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Anorexia Nervosa and Its Related Factors Among Secondary School Females in Tikrit City

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ABSTRACT

Background: Anorexia nervosa is an eating disorder that is characterized by strict restrictions of food intake leading to abnormally low body weight and an intense fear of gaining weight. Anorexia nervosa is a highly distinctive serious mental disorder.

Method: A descriptive (cross-sectional) study was carried out from 15th October 2023 to the end of May 2024. The study was conducted in secondary schools of females aged (11-20) years old in the centre of Tikrit city. The data was collected using a well-designed questionnaire.

Result: The current was included (700) female students. The frequency of anorexia nervosa was 132(18.9). Anorexia nervosa was more frequent among the older adolescent (17-20 years) age group [77 (58.3%)]. Normal BMI range was the most common weight category among females with anorexia nervosa. A high percentage of patients with anorexia nervosa (13% and 27% respectively) were in the O+ and A+ blood groups. Anorexia nervosa presented more frequently among medium socioeconomic levels, 83 (62.9%).

Conclusion: This study revealed that anorexia nervosa was more frequent among older adolescents and more common among individuals with normal BMI, the study demonstrated significant associations between certain psychosocial factors, such as stress, perfectionism, and anorexia nervosa. There is a relationship between socioeconomic status (SES) and Anorexia Nervosa.

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INTRODUCTION:

Strict dietary restrictions that result in unusually low body weight and a crippling dread of gaining weight are hallmarks of anorexia nervosa, an eating disorder. Anorexia nervosa is a very unique and dangerous mental illness. Although people of all ages, genders, sexual orientations, ethnicities, and cultural backgrounds can be affected, young adult women and adolescent girls are especially vulnerable (1). The disorder is characterized by extraordinary measures to keep the weight off, a distorted body image, an unwillingness to maintain a normal weight, and a fear of gaining weight. Usually, anorexia is diagnosed when a person has been 25–30% underweight for three months or more (2). Additionally, those with this condition exhibit significantly disrupted cognitive and emotional functioning (3).

Two subtypes of anorexia are usually recognized. First, restricting-type anorexics do not engage in purging or binge eating; instead, they lose weight only through exercise and diet. Second, binge-eating/purging-type anorexics occasionally indulge in binge eating and/or purging while also limiting their food intake and exercising to reduce weight. (4). The Diagnostic and Statistical Manual of Mental Health Disorders, Fifth Edition (DSM-5) states that each of the following three essential characteristics must be present for an anorexia nervosa diagnosis. (2):

• Constantly limiting one's energy intake, which results in noticeable weight reduction

• a persistent practice that prevents weight growth or an extreme dread of gaining weight

• a change in one's perception of one's weight or form.

Anorexia is often associated with denial of illness and resistance to treatment. Consequently, it is difficult to engage individuals with Anorexia nervosa in treatment, including nutritional restoration, and weight normalization (4). Adolescents with Anorexia nervosa often present with significant weight loss and a preoccupation with food and weight. They may restrict certain foods or calories and develop food rituals. These individuals may refuse foods they once enjoyed, refuse to eat socially with family and friends, and over-exercise to extremes. The excessive restriction of calories may impede growth and stop menstruation in female adolescents. Combined with an emphasis on exercise, these restrictions lead to malnourishment, causing protein deficiencies and disrupting the cardiovascular, renal, gastrointestinal, endocrine, hematologic, and reproductive systems. Studies have demonstrated that malnutrition associated with anorexia nervosa also affects neuropsychological functioning by reducing brain tissue (5). Patients with AN often present with mental health issues, including depression, obsessive tendencies, social anxiety, separation anxiety, and phobias such as the fear of swallowing or gaining weight (6). Other common psychiatric disorders associated with Anorexia nervosa include personality disorders and self-injurious behaviours (5).

Epidemiology of Anorexia nervosa

In the study of epidemiology in general, the prevalence of anorexia nervosa varies greatly depending on where you live. The prevalence of anorexia nervosa among the 520 students in the survey, which was conducted in secondary schools in AL-Basra City Center, was 66.7% (7).In Iran,

females had a higher number of cases and prevalence in all age categories, with the estimates of prevalence and prevalent cases peaking in the 15–19 year group for males and the 20–24 year group for females (8). Anorexia nervosa is extremely uncommon in Latin America and Africa, as well as among Hispanics in the United States, when compared to Western nations like the US and Europe, as well as China and Japan (9). In Africa, the prevalence of anorexia nervosa is less than 0.01%, whereas in China it is 1.05% (10)

Signs and symptoms of Anorexia nervosa

bodily manifestations, including headaches, constipation, syncope, dizziness, migraines, amenorrhea, dry skin, hair loss, and muscle atrophy. When performing a physical examination on individuals suspected of having anorexia nervosa, medical professionals should keep an eye out for bradycardia, hypotension, and hypothermia (11). Hypercarotenemia, acrocyanosis, lanugo, dependent oedema, breast atrophy, scaphoid abdomen, and parotid swelling are further noteworthy findings. Patients with purging or bingeing type anorexia nervosa may also have deteriorated tooth enamel and a calloused dorsum on their dominant hand (12,13). People with anorexia nervosa may complain of feeling cold and wear layers or loose clothing (6). Figure (1) illustrates the physical manifestations and consequences of anorexia.

Treatment of anorexia nervosa

The majority of individuals with anorexia nervosa can be treated as outpatients; however, those with more severe conditions or those whose condition does not improve with outpatient care require day-patient and inpatient facilities. The first-line treatment for all eating disorders that has the biggest impact on symptom reduction and other outcomes is Cognitive Behavior Therapy Enhanced, which is typically administered in 40 sessions for anorexia nervosa (14). The primary care modality for children and adolescents is theoretically family-based treatment. Both entire family and split family settings—where the parents are seen separately from the child—can get family-based treatment. The Maudsley Anorexia Nervosa Therapy for Adults, Specialist Supportive Clinical Management, and Focal Psychodynamic Therapy are additional evidence-based psychological treatments for anorexia nervosa (15). Second-generation antipsychotics, such as olanzapine for anorexia nervosa, are currently undergoing several minor trials. In individuals with anorexia nervosa, antidepressants, such as selective serotonin reuptake inhibitors, may lessen depressive symptoms and thoughts of suicide (16).

Aim of the study:

Determine the relationship between sociodemographic factors and anorexia nervosa and related factors among secondary school females in Tikrit City.

MATERIAL AND METHODS

Subjects and Methods

Study design

The current study is a descriptive (cross-sectional) study that was carried out from 15th October 2023 to the end of May 2024. The study was conducted in Tikrit city-Salahuddin Governorate.

Study setting

The study was conducted in the secondary schools of females aged (11-20) years old

in the center of Tikrit City. The study was conducted after visiting various governmental and private schools for females to provide a representative sample.

Sampling & study population

The cluster sample was chosen from secondary school females in Tikrit city. The sample included 10 schools (8 governmental & 2 private schools). The study included (132) female Students. Those females were chosen randomly from each cluster.

Questionnaire design and data collection.

The data was collected using a well-designed questionnaire. The questionnaire form was prepared to meet the objectives of the study. The questionnaire form included:

Part 1: included general information (age, class, marital status, weight, Height, family size, sequence in the family, no. of room, age of 1st menarche, no. of meal /day, no. of snack /day & blood group.

Part 2: including the Social level Scoring method (WHO) to determine the educational level &occupation of both father & mother.

Part 3: included the medical & surgical history & questions about the related factors to eating disorders.

Part 4: included questions about anorexia nervosa which were prepared according to the DSM-5 criteria to diagnose each type of eating disorder.

Ethical approval

The research protocol received formal authorization from the Tikrit University Faculty of Medicine's Scientific Committee, which had earlier approved the methodology. The Department of Health and the school administration gave their approval to the data collection (Appendix I). Per the guidelines, participation in the survey was restricted to scholastic female students who agreed to the terms stated on the questionnaire. Everyone who participated read the statement and approved it before beginning the survey. We attempt to ease the vendors' worries about the ethical statement by thoroughly explaining the purpose of the study and assuring them that all information is private and secret.

Exclusion Criteria

- Medical history like:
  - Diabetes Mellitus
  - Thyroid diseases
  - Asthma
  - patient on steroid therapy and Cushing syndrome.
- Surgical history like:
  - Thyroidectomy

Inclusion criteria

- Female Students in Secondary Schools

RESULTS

The study reveals the frequency of anorexia nervosa was 132(18.9 %). The relationship between age and anorexia nervosa was more frequent among the older adolescent (17-20 years) age group [77 (58.3%)].

The study of the relationship between anorexia nervosa and menarche showed that the majority of patients with anorexia nervosa experienced their first menstrual period at a younger age, specifically

between 11-12 years. About 65 patients (49.2%) had their first period at 11-12 years. In the study of the relationship between BMI categories and anorexia nervosa, the data reveals that the normal BMI range was the most common weight category among females with anorexia nervosa 78(59.1%).

A high percentage of patients with anorexia nervosa (44% and 27% respectively) were in the O+ and A+ blood groups, there was a significant difference higher proportion of those groups with anorexia nervosa (p=0.001). The study showed that there was a significant relationship between socioeconomic levels and anorexia nervosa presented more frequently among medium socioeconomic levels, 83 (62.9%).

The study showed that there was no relationship between family history and anorexia nervosa, as demonstrated in Table 3.7. The majority of patients do not have a positive family history. There were 90 negative cases, which account for 68.2% of the total 132 cases of anorexia. The study showed that among the 132 patients with Anorexia Nervosa, psychological stress and anxiety were reported by 110 (13%), making it the most common related factor, followed closely by social or cultural ideas about health and beauty, which was reported by 103 (12,2%), then perfection was presented among 98 (11.6%) identifying it as a related factor (p=0.001).

The relationship between the meals per day and anorexia nervosa showed that a higher number of patients with anorexia nervosa 69 (52.4%) consume 2 meals per day. The study showed that 85 (64.4%) females with anorexia nervosa consumed one snack per day.

DISCUSSION:

The result of an existing study revealed that the frequency of anorexia nervosa was 18.9% in this study which is near to the result reported by the Al-Basra study[17] which was (21.5%) among secondary school adolescents, high prevalence may be influenced by the unique social and environmental stressors experienced by adolescent females in Iraq, where cultural norms and pressures surrounding food and body image could contribute to a greater occurrence of restrictive eating behaviours. The relationship between age and eating disorders of anorexia nervosa was more frequent among the older adolescent (17-20 years) age group, this result agreed with the AL Basra study (17) which revealed the highest percentage of eating disorders among (16-18) years old. Anorexia nervosa was significantly associated with a higher prevalence of early menarche (11-12 years). Menarche is often considered a hallmark of puberty among females (18). The hormonal fluctuations and rapid physical changes may contribute to the onset of these disorders. The estrogen hormone may contribute to the symptoms of anorexia nervosa while ovarian androgens activate the symptoms of bulimia nervosa (19). This study revealed that anorexia nervosa was more common among students with normal BMI, 59.1% of students had normal BMI while 17.4% were underweight and 18.2% were overweight these results disagreed with the Al Basra study (17). This study revealed a significant relationship between blood groups and anorexia nervosa. This study found that anorexia nervosa disorder was more frequent in blood groups A and O this agrees with the result of a study done in Istanbul Turkey January 2018(20).

The study found anorexia nervosa association more frequent among individuals with medium socioeconomic status (SES) this result agreed with Al Basra's study (17). Medium SES individuals may experience different family dynamics, food availability, and cultural pressures that contribute to the prevalence of AN. The study found no significant relationship between family history and the development of anorexia nervosa among participants. Traditionally, family history has been considered a key risk factor for anorexia nervosa, where heritability has been estimated at 50-80% in twin studies. (21)

In this study, psychological stress and anxiety (13.0%) were the most common related factors among individuals with anorexia nervosa. Social or cultural ideals about health and beauty (12.2%) and perfectionism (11.6%) were also highly prevalent, reflecting how societal pressures and personal traits can drive restrictive eating behaviours. The high rate of perfectionism is consistent with existing literature, which frequently identifies this trait as a key factor in the development of AN. Individuals with anorexia often display rigid thinking and an obsessive need for control, which is exacerbated by societal ideals of thinness (22). The association between early puberty and AN (8.7%) further underscores how the psychological and physical changes of adolescence can trigger disordered eating in young women who may struggle to cope with rapid bodily changes (23). The study found that participants with anorexia nervosa were more likely to consume two meals per day, 52.4% of participants.

The study showed that participants with anorexia nervosa (64.4%), were more likely to consume only one snack per day. This pattern of limited snacking is consistent with restrictive eating behaviours, where individuals deliberately limit their caloric intake throughout the day. This restriction of snacks in addition to meals aligns with the extreme control over food intake often seen in anorexia (24,25). Anorexia nervosa is associated with lower meal and snack frequency, reflecting the control and restriction of food intake.

CONCLUSION

This study revealed that anorexia nervosa was more frequent among older adolescents and more common among individuals with normal BMI. Anorexia nervosa was more frequent among A+ and O+. The study found that anorexia nervosa frequent among medium socioeconomic levels. The current study shows no relationship between anorexia and family history the study demonstrated significant associations between certain psychosocial factors, such as stress, perfectionism, and anorexia nervosa.

CONFLICT OF INTEREST

No found

ACKNOWLEDGEMENTS

No found

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TABLES

Table 1: Frequency of anorexia nervosa

Disorder	Positive	Negative
Anorexia	132 (18.9%)	568 (81.1%)

Table 2: Relationship between Age and anorexia nervosa

Disorder	Age groups		Total
	13-16 years	**17-20 years**	
Anorexia nervosa	55 (41.7%)	77 (58.3 %)	132

Table 3: Relationship between Age at first menstrual period and anorexia nervosa

Disorder	Age at first menstrual period			Total
	11-12 years	**13-14 years**	**15-16 years**	

Anorexia	65 (49.2%)	60 (45.5%)	7 (5.3%)	132

Table 4: Relationship between BMI and anorexia nervosa

BMI Category	Under-weight	Normal Range	Over-weight	Obese Class I	Obese Class II	Obese Class III	Total
Anorexia	23 (17.4%)	78 (59.1%)	24 (18.2%)	5 (3.8%)	2 (1.5%)	0 (0%)	132

Table 5: Relationship between socioeconomic level and anorexia nervosa

Disorder	**Socioeconomic level**			**Total**
	Low	**Medium**	**High**	
Anorexia	19 (14.4%)	83 (62.9%)	30 (22.7%)	132

Table 6: Relationship between family history and anorexia nervosa

Disorder	**Family history**		**Total**
	Positive	**Negative**	
Anorexia	42 (31.8%)	90 (68.2%)	132 (100%)

Table 7: Relationship between related factors and Anorexia Nervosa of eating disorder

Related Factor	**Anorexia (n:132)**	**Nervosa**
	Positive	**Negative**
Puberty	74	8,7%
Eating problems during early childhood	38	4.5%
Difficulty expressing emotion and feelings	91	10.8%
Hormonal	51	6.0%
Negative self-image	51	6.0%
Social or cultural ideas about health & beauty	103	12.2%
Perfectionism	98	11.6%
Excessive dieting	41	4.8%
Depression	67	7.9%
History of abuse and trauma	34	4.0%
Psychological Stress and anxiety	110	13.0%
Obsessive thinking	88	10.4%

Table 8: Relationship between number of meals every day and anorexia nervosa

Disorder	Number of meals every day			
	1	**2**	**3**	**> 3**
Anorexia	13 (9.8%)	69 (52.4%)	44 (33.3%)	6 (4.5%)

Table 9: Relationship between the number of snacks every day and anorexia nervosa

Disorder	Number of snacks every day			
	1	**2**	**3**	**>3**
Anorexia	85 (64.4%)	34 (25.8%)	10 (7.6%)	3 (2.2%)

FIGURES

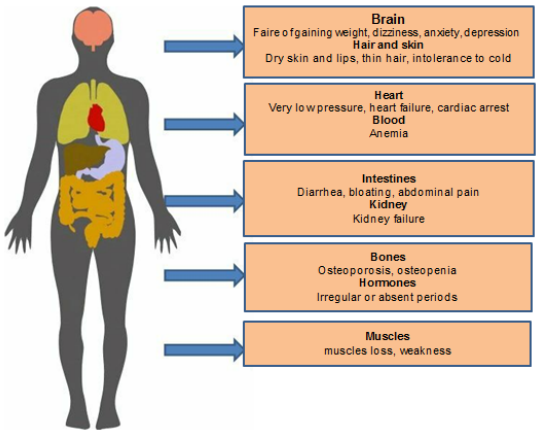

Figure (1): Physical signs and effects of anorexia nervosa (4)

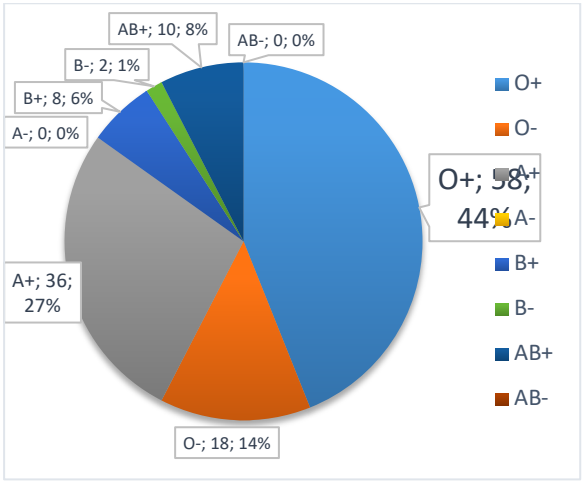

Figure 1: Relationship between ABO and Anorexia Nervosa of eating disorder. Chi-Square (χ^2): 55.15, p-Value: 0.001, Degrees of Freedom (D.F.): 7