the menstrual cycle.^[50] Higher levels of leptin may encourage stress-related eating behavior.^[51]

Emotional Eating After A Natural Disaster

Emotional eating is mostly assumed to be behavior in response to a stressful situation. High exposure to stress, especially after a natural disaster, may affect eating behavior. A cross-sectional study conducted with 105 middle-aged women, lasting for 2 years on average, researched eating behaviors of participants before and after an earthquake. That study found a relationship between high exposure to stress and eating behavior: high levels of stress related to an earthquake caused a decrease in healthy eating behaviors (intake of fruits and vegetables, having breakfast).^[52] However, further studies are required to determine the mechanisms underlying eating behaviors.

Obesity and Emotional Eating

As well as a genetic tendency, social, cultural, emotional, and diet-related factors also play roles in obesity development. Frequently observed psychological behaviors in persons with obesity are impulsivity, low self-valuation, dissatisfaction with body shape, perfectionistic attitudes, and disinhibition (lack of the feeling of embarrassment and shame). Compared to thin people, individuals with obesity can display a more impulsive behavior model. Impulsive people stated that they could not establish control on their eating behavior, and also that they are more interested in eating tasty and high-energy nutrients.^[53] Another study determined that obese people more often feel negative emotions and that thin people more often feel

positive emotions, so obese people eat emotionally more.^[54] In recent years, bariatric surgery has provided an effective treatment method, especially for morbid obese patients, to lose a considerable amount of body weight and to recover from obesity-related comorbid diseases.^[1,55] However, it has been observed that 20% of the patients fail to maintain the weight loss after 1 to 1.5 years after the bariatric surgery.^[56] A study conducted by Taube-Schiff et al.^[57] (2015) with 1393 bariatric surgery patients determined that this patient group psychologically suffered from trust and attachment problems, and that this situation may cause emotional dysregulation. Therefore, it was reported that providing emotional regulation to the bariatric surgery patient group who display eating attacks after surgical intervention is an effective method to maintain the body weight. However, further studies are required to more completely reveal the underlying mechanisms.

Binge Eating Disorder and Emotional Eating

Emotional eating was initially considered to be a factor supporting excessive eating in patients with bulimia. Then, it was reported that binge eating attacks may be related to emotional eating.^[58] A study concluded that while negative situations have increased binge eating attacks, positive situations have decreased.^[59] Another study, which was conducted on 326 adults who were obese and diagnosed with a binge eating disorder according to DSM-4 criteria, determined that eating disorders and eating pathologies are seen in people having difficulty in regulating their emotions.^[60]

The main reason for the increase in food intake of people with binge-eating attacks is that their auto-control mechanisms may be reduced by emotional stress. Moreover, positive emotions may increase in the intake of high-energy food in people displaying this eating behavior through hedonic systems.^[61]

Emotional Eating in Anorexia and Bulimia Nervosa

A widely held assumption is that mood disorder is common among patients with eating disorders. When the underlying

causes are examined, it was found that alexithymia, which is having difficulty in recognizing emotions, emotion exchange and not being able to be aware of their own emotions, is an important factor.^[53] Emotional eating is defined as a possible factor that triggers eating attacks in bulimia nervosa. Similar to binge-eating attacks, there is an opinion about bulimia nervosa that existing stress and negative emotional states are reduced by eating behavior. However, the emotional state in anorexia nervosa is mostly associated with a fearing of loss of control mechanism on eating behavior.^[62] At the base of both situations is that people have difficulty in describing their current basic emotional state and display the behavior of excessive eating or not eating as a way to manage emotions. In anorexia nervosa, people mostly avoid negative emotions; however, in bulimia nervosa, the eating attitude related to decreased emotional awareness is in question.^[33]

The Role of Psychiatric Nurses in Emotional Eating Approach

Psychiatric nursing is a dynamic skill that aims to understand personal behavior processes; it includes engaging not only with the patient but also with their own person.^[63] In the rehabilitation process, psychiatric nurses improve the self-care of patients and teach them to increase their quality of life, and support and observe them. Using cognitive behavioral therapy techniques helps patients to improve their personal development and overcome difficulties that they face in their daily life. In this process, it is extremely important to establish proper communication with patients: the communication between patient and nurse should be formed within the frame of empathy, honoring, warmth, reality, and trust.^[64,65] To achieve this purpose, nursing diagnosis and nursing care plans for patients with eating disorder are outlined in Table 2.^[66,67]

Results and Recommendations

It is useful for health professionals to conduct a general evaluation to provide the patient ways to change their ordinary diet and to plan a training program that is appropriate for the

Nursing diagnose	Factors related to diagnosis	Descriptive characteristics	Primary nursing care
Anxiety	Threat perception for physical appearance, body image, and self-perception concept	Worry, anxiety, fear, sorrow, expressing distress, preoccupation with body shape and weight, compulsive and ritualistic behavior, difficulty of concentration, decrease in problem-solving skill, autonomic response, other clues (e.g. face tension, psychomotor agitation).	Accepting that patients may have fears, determining their anxiety and physical reaction levels, supporting patients' efforts to express their emotions and thoughts, assessing coping mechanisms used for reducing anxiety level, strengthening coping mechanisms used for anxiety, and teaching various techniques to reduce their anxiety level (for example, relaxation techniques, breathing exercises), administering anti-anxiety agents as suggested and observing therapeutic and side effects.

Table 2. Nursing diagnoses and nursing care of patients with an eating disorder (continued)

Nursing diagnose	Factors related to diagnosis	Descriptive characteristics	Primary nursing care
Deterioration in body image perception	Cognitive deterioration in real body size, shape, and/or appearance	Feeling shame for body shape/weight or expressing negative emotions, covering body weights wearing large sized clothes.	Assessing the social and familial effects causing body weight-related disorders. Determining to what extent body perception and reality match (e.g., patients drawing themselves on the wall using chalk and then comparing this drawing with the real body lines), letting patients express their fears, determining emotions, thoughts, and assumptions about body image by keeping a diary and helping improve resist the deteriorating perception of body image, providing positive feedbacks to patients, disproving negative emotions of patients about body image, helping them discover positive views of the body.
Decrease in cardiac output	Heart rate, rhythm and changes in preload	Bradycardia, changes in electrocardiogram, palpitation, exhaustion.	Monitoring laboratory and vital findings (e.g., complete blood count, electrolytes, and blood urea nitrogen), reporting abnormal values, reviewing diagnosis approaches (e.g., electrocardiogram), controlling the levels of fluid electrolytes, limiting fluid and diet (low sodium) in line with doctor's suggestions, and when required, informing the patient about position changes to prevent orthostatic hypotension, giving positive feedback to patients about recovering from cardiac findings (decrease in peripheral edema, improvement in vital findings or blood pressure).
Constipation	Decrease in gastric emptying, poor nutritional habits, dehydration	Decrease in defecation frequency; hard and dry stool, decreased bowel noises, stomachache or back pain, palpable abdominal mass.	Assessing factors causing constipation (including medications), record-keeping by patients for hours and frequency of stool and for characteristics of stool, encouraging patients to take fluid and fiber based on age, gender and physiological needs, making pain assessments, listening to bowel sounds, observing distension, and palpitation of abdomen for masses, administering gastrointestinal agents suggested by doctors, developing alternative strategies for recurring situations.
Having difficulty in coping	Anxiety, depression, maladaptive/reactive behaviors, inadequate social support, maturation crisis	Coping with problems, inadequacy in help demanding and self-expression, cognitive and perceptual deterioration, decrease in problem solving capacity of a person, displaying maladaptive and self-destructive behaviors (for example; verbal manipulation, eating attacks, laxative usage)	For change, knowledge acquisition about the effect of disease, suicide risk, types, and the effect of coping mechanisms that the patient has used before, assessing insight and motivation of the patient, researching fears and control mechanisms of the patient, the meaning given by the patient for the disease, and discussing direct or indirect manipulations about disease, having patients kept a nutrient diary to observe factors causing excessive impulsive or stabilizing behaviors, describing risk statements and factors causing ineffective coping mechanisms, assessing problem solving skills of the patient, teaching alternative coping strategies to the patient (e.g., creating awareness, self-confidence), giving a positive feedback to the patient and rewarding the patient for successful coping mechanisms (e.g., not suffering from self-induced vomiting).
Family obstacle to cope with problems	Ambivalent relations, inappropriate coping style, resisting to the treatment, inexpressible emotions and thoughts among family members	Denial of the existence or seriousness of the disease, intolerance, neglect, hostility, abandonment, being excessively obsessive to the disease.	Establishing an intimate relationship with the family and continuing an effective communication, researching the meaning, perception, and effect of the disease on the patient, encouraging the patient to ask questions, helping them to express their emotions or concerns, and encouraging them to participate in therapeutic activities (for example, family therapy, group visits), collecting information to examine the unrealistic expectations and the perception of severity of disease, helping the patient to determine suitable limits among family members, and to assess negative comments and criticisms using a different perspective.

Table 2. Nursing diagnoses and nursing care of patients with an eating disorder (continued)

Nursing diagnose	Factors related to diagnosis	Descriptive characteristics	Primary nursing care
Denial	Not accepting or denying the existence or seriousness of the disease	Not accepting the severity or the effect of symptoms on the health or being indifferent to these effects, delaying or denying the treatment, making unpleasant comments while discussing the disease	Establishing a fiduciary relationship, determining the effect of the disease on life, helping to research the current tendency of symptoms and needs, offering suggestions to improve insight and motivation (researching or verbally expressing fears about body weight increase), listing negative and positive sides of the treatment process to research treatment-related fears).
Dental disorders	Chronic-self-induced vomiting	Color change in tooth enamel or erosion, toothache.	Increasing teeth cleaning or other additional oral care practices, having dental assessments twice yearly as a routine, encouraging the patient to provide sufficient oral hygiene.
Electrolyte imbalance	Excessive fluid intake, inadequate fluid intake, self-induced vomiting, diarrhea	Limiting the fluid intake, fluid loading, self-induced vomiting, laxative usage, abnormal electrolyte-laboratory findings, cardiac abnormalities, edema and changing mental states.	Being aware of the indication and symptoms of electrolyte imbalances (muscle tremor and palpitation), assessing not only pain and mental status, but also gastric, cardiac and neurological functions, monitoring laboratory findings (e.g., serum electrolytes, pH, comprehensive metabolic panel, blood gases), assessing vital findings including cardiac rhythm, fluid intake and output, reporting abnormalities to the doctor in charge, teaching the importance of the body functions to the patients for body to fulfill its functions.
Inadequate fluid volume	Inadequate fluid intake, self-induced vomiting, laxative, enema and/or diuretics abuse	Decreased urine output, concentrated urine, sudden loss of body weight, increase in serum hematocrit, increase in pulse rate, decrease in blood pressure, orthostatic hypertension, thinness, dry skin and low turgor pressure.	Following daily fluctuations in body weight and fluid intake and output in patients with anorexia nervosa, supporting the patient to take in fluid appropriate to their age, gender, and daily physical activity, assessing mucosal membrane and skin turgor pressure, monitoring orthostatic blood pressure (when lying down, standing, and sitting) on the condition of not being more frequent, every four hours or when there is an indicated event (vertigo), accompanying the patient to the toilet if the patient has the suspicion of self-induced vomiting, assessing laboratory findings, and reporting abnormal findings to the doctor in charge, informing about fluid necessity and position changes to prevent orthostatic hypotension (in vertical position, it decreases by 15 mmHg, pulse >15 in a minute), researching emotions and fears related to increased fluid intake, increasing oral hygiene.
High fluid volume	Excessive fluid loading related to refeeding	Severe malnutrition table in need of refeeding, consciously fluid loading to increase the body weight, abnormal physical findings (e.g., low urine specific gravity, sudden increase in body weight, edema, electrolyte imbalance).	Realizing the symptoms and signs of fluid loading which is related to the refeeding syndrome, especially in anorexia nervosa, following vital findings and the weight, noting the existence and degree of edema by examining urination styles and by using standard scales (e.g., 4-point scale), reviewing laboratory data (blood urea nitrogen, creatinine, hemoglobin, hematocrit, electrolytes, urine specific gravity) and reporting abnormalities to the doctor in charge, limiting fluid intake when necessary.
Lack of knowledge about the current situation, course of the disease and/or needs of the treatment	Insufficiency of perception, lack of knowledge, cognitive disorders	Insufficiency in self-expression, inadequate nutrition and fluid intake, development of preventable complications, inadequacy in completing instructions, misinterpretation of the body weight loss using inappropriate compensative mechanisms	Assessing the knowledge level of the patient about the disease, course of the disease, nutritional state, procedure of the treatment (therapy, medications), medical complications, psychological, social and physiological factors, assessing the patient's readiness and learning skills, determining which patients who are in need of being informed, using interesting instructional materials, giving an active role for the patient in learning process, discussing laboratory findings including the aim, normal values and results of tests performed, providing feedback to the patient, and assessing the learning.

Table 2. Nursing diagnoses and nursing care of patients with an eating disorder (continued)

Nursing diagnose	Factors related to diagnosis	Descriptive characteristics	Primary nursing care
Mood disorders	Anxiety, depression, psychological disorder, mood disorders induced by body weight changes.	Rapid, excess, and long-term changes in mood of the patient, observing changeable affection, emotional reaction, social isolation, behavioral inflexibility, dysphoria, anger, hostility, angriness, speaking rapidly or slowly, calmly or loudly.	Helping the patient to determine triggering factors causing the mood disorder, assessing physical and psychological factors related to their emotional state, encouraging the patient to express emotions and thoughts, and listening to the patient—showing empathy, determining coping mechanisms, providing education to develop emotional regulation, and to cope with psychological state symptoms (for example; cognitive behavioral therapy, dialectical behavioral therapy), providing positive feedback and support, using anti-depressants and previously prescribed drugs
Dissonance	Value system, health beliefs, cultural factors, motivation and state of readiness for change, nonadherence to care plan, having difficulty in the relationship between the patient and nurse.	Resistant behavior, nonadherence to medical nutrition therapy, lack of progress, underestimating the course and severity of the disease, decreasing the value of the treatment team, plan and utility, exacerbation of the symptoms and development of the complications.	Being independent from the patient's behavior, accepting the patient, discussing the patient's perception on health problem, listening to complaints and concerns assessing the anxiety level and controlling feeling, determining the patient's value system and beliefs, determining mutual targets during the treatment, determining strategies that may lead to nonadherence, making the treatment ways more attractive, periodically obtaining information about the patient.
Inadequate and unbalanced nutrition	Inadequate and unbalanced nutrition because of excessive self-limitation of the patient for energy and denial of food intake, secondary or self-induced vomiting or decrease in digestion and absorption of nutrients which is associated with laxative abuse.	Lower daily food intake than the recommended level of intake, having body weight which is %15 lighter than the ideal weight (in bulimia nervosa, the patient may be normal or overweight), getting thin, uncontrollable hunger/fullness signals, decrease in muscular tissue and subcutaneous fat tissue, irregularity in laboratory findings.	Assessing the motivation of the patient to change, determining the target weight with the patient and treatment staff, providing stabilization for the body weight in cooperation with a dietitian, and determining the daily energy need to achieve a final body weight, assessing nutrient requirements of the patient, recording the patient's fluid and nutrient intake, calculating the daily energy intake, assessing vital findings including orthostatic blood pressure, examining laboratory findings and reporting abnormal findings to the doctor in charge, following the meal intake, providing the patient to be fed in small portions and in frequent intervals during day, offering nutritional supplements when required, administering nasogastric nutrition when necessary, making an observation until one-hour after meals to prevent laxative usage, if vomiting or excessive fluid intake is a potential problem, following toilet usage frequency of the patient, assessing emotions and thoughts about food intake, assessing levels of anxiety related to nutrients, limiting beverages, including caffeine, to once a day, providing positive feedbacks to develop eating behavior, teaching patients the normal signals of hunger/fullness recognition.
Obesity or overweight	Excessive nutrition intake	In adults, body mass index (BMI) is ≥ 25 kg/m ² for overweight, ≥ 30 kg/m ² for people with obesity, experiencing lower level of physical activity than the recommended, increasing body weight, reporting excessive eating attacks, observing abnormal eating behaviors.	Assessing nutrient requirements and change motivation, determining food perception and eating attacks, calculating total energy intake and administering a routine eating plan, keeping food diary to describe triggering factors for food intake, emotions and other related factors, calculating daily energy intake, determining the degree of limitation done in diet, providing positive feedback for days when the patient does not experience eating attacks. Engaging in activities that distract attention from eating attacks, determining high-risk situations triggering eating attacks, helping patients identify the symptoms of hunger/fullness, helping care staff to develop an appropriate nutrient and exercise plan, realizing emotions and thoughts of the patient related to food intake.

Table 2. Nursing diagnoses and nursing care of patients with an eating disorder (continued)

Nursing diagnose	Factors related to diagnosis	Descriptive characteristics	Primary nursing care
Acute stage pain	Abdominal cramp, irritation in gastric and epigastric mucus, gastric distension.	Tension in face, verbally expressing the pain, sudden and severe autonomic reaction.	Assessing the place, duration, severity of pain, triggering and aggravating factors, using standardized pain scales, determining the reason of the pain (gastritis and constipation), following vital findings, determining previous pain experiences and relaxation methods, encouraging the patient to express their pain, helping the patient to identify pain-prevention strategies.
Weakness	Negativeness or feeling of despair caused by admission to hospital and the current treatment plan (e.g. weight gain).	Apathy, passivity, uncertainty, treatment or self-care adequacy, not being able to stop excessive eating attacks, not participating in care, being dependent on others.	Determining the perception of control, providing an opportunity to express emotions and concerns, encouraging the patient to ask a question, giving hope to the patient, helping the patient to realize their strengths and active coping mechanisms they used before, beyond keeping the patient under control, determining areas in which the patient can actively participate, providing the patient to have decision-making opportunities as appropriate and many as possible, minimizing rules and reducing continuous monitoring by providing security, modeling the techniques of problem solving and searching new strategies, including the patient in determining care targets, letting the patient determine their self-care activities program, helping the patient to determine continuous and accessible targets, providing positive feedbacks for successful situations.
Low level of self-respect	Negative self-assessment,	Negative self-value, embarrassment and guilt expression, denial of positive feedback, emphasizing negative feedback, being undecided, need for continuous approval, being dependent, deciding their value with body weight and shape alone	Assisting identification of contributing factors, encouraging the patient to make decisions dependently and to participate in the treatment process, encouraging the patient to express their emotions and thoughts, administering a reality test to determine unrealistic self-the patient's concepts, helping the patient to determine strengths and positive characteristics as well as their body shape and weight, encouraging the patient to be social, leading the patient to participate in support groups.
Self-destruction	Personality disorder in accompanying level, disintegration, suicidality to manipulate others, using inappropriate methods to reduce tension	Self-destruction (e.g. self-cut, injury) or the history of suicide attempt, impulsivity, abusive psychomotor agitation, not being able to control anger, not being able to express emotions.	Assessing the patient for impulsive, unforeseen, excessive, and uncontrolled anger states, monitoring the patient closely and performing regular security controls in indicated situations, helping the patient to identify emotion and behaviors causing self-destruction and to determine negative of self-destruction, open communication between the patient and personnel, removing objects by which the patient may damage themselves from their environment, assessing whether the patient manipulates personnel or other people, encouraging the patient to take part in their own care plan.
Suicidality	Impulsivity, accompanying major depression	Previous suicide attempts, major depressive episodes, clinically significant depressive mood, suicide ideation, plan or recent suicide attempt, expressing that the patient is leading a sad, desperate and valueless life.	Hospitalizing the patient in a room close to the nurse's station, keeping company to the patient if there is high suicide tendency, spending time with the patient, assessing self-destructive potential of the patient by directly asking the patient their opinions and plans about suicide, creating a secure environment, removing sharp objects from the environment, accepting the existence of emotions related to suicide, being able to explain the aim and necessity of suicide preventions in a supporting way, drawing up an agreement with the patient about not to harm themselves at the beginning of shift and renewing the contract at the beginning of shift, closely following emotional state and energy of the patient, frequently monitoring the patient on condition of being secure, revealing the current and previous strengths of the patient, questioning opinions of the patient about death. Setting up a support system identification for the patient, participating the patient in this system and making a contribution plan during a time of crisis.

Table 2. Nursing diagnoses and nursing care of patients with an eating disorder (continued)

Nursing diagnose	Factors related to diagnosis	Descriptive characteristics	Primary nursing care
Trauma	Loss in bone integrity	Long-term malnutrition, bone fractures and the history of bone loss.	Increasing the patient's adaptability to environment, ensuring the patient to use non-slip shoes, encouraging the patient for adequate food intake, taking calcium supplements as recommended by the doctor, getting information about bone and mineral density of the patient, determining prospective practices.

Reference: Ackley BJ and Ladwig GB. Nursing diagnosis handbook-e-book: an evidence-based guide to planning care. 9th ed. Elsevier Health Sciences;2010. Wolfe BE, Dunne JP, and Kells MR. Nursing care considerations for the hospitalized patient with an eating disorder. *Nursing Clinics* 2016;51(2):213-235.

patient. One of the main themes of the training should be the necessity for a controlled diet and the benefit and damages resulting from compliance or non-compliance to a diet. Behavioral change therapy can be given as individual or in group meetings. Providing and protecting weight loss with group therapy is found to be more successful compared to individual therapies, because group therapy includes various advantages such as improving social ties between people, supporting each other in times when other people experience disappointment, having unsuccessful people adopt tactics that are used by successful people.

It has been suggested that hedonic system paths, among the neurobiological mechanisms, are activated in emotional-eating attacks. Moreover, there are studies showing that decreased levels of dopamine trigger excessive-eating behavior. These findings may play a key role in lessening the biochemical and metabolic changes that may occur during emotional-eating attacks. However, further clinical studies should be conducted to understand the mechanisms lying beneath emotional-eating behavior, to reveal causal connections, and to administer an effective treatment method.

Many studies have found either a positive or a negative correlation between mood and food intake. Emotional eating is thought to occur especially in people who are overweight, who develop eating behavior in response to emotional states, are constantly on a diet, do not lose weight, or have the fear of not losing weight despite being on a diet. Emotional and uncontrolled eating behaviors are an important risk factor for recurring weight gain. Therefore, a person's psychological and nutritional condition should be determined by professionals (psychiatrist/psychologist/clinical nutritionist /psychiatric nurse) taking psychological conditions and eating habits of the individual under consideration, and a treatment plan should be formed in response. Effective and continuing training programs for adequately balanced nutrition will bring changes in faulty habits and behaviors, prevention of human health-threatening problems and practices, and will translate knowledge to attitude. It can be possible for an attitude to be converted into a behavioral pattern by periodically repeating and controlling training programs. The literature shows that psychiatric nurses have mostly conducted descriptive stud-

ies examining eating attitude behaviors; however, no studies have been carried out to examine direct intervention in a clinical environment. With a multidisciplinary team understanding, the position of the psychiatric nurse in this area should be identified and their roles in the team should be developed.

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