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The Epidemiology of Eating Disorders in the Iranian People: A Systematic Review

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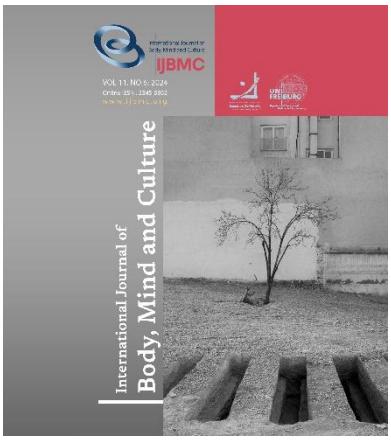

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ABSTRACT

Objective: Eating disorders are one the psychosomatic disorders, and their prevalence is increasing. This study aimed to determine the status of eating disorders in the Iranian people.

Methods and Materials: The reviewed papers are found based on Internet searches and in Iranmedex, SID, Magiran, Google Scholar, and PubMed databases. Recent 7-year papers were reviewed in this study. "Eating Disorders," Anorexia Nervosa, "Bulimia," and “Iran" keywords were used to search in international databases. First, a list of titles and abstracts of all papers searched in internal databases was prepared, and this was performed independently by two researchers. Subsequently, the full text of the selected papers was examined. Finally, 8 papers were selected based on the inclusion and exclusion criteria. The full texts were taken and two members of the team extracted the required items.

Findings: Eating disorders were common in adolescents; with a higher prevalence in females (%26.4) compared to males (%11.8). The overall risk of eating disorders was 3.8% in the general population, and the overall prevalence of eating disorders in Iranian youngsters and adolescents was %14.2. The risk of eating disorders was 9.5% (7.5 and 10.5% in Iranian male and female students, respectively). The prevalence of eating disorders in the Iranian population was moderate compared to the other countries, and it was more than in Spain and Portugal and less than in Italy and Turkey.

Conclusion: In Iran, studies show that the prevalence, age, and gender pattern of eating disorders are comparable to other studies; however, Iranian studies suggest a prevalence of bulimia nervosa, which may be related to sociocultural factors.

Keywords: Eating, Disorders, Anorexia Nervosa, Bulimia Nervosa, Iran.

Introduction

The eating disorder is known as one of the psychosomatic disorders that causes serious psychosocial dysfunction or even death (Rizzo et al., 2024; Sadeghzadeh et al., 2023). Eating disorders include a wide range of mental disorders with an impact on eating behavior (Irandoust et al., 2024), including: binge eating disorder, in which the patient eats a lot of food in a short time: anorexia nervosa, the person has an exaggerated fear of gaining weight and restricts food; bulimia nervosa where people eat a lot and then try to rid themselves of the food; pica that the patient eats non-food items; rumination syndrome, in which the patient regurgitates undigested or minimally digested food; Avoidant/restrictive food intake disorder (ARFID); that the person has special or reduced food consumption for psychological reasons (Elwakeel, 2024; Haji Seyed Taghiya Taghavi et al., 2019; Hauck et al., 2020; Rahmani et al., 2018; Şaban, 2024; Sadeghzadeh et al., 2023). Worldwide, the prevalence of eating disorders increased from 3.4 to %7.8 between 2000 and 2018 (Galmiche et al., 2019). In Iran, however, numerous studies have been conducted on the prevalence of eating disorders (Alfalahi et al., 2022), most of which are in student populations (Nobakht & Dezhkam, 2000; Sahlan et al., 2020). The studies reported the percentage of students at risk of eating disorders from 10 (Sahlan et al., 2020) to %24.06 (Naeimi et al., 2016; Rauof et al., 2015) and mild eating disorders (marginal eating disorders) were 5 to %7-6 among female students (Jahanfar et al., 2005). Generally, eating disorders are reported from 0.13 to %6 (Sahlan et al., 2020) and anorexia nervosa from 0.1 to %5.3 (Alipour et al., 2015), and anorexia nervosa from 0 to 1.1% (Babar et al., 2002). The disorders cause nutrition-related disorders and threaten an individual's health by altering the diet and undesirable intake of nutrients (Meczekalski et al., 2013). Moreover, eating disorders are characterized by behaviors such as reduced eating, fasting, overeating, and eating with vomiting and the use of anti-constipation and diuretic drugs (Khalsa et al., 2017), and they may lead to malnutrition, osteoporosis, amenorrhea, cardiovascular disease, and depression (Westmoreland et al., 2016). Having an organized approach to dealing with these types of disorders helps prevent, treat symptoms, return to a healthy weight, and maintain a person's physical and mental health given the significant prevalence and more importantly the target group of adolescents and young group in the population. Therefore, the present systematic study aimed to develop coherent guidelines for providing standard prevention and treatment services following existing national culture and resources, reducing the diversity of services and cost-effectiveness, resulting in greater clinical effectiveness.

Methods and Materials

Study Design

This was a systematic review of the English language scientific.

Search Strategy

The reviewed papers are found based on Internet searches and in Iranmedex, SID, Magiran, Google scholar, PubMed databases. Since some domestic databases were not sensitive to search operators (NOT, AND, OR, etc.), Therefore, search by keywords such as "prevalence of eating disorders", "prevalence of anorexia nervosa", "prevalence of bulimia nervosa", "prevalence of the disorder" performed to yield an optimal sensitivity. "Eating Disorders"," Anorexia Nervosas ","Bulimia" and “Iran" keywords were used to search in international databases.

Paper Selection Criteria

First, a list of titles and abstracts of all papers searched in internal databases was prepared which was performed independently by two researchers. Subsequently, the papers were published with duplicate titles. Then, the abstracts of papers were reviewed to find appropriate studies. Once two researchers did not agree on the choice of specific articles, the decision was left to a third expert. In the case of external databases, the process was the same as for domestic databases; except that all the searched studies were saved and performed by EndnoteX8. Inclusion criteria: All papers that examined the prevalence of eating disorders in women; Recent 9 year’s studies/papers (2013-2022) and Studies related to adolescence, youth and middleages. Exclusion criteria: 1.Irrelevant papers in terms of design and topic; Paper on investigating the prevalence or incidence of the mentioned disorders in

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different target groups (in terms of gender, age range, presence of chronic diseases); Papers that did not contain sufficient information (failure to report the prevalence of cases); Low-quality papers (resulting score below 7.5 on the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist - the checklist consists of 22 sections that cover different parts of an observation report).

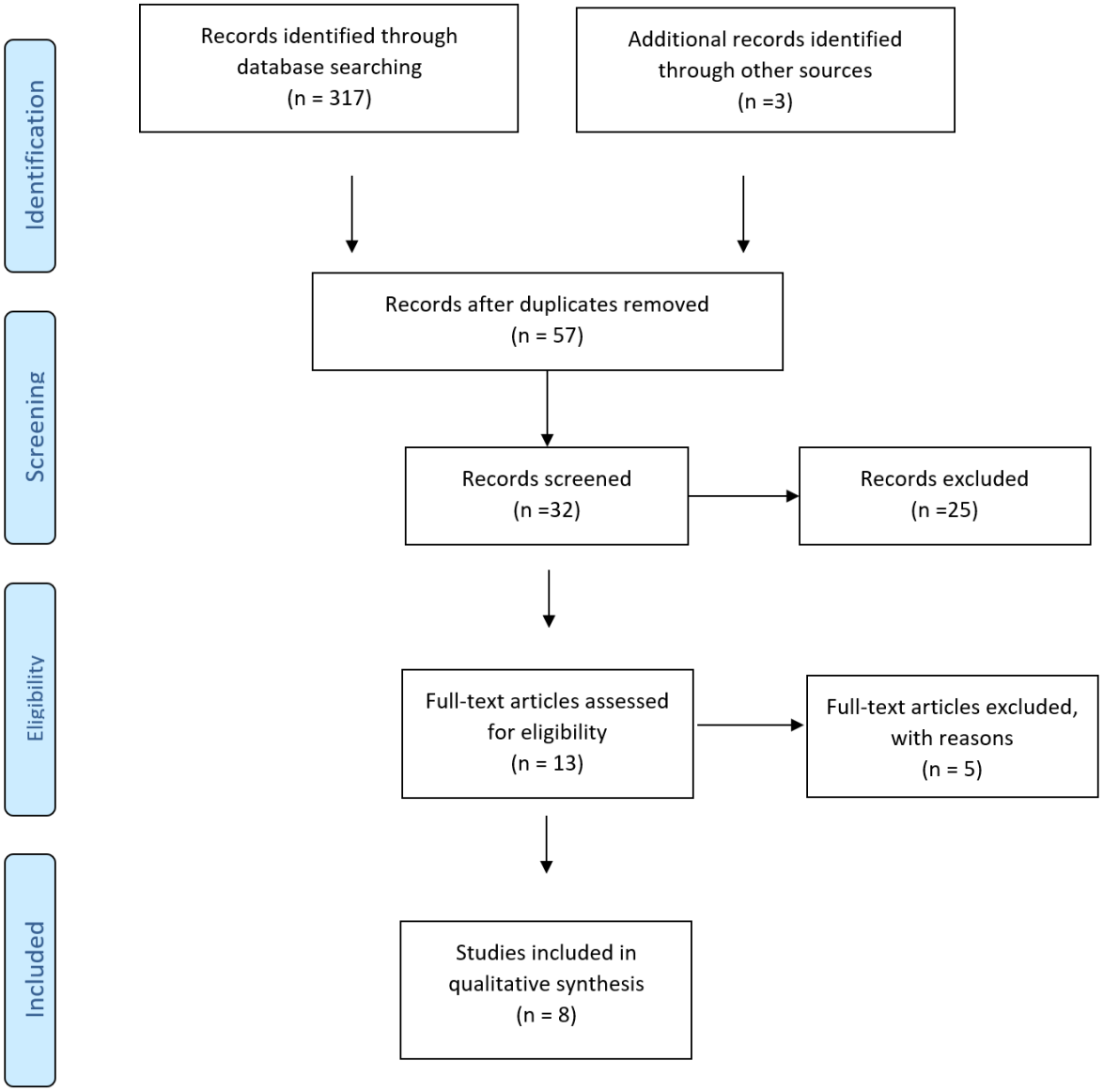
Data Extraction

subsequently, the full text of the papers was examined. However, the responsible author was contacted by e-mail if the full text could not be accessed. In the absence of sufficient information in the abstract, the article would be excluded from the study. Then, all papers were evaluated using the STROBE checklist. The extracted data were: name of the first author, province, city, time and place of the study, date of publication of the article, sample size, age range, method of data collection (type of questionnaire used), type of study, duration of the study and the frequency and prevalence of the studied disorders on the subjects.

In the first stage of the search, 317 papers were found, and 57 articles remained by the elimination of duplicates. Finally, 8 papers were selected by studying the abstract and based on the inclusion and exclusion criteria. The full texts were taken and the required items were extracted by two members of the team.

Figure 1

Flowchart of how studies are entered into a systematic review



Findings and Results

Table 1 summarized the prevalence of eating disorders, in all ages and ages 15 to 39 by gender; according to data from the Global Burden of Disease (Wu et al., 2020).

Table 1

Prevalence of eating disorders according to GBD statistics in Iranians in 2017 (Number per 100,000 people (percent))

Disorder type	All Age			15-49		
	Men	Women	Total	Men	Women	Total
Eating disorder	70504.01 (0.0017)	140193.74 (0.0035)	210697.75 (0.0026)	68495.85 (0.0029)	135882.94 (0.0058)	204378.80 (0.0043)
Anorexia	7965.14 (0.0002)	24457.62 (0.0006)	(0.0004) 32422.77	(0.0003) 7073.84	22278.00 (0.0009)	29351.84 (0.00063)
Bulimia	(0.0015) 62886.18	116085.04 (0.0029)	178971.230.00226)	61590.11 (0.0026)	113809.32 (0.0049)	(175399.430.0037)
			(			

Table 2

Prevalence of eating disorders in selected articles

Article	Province	Study/Pub year	Questionnaire	Age	Sample size/Female	Design	Prevalence	OR F/M
(Garrusi & Baneshi, 2013)	Kerman	2013	Eating Disorder Diagnostic Scale (EDDS)	14-55	1204	Descriptive study	Eating Disorders: Anorexia nervosa 0.8%, bulimia nervosa 6.2%	>2
(Jalali-Farahani et al., 2015)	Tehran	2014	Eating Attitudes Test-26 (EAT-26) Cut of point/ 20	14-17 (15.55 ± 0.94)	465/227	Descriptive study	Eating disorder:18.9% of adolescents	>2
(Mohammadi et al., 2019)	All provinces of Iran	(2016-2018)/ 2019	Persian version of K-SADS/ Interview	6-18	30532/ 15618	Descriptive study	Eating disorders: 13% Anorexia Nervosa:2% Bulimia: 13%	-
(Pascual-Vera et al., 2019)	Some countries	2019	EAT-26;Cut of point/ 20	18-64 22/63	55	Descriptive study	At risk of eating disorder: 3/80%	-
(Naeimi et al., 2016)	Tabriz	2015-16	EAT-26;Cut of point/ 20	21.09 ± 2.24	۴۳۰/۲۹۶	Descriptive study	At risk of eating disorder: 9.5%	۱/۳۱
(Rauof et al., 2015)	Tabriz & Orumieh	2015/2012	EAT-26;Cut of point/ 20 clinical interview for DSM-IV	13-18 (15.8%)	1039/1990	Descriptive study	At risk of eating disorder: 24.2% eating disorder:0.25%	2
(Rezaei et al., 2015)	Shiraz	2015	Eating Disorder Diagnosis Scale(EDSS)	15-25	302/302	Descriptive study	Bulimia nervosa۰/۷, Binge eating disorder ۰/۳	-
(Safarzade & Mahmoody Khorandi, 2015)	Gonabad	2014	EAT-26	13-18	1500	Descriptive study	15.7% at risk for eating disorders/ anorexia1.1%/ bulimia 3.2%	

In 2017, anorexia nervosa was estimated to be 1.4% However, the prevalence of eating disorders was %11.5, which included %0.8 anorexia nervosa, 2.6% full threshold anorexia nervosa, 1.4% below-threshold anorexia nervosa, and %30 sub-threshold eating disorder. Furthermore, eating disorders were common in %18.9 of adolescents; with a higher prevalence in females (%26.4) compared to males (%11.8). In another study, 24.2% of adolescents were at risk for eating disorders, and 0.25% already suffering the eating disorders. In an additional study, %15.7 adolescents were exposed to eating disorders; which %1.1 of adolescents already suffer from anorexia nervosa, and %2.2 were diagnosed with bulimia nervosa. Additionally, in juvenile women, %0.7 and %0.3 suffer from bulimia nervosa and bulimia nervosa, respectively. The overall risk of eating disorders was 9.5% (7.5 and 10.5% in Iranian male and female students, respectively) and the risk was 3.8% in the general population and the overall prevalence of eating disorders in Iranian youngsters and adolescents was %14.2.

In adolescents, the population at risk of eating disorders in two papers was estimated at %18.9, %15, and %24.2; in one study, it was estimated at %9.5 %3.8 for early ages and all ages, respectively.

In an international study, the prevalence of eating disorders in the Iranian population was moderate compared to the compared countries and the prevalence was more in Spain and Portugal, and was less than in Iran in Italy, and Turkey.

Discussion and Conclusion

The aim of this study was to determine the status of eating disorders in the Iranian people and the results showed that eating disorders were common in adolescents; with a higher prevalence in females (%26.4) compared to males. The prevalence of eating disorders in the Iranian population was moderate compared to the other countries and it was more than in Spain and Portugal, and was less than in Italy, and Turkey. Eating disorders range from abnormal eating to anorexia nervosa to bulimia nervosa and overeating. Numerous individuals with abnormal eating disorders show a background of anorexia nervosa, bulimia nervosa, or both, and this indicates the potential to turn the

disorders into one another. The studies show most affected with eating disorders were female (%3.8) compared to the men (%1.5) (Merikangas et al., 2010). Similar results were observed in Iran (Mohammadi et al., 2020). In the only epidemiological study of Iranian adults including men and women, Garrusi and Banshi found that among individuals aged 14 to 55 living in Kerman both bulimia nervosa (8.7 vs. %4.1) and sub-threshold eating disorder (3.3 vs. %2.7) was more in men than females (Garrusi & Baneshi, 2013). However, no study has examined the occurrence of emotional and behavioral disorders (EBD) in young Iranian men. At most ages, the median onset of eating disorders was about 20 years for binge eating disorder and less than 20 years for anorexia nervosa and bulimia nervosa (Herzog & Eddy, 2009). Adolescence is a period in which certain types of problems, including dissatisfaction with body image, occur more than in other periods of life, problems which may lead to eating disorders. Among adolescents with eating disorders, however, the age group of 17 - 18 years was the most common (%3) (Merikangas et al., 2010); the same result was also found in this study. A significant number of individuals in Iran experience eating disorders, yet there remains a notable lack of awareness regarding mental health. Consequently, integrated mental health education within educational institutions, including schools and universities, is important. This initiative has the potential to enhance awareness and cultivate a supportive atmosphere for students, ultimately contributing to improved mental well-being and alleviating the effects of these disorders on the youth population (Garrusi & Baneshi, 2013).

In the UK, the approximate lifetime prevalence of anorexia nervosa is approximately 4%. In young women in Western Europe and the United States, the prevalence of anorexia nervosa is estimated at approximately 0.3% (range = 0.2 - 0.8%). The occurrence of the disorder varies from 4.2 to 12.6 per 100,000 individuals per year. However, the occurrence of anorexia nervosa among men is less than 1 in 100,000 per year. Anorexia nervosa is relatively rare in children under 13 years of age, with an occurrence of 1.1 cases per 100,000 individuals per year (Pascual-Vera et al., 2019). Comparable results were found in the studies of Iranian society, which shows it is also relatively rare among middle-aged and elder women (Kessler et al., 2013). Moreover, anorexia nervosa has the highest mortality rate among all mental disorders and its weighted crude mortality rate is approximately 5.1 deaths per 1,000 people per year (Smink et al., 2013). The most common causes of death include suicide (%20) and heart complications (Papadopoulos et al., 2009). Anorexia nervosa is generally more common in the population than anorexia nervosa, a disorder that generally begins in adulthood or early adulthood (Demirel et al., 2020). The prevalence of bulimia nervosa is %2 (Hudson et al., 2007), and the lifetime prevalence of the disorder in Iran is reported to be slightly higher (%3.2) (Sahlan et al., 2020). In one community study, even a higher rate (%6.2) was reported, which is comparable to the prevalence of eating disorders in a Chinese study (Lee & Lee, 2000); and it is more than some other studies in Asian and Western countries (Thomas et al., 2010). Therefore, the prevalence of bulimia nervosa was higher than in some studies. However, genetics, environmental factors, and personality traits predispose individuals to eating disorders, but studies have shown that culture, concerning underlying factors, affects eating disorders and cultural factors in society may exacerbate the disorders. Additionally, changes in the socio-cultural set of risk factors may be particularly important in increasing the prevalence of eating disorders (Christian, 2020). The prevalence of bulimia in women is almost twice as high as in men (3.5 vs. %6.1) (Masheb et al., 2021); generally, full threshold bulimia nervosa is more common in men, while subthreshold anorexia nervosa is more common in women than men (Garrusi & Baneshi, 2013). In other studies, women suffer the disorder more than men (Rauof et al., 2015).

However, it is thought that women are more prone to eating disorders and the prevalence is higher in females; nonetheless, new studies suggest that eating disorders may be underdiagnosed, undertreated, and misunderstood in men (Schoen et al., 2019). Although overeating does not have high mortality, the morbidity rate of this disorder is high. There are usually oral and gastrointestinal complications with serious electrolyte and endocrine complications. Although the medical complications of bulimia nervosa can be treated if diagnosed early but they may affect the quality of life of women. In addition, people with bulimia nervosa are often impulsive and may suffer from other pre-existing mental disorders (Westmoreland et al., 2016). Awareness of these behaviors and the serious consequences are

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especially important in vulnerable populations such as women and athletes.

In Iran, studies show that the prevalence, age, and gender pattern of eating disorders are comparable to other studies; however, Iranian studies suggest more prevalence of bulimia nervosa which may be related to sociocultural factors. For future studies, it is suggested to study the particular factors related to eating disorders, especially sociocultural factors.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

Not applicable.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this study.

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