

Eating Disorder Prevalence during the COVID-19 Pandemic: A Two-Phase Study

COVID-19 Pandemisi Döneminde Yeme Bozukluğu Yaygınlığı: İki Aşamalı Bir Çalışma

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ABSTRACT

Objective: An increase in the prevalence of many psychological problems including Eating Disorders (EDs) during COVID-19 pandemic is noteworthy. Weight change experienced by many people in this period is accompanied by a deterioration in eating attitudes and behaviors. The aim of this study is to determine how eating attitudes and behaviors differ according to gender and weight change, and the prevalence of EDs during COVID-19 pandemic. **Method:** Firstly, Socio-demographic-Clinical Information Form, Eating Attitude Test-26 (EAT-26), and Eating Disorder Examination Questionnaire (EDE-Q) were administered to 771 participants. Then, the Eating Disorder Assessment for DSM-5 (EDA-5) was conducted as a semi-structured online clinical interview with the participants' at-risk group. EDA-5 is a web-based diagnostic clinical interview which scans the last three-month according to the DSM-5 Eating Disorders diagnostic criteria that is administered by a clinician specialized in EDs. **Results:** Research findings indicated that participants' EAT-26 and EDE-Q scores differ significantly according to gender and weight change experienced during the pandemic. The prevalence of ED was 3% (N=20). According to sub types, Binge Eating Disorder was 1.3% (N=9), Bulimia Nervosa was 0.7% (N=5), Anorexia Nervosa was 0.4% (N=3), subthreshold Binge Eating Disorder was 0.4% (N=3), and subthreshold Bulimia Nervosa was 0.14% (N=1). Although not meeting the diagnostic criteria, the number of participants with disordered eating behavior was found to be 0.29% (N=2).

Conclusion: A higher prevalence rate was found compared to previous studies in Turkey which is assumed to provide evidence that the prevalence of EDs increased during the COVID-19 period.

Keywords: COVID-19 pandemic, eating disorders, eating attitudes, anorexia nervosa

ÖZ

Amaç: COVID-19 pandemi döneminde pek çok psikolojik rahatsızlıkta olduğu gibi Yeme bozukluklarının da daha yaygın görüldüğüne işaret eden sonuçlar vardır. Bu dönemde kişilerin deneyimlediği kilo değişimine, yeme tutum ve davranışlarında bozulmanın eşlik edebildiği anlaşılmaktadır. Bu çalışmada; COVID-19 sürecinde yeme tutum ve davranışlarının cinsiyete ve kilo değişimine göre nasıl farklılaştığını ve Yeme Bozukluğu (YB) yaygınlığını saptamak amaçlanarak iki aşamalı toplum temelli bir çalışma yürütülmüştür.

Yöntem: İlk aşamada 771 kişi Sosyo-demografik- Klinik Bilgi Formu, Yeme Tutum Testi-26 (YTT-26) ve Yeme Bozukluğu Değerlendirme Ölçeğini (YBDÖ) doldurmuştur. YTT-26 ve YBDÖ'den yüksek puan alan katılımcılara, ikinci aşamada DSM-5 için Yarı Yapılandırılmış Yeme Bozukluğu Görüşme Formu (EDA-5) bu alanda uzman klinisyen tarafından çevrim içi olarak uygulanmıştır. Web tabanlı bir görüşme olan EDA-5, son üç aylık periyodu, DSM-5 YB tanı kriterlerine göre tarayarak kişiye uygun YB tanısını belirlemeyi sağlamaktadır.

Bulgular: Araştırma bulguları katılımcıların YTT-26 ve YBDÖ puanlarının cinsiyete ve pandemide deneyimlenen kilo değişimine göre anlamlı olarak farklılaştığına işaret etmektedir. DSM-5'e göre YB yaygınlığı %3 (N=20) olarak bulunmuştur. YB türlerine göre; Tıkınırcasına Yeme Bozukluğu %1,3 (N=9), Bulimiya Nervoza (N=5) %0,7, Anoreksiya Nervoza (N=3) %0,4, eşik altı Tıkınırcasına Yeme Bozukluğu (N=3) %0,4, eşik altı Bulimiya Nervoza yaygınlığı (N=1) ise %0,14, YB tanı kriterlerini karşılamasa da bozulmuş yeme davranışı gösteren kişilerin oranı (N=2) %0,29 olarak görülmüştür.

Sonuç: Türkiye'de pandemi döneminde tanı koyucu klinik görüşmeyle veri toplayan ilk çalışma olan bu araştırmanın sonuçları, ülkemizde pandemide saptanan YB yaygınlığının önceki yaygınlık çalışmalarından daha yüksek olduğuna işaret etmektedir. Bu sonuçların COVID-19 döneminde literatürde belirtildiği gibi YB yaygınlığının arttığına dair kanıt olabileceği düşünülmektedir.

Anahtar sözcükler: COVID-19 pandemisi, yeme bozuklukları, yeme tutumları, anoreksiya nervosa

Introduction

Eating Disorders (EDs) are psychiatric conditions characterized by significant disturbances in eating behaviors, stemming from a complex interplay of biological, psychological, and sociocultural factors, and often exhibit a severe prognosis (Fairburn et al. 2003). Central to the pathology of EDs is an obsessive concern with weight and body image, manifesting cognitively as persistent rumination and behaviorally through compensatory behaviors such as excessive dieting, purging, and the misuse of laxatives, diuretics, or engaging in excessive exercise (Fairburn et al. 2003). The latest version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) categorizes Eating and Feeding Disorders as Pica, Rumination Disorder, Avoidant/Restrictive Food Intake Disorder, Anorexia Nervosa (AN), Bulimia Nervosa (BN), Binge Eating Disorder (BED), among other specified and unspecified eating disorders (American Psychiatric Association 2014). Recent literature highlights a rise in ED prevalence not limited to adolescent females but expanding into childhood, later adulthood, and notably, among young adult males, often with a focus on achieving a muscular physique as opposed to thinness (Dakanalis et al. 2016, Öztürk 2020). This trend underscores the importance of investigating EDs within the male population, challenging the long-standing, gender-biased perception of EDs as predominantly a female problem.

The global prevalence of EDs is on an upward trend across genders (Herzog et al. 2007, Micali et al. 2013). Despite geographical disparities, the global prevalence rates for AN and BN generally fall below 1%, while BED and subthreshold eating disorders range between 5 and 10% (Hay et al. 2015, Hay 2020, Alfalahi et al. 2022). In Turkey, prevalence rates vary between 1-2%, and the distribution of ED types aligns with international data (Vardar and Erzen 2011, Semiz et al. 2013, Deveci 2020). However, a significant methodological issue has been observed: many studies equate disturbed eating attitudes—a potent predictor of EDs—with ED prevalence. While a correlation exists, disturbed eating attitudes do not necessarily equate to an ED diagnosis (Aksoy 2018). In Turkey, a scant number of studies employing DSM-IV criteria exist for evaluating ED prevalence (Vardar and Erzen 2011, Semiz et al. 2013). The transition to DSM-5 criteria accentuates the need for contemporary data. Notably, one study in Turkey, utilizing DSM-5 criteria, stands out by incorporating an initial risk identification followed by clinical interviews to ascertain ED prevalence (Deveci 2020).

The COVID-19 pandemic has precipitated a global public health crisis, manifesting in multifaceted physical, psychological, and social outcomes (Alp and Ünal 2020, Tükel 2020, Hizal 2021). Beyond its physical toll, the psychological impact of health anxiety, loss, social isolation, and quarantine measures have exacerbated mental health conditions, including anxiety, depression, and post-traumatic stress disorder (Salari et al. 2020). This period also saw a spike in ED symptoms and several admissions to treatment facilities for EDs, attributed to restricted access to food and healthcare, and heightened exposure to anxiety-inducing or body image-detrimental social media content, culminating in increased clinical presentations of EDs (Castellini et al. 2020, Haddad et al. 2020, Salari et al. 2020, Taquet et al. 2021, Akgül et al. 2023). Adverse shifts in nutrition, physical activity, and sleep patterns were noted, marked by reduced sleep and physical activity and increased intake of carbohydrates, fats, and sugars, often as stress coping mechanisms. This period saw notable weight gain among many individuals, impacting emotional eating, eating attitudes, and behaviors (Ammar et al. 2020, Muscogiuri et al. 2020, Beyhan and Erku 2021, Erdoğan-Yüce and Muz 2021, Güney Coşkun 2021). Consequently, pandemic-induced weight changes are thought to escalate ED risk.

Before the pandemic, the prevalence of EDs was relatively stable, but a sharp increase was noted immediately after the onset of the pandemic (Cerniglia and Cimino 2023). During the COVID-19 era, a Chinese study involving 12,186 children reported a 31% risk for EDs through self-reporting (Wang et al. 2020). An adult study with 877 participants found that 25.8% exceeded the Eating Disorder Examination Questionnaire (EDE-Q) cut-off point, suggesting potential EDs (Racine et al. 2022). In Germany, a study with 2,233 individuals indicated a 2.7% high-score prevalence on the EDE-Q (Quittkat et al. 2020). An Australian community-based study with 5,469 participants noted that 3% self-reported EDs, accompanied by a 19% and 64% increase in purging and dietary restriction behaviors, respectively, compared to pre-pandemic levels (Phillipou et al. 2021). These findings consistently highlight a pandemic-associated surge in ED symptoms globally. Moreover, the weight fluctuations experienced during this period are believed to exacerbate eating problems. Nonetheless, the reliance on self-report inventories in most studies offers a limited window into the clinical prevalence of EDs. Consequently, it's imperative to discern the proportion of individuals at risk who, based on symptomatology scales, meet the clinical criteria for an ED diagnosis. In this focus, a two-phase Norwegian study with adolescents aged 16-19 reported a 9.4% ED prevalence, a considerably high rate compared to previous studies (Dahlgren et al. 2023).

The literature review underscores the scarcity of research examining the pandemic's impact on ED prevalence in Turkey, especially studies employing DSM-5 criteria through clinical interviews. While large-sample global studies may report heightened prevalence, the majority are reliant on self-reporting. It is believed that interviewing a community sample, as in this study, which allows for clinical diagnosis, rather than relying solely on electronic health records, hospital admissions, or self-reported prevalence results, may lead to more accurate findings. Furthermore, the gender-specific focus of many studies hampers comprehensive gender comparisons and understanding of male ED prevalence. Therefore, this study aims to identify pandemic-related weight changes in young adults, a demographic susceptible to EDs, and to explore gender-specific variations in ED symptoms and weight changes. Additionally, the study seeks to determine ED prevalence during the pandemic using structured interviews based on DSM-5 criteria among individuals identified as at-risk based on eating attitudes and ED symptomatology. The hypothesis posits an increased ED prevalence in Turkey during the pandemic compared to prior periods, with variations in ED symptoms based on gender and weight changes. Given the limited exploration of ED frequency during the pandemic in Turkey, this study endeavors to address this research gap.

Method

Sample

The first phase of this two-phase study, considering the pandemic conditions, employed convenience sampling to engage individuals aged 18-30 residing in Turkey for online participation. The target sample size was based on the sample sizes of previous eating disorder prevalence studies in Turkey, aiming for approximately 1000 participants (Vardar and Erzen 2011, Semiz et al. 2013). A total of 771 respondents, sourced through messaging apps and Instagram promotions, completed the surveys. The outreach emphasized the study's focus on discerning ED prevalence, contributing to the researcher's master's thesis, and that participation was voluntary. After filtering out 89 respondents (non-residents, age-ineligible, or duplicate submissions), the analysis proceeded with 682 participants. Duplicate entries were pruned during the analytical phase, utilizing the provided contact details. The demographic composition, averaging 24.74 years ($SD=3.22$), included 88.1% females ($N=601$) and 11.9% males ($N=81$). The majority were single (80.1%) and from a middle socioeconomic level (66.6%). Geographical representation was as follows: 65.2% from Marmara ($N=445$), 10.9% from Aegean ($N=74$), 10.7% from Central Anatolia ($N=73$), 4.4% from Black Sea ($N=30$), 4.3% from Mediterranean ($N=29$), 2.8% from Southeastern Anatolia ($N=19$), and 1.8% from Eastern Anatolia ($N=12$). Body Mass Index assessments, based on World Health Organization's (WHO 2000) classifications, indicated 9.4% underweight ($N=64$), 59.1% normal weight ($N=403$), 19.5% overweight ($N=133$), and 12% obese ($N=82$).

In ED research, the upper 5% to 20% of the sample, as per relevant scale scores, are deemed at risk (Vardar and Erzen 2011, Semiz et al. 2013, Hay et al. 2015, Devci 2020). Accordingly, for the study's second phase, the top 15% of the entire sample, exhibiting the highest ED symptom scores (those with the highest total scores on the Eating Disorder Examination Questionnaire and those scoring 20 or above, the cutoff point for the Eating Attitudes Test-26), were selected. Of these identified individuals, 102 were approached, and 32 responded to the initial email invitation for the second phase. However, 2 individuals did not respond to the follow-up email to arrange an appointment. Of the 30 who scheduled an interview, 6 failed to attend. Non-participation reasons included time constraints (2 individuals) and non-attendance without explanation (4 individuals). In total, an approximately 30-minute Online Semi-Structured Eating Disorder Assessment for DSM-5 (EDA-5) was conducted with 24 individuals via the Zoom application. The participant flow and recruitment process for the study are summarized in Figure 1.

Procedure

Considering the pandemic conditions, it was decided to conduct the study online, and the dataset was created by the researchers using Google Forms, with the participation link and study prerequisites disseminated through social media channels by the research team. Participants were required to complete the Sociodemographic and Clinical Information Form alongside the Eating Disorder Examination Questionnaire and the Eating Attitudes Test-26. The survey was designed to require approximately 20 minutes for completion by each respondent.

Ethical approval for the data collection phase was obtained from the Haliç University Ethics Committee, as per the decision numbered 170, dated 27.10.2021. The data gathering spanned from October 2021 to February 2022. At the beginning of the form, participants were provided with informed voluntary consent, detailed information about the study, and its voluntary nature, and their consent was obtained to participate in the

study. A total of 89 individuals, either non-consenting or failing to meet the inclusion criteria, were subsequently excluded, culminating in 682 participants.

In the second phase of the research, 102 individuals identified as being at risk were contacted via email, and their consent was sought to schedule an approximately 30-minute interview via the Zoom program. A total of 24 consenting participants underwent clinical interviews between February and March 2022. EDA-5 was administered by a psychologist specializing in eating disorders. Supervision was provided by a clinical psychologist, also specializing in eating disorders, and consultation was sought from another clinical psychologist responsible for the Turkish adaptation of EDA-5. In addition to the structured questions from the EDA-5, the interview encompassed inquiries about the participants' lowest and highest adult weights, their weight fluctuation history, and any prior diagnoses of eating disorders. The determination of diagnoses was a synthesis of the interview form algorithm's outputs, complemented by the clinical judgment and consensus among the interviewer, supervisor, and consultant.

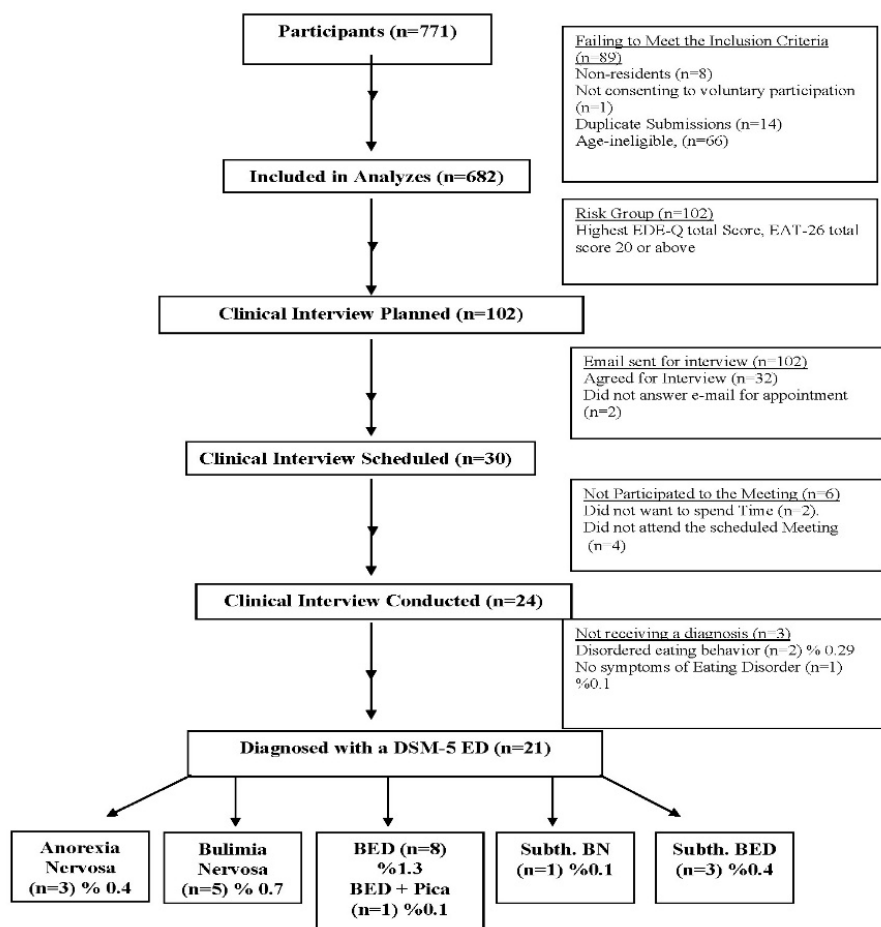


Figure 1. Participant flow chart

Measures

In the present study, the following instruments were used for data collection; a Sociodemographic and Clinical Information Form developed by the research team, the Eating Attitudes Test-26 (EAT-26), the Eating Disorder Examination Questionnaire (EDE-Q), and a Semi-Structured Eating Disorder Assessment for DSM-5 (EDA-5). The survey instrument was pilot-tested by the researchers via the Google Forms platform in a digital format. The instrument comprised 128 compulsory items, organized into six discrete sections with no provision for respondents to revisit prior sections. Completion of the survey necessitated an estimated duration of 20-25 minutes. Participation in the study was voluntary, with no incentives furnished to the respondents.

Sociodemographic and Clinical Information Form

Developed by the research team, this form incorporates 20 items intended to capture a comprehensive array of sociodemographic details including height, weight, age, gender, Body Mass Index (BMI), educational attainment,

professional occupation, marital status, place of residence, and income level. Furthermore, the form seeks to elucidate clinical characteristics such as medical history encompassing physical and psychiatric dimensions, historical weight trajectories, dietary patterns, exercise regimes, and alterations in weight and dietary habits during the pandemic period.

Eating Attitudes Test-26 (EAT-26)

The EAT-26 is a short form of the Eating Attitudes Test-40, originally developed by Garner and Garfinkel (1979) and revised by Garner and Bemis (1982), and serves as a scanning tool to evaluate eating attitudes among individuals. The test consists of 26 questions about eating attitudes and 5 statements about eating behaviors, in addition to 7 demographic questions, grouped into three sections A, B, and C. It adopts a Likert-style response format, wherein responses span a spectrum from "never" to "always," assigned scores ranging from 0 to 3. Notably, only the scores from section B are aggregated. Total scores of 20 and above indicate disturbances in eating attitudes. The Turkish adaptation of the scale and the determination of its psychometric properties were conducted by Ergüney-Okumuş and Sertel-Berk (2020). In the adaptation study, the Cronbach's Alpha reliability coefficient was found to be .75, and the test-retest reliability over a two-week period was observed to be significantly high. The Cronbach's Alpha coefficient for this scale in the current study was calculated as .85.

Eating Disorder Examination Questionnaire (EDE-Q)

In the study, this scale, a self-report form known as the Eating Disorder Examination Questionnaire (EDE-Q), was used to determine participants' disordered eating behaviors and symptom levels. Originally developed by Fairburn and Cooper (1993) and adapted by Fairburn and Beglin (2008), the EDE-Q includes five subscales, namely Restraint, Binge Eating, Shape Concern, Eating Concern, and Weight Concern. Scores on these subscales typically range from 0 to 6, except for the Binge Eating subscale, which is not included in the total score calculation. Elevated scores are indicative of the presence of disordered eating pathology. The validation and reliability of the Turkish version of the EDE-Q were established by Yücel et al. (2011) in an adolescent sample, yielding internal consistency coefficients ranging from .78 to .86 for the subscales and .93 for the overall scale. Further validation and reliability assessment for an adult population was conducted by Baktıroğlu (2019). The Cronbach's Alpha coefficient for the total score was reported as .95 in this study.

Semi-Structured Online Interview Eating Disorder Assessment for DSM-5 (EDA-5)

The EDA-5, developed by Sysko et al. (2015), is an online, semi-structured interview format designed to diagnose eating disorders according to the DSM-5 diagnostic criteria. The interview process is algorithmically structured, basing diagnoses on the participant's responses to specific questions. Initial inquiries, such as "Do you have a problem with your eating?" and "Is there an abnormal eating pattern?" are designed to elicit information regarding potential restrictive eating behaviors, binge eating, or purging tendencies. Affirmative responses prompt further algorithm-driven questions to assess the extent of functional impairment resulting from these issues. Subsequent steps involve calculating the participant's Body Mass Index (BMI) based on provided weight and height data and tailoring subsequent questions based on the individual's weight category.

For individuals presenting with a significantly low weight (BMI <17) over the past three months, indicative of potential Anorexia Nervosa, the algorithm directs questions toward DSM-5 criteria for AN, inquiring about fear of weight gain, behaviors to prevent weight gain, body image distortion, excessive self-evaluation based on body shape, and insight. A diagnosis of Anorexia Nervosa is established if responses align with these criteria. The interview further explores compensatory behaviors such as vomiting, excessive exercise, and the use of laxatives or diuretics, assessing the frequency of these behaviors over the past three months and per week, thereby guiding the algorithm toward subtypes of AN if criteria are met.

If the individual's weight over the past three months falls within the normal or overweight range, the algorithm revisits questions concerning compensatory behaviors and their frequencies, screening for Bulimia or Binge Eating Disorder to establish a diagnosis. Additionally, the presence of Pica is investigated due to potential comorbidities. In cases where DSM-5 diagnostic criteria for eating disorders are not fully met, yet a disturbance is evident, the algorithm enables the clinician to opt for one of the Subthreshold Diagnoses (Atypical AN, Subthreshold BN, Subthreshold BED, Purging/Rumination Disorder, Night Eating Syndrome, Unspecified Feeding or Eating Disorder) based on their clinical judgment. This necessitates that the practitioner administering the EDA-5 be an experienced mental health professional, proficient in the DSM-5 criteria for Feeding and Eating Disorders, and capable of interpreting various eating behavior disturbances, such as binge eating episodes, compensatory actions, and their frequencies. The Turkish adaptation of the EDA-5 was executed by Deveci, Sertel Berk, and Yücel (2019). In the second phase of this research, an approximately 30-minute online

clinical interview was conducted with 24 individuals identified as at risk for eating disorders, aimed at establishing appropriate diagnoses. The interview was facilitated through <https://eda5.org/1057-2/>. The psychologist administering the interview was extensively trained in the theoretical and practical aspects of eating disorders, diagnostic procedures, and the application of EDA-5, in addition to their formal education in clinical psychology. To ensure the integrity of the diagnostic process and to mitigate potential interviewer biases, supervisory oversight and consultation were sought from another psychologist. This psychologist, also holding a doctorate, specializes in eating disorders and was involved in the Turkish adaptation of the EDA-5, thereby reinforcing the reliability of the findings.

Statistical Analysis

The collected data were analyzed using the SPSS for Windows 26.0 program. Reliability assessments were performed for the scales employed within the study. Based on the skewness and kurtosis values, it was assumed that the data were normally distributed, and parametric tests were applied. Descriptive statistics were computed, and gender-based differences in research variables were probed using the Independent Samples T-Test. Moreover, One-way ANOVA was utilized to scrutinize variations by weight fluctuations during the pandemic.

Results

In line with the objectives of the study, the Independent Samples T-Test was used to examine the differences between genders, and the results are presented in Table 1. The T-test for independent groups revealed that the average Body Mass Index (BMI) was significantly higher in males compared to females ($t(676) = -3.164, p < .01$). Further analysis of research variables indicated that females exhibited significantly higher total scores on the EDE-Q and EAT-26, in comparison to males (respectively; $t(129,977) = 7.637; t(127,789) = 5.402; p < .001$).

	Gender	N	Mean	S. D.	t	p
BMI	Female	597	23.55	5.05	-3.164	.002**
	Male	81	25.41	4.41		
EDE-Q – Total	Female	601	2.27	1.57	7.637	.000***
	Male	81	1.22	1.09		
EAT 26 – Total	Female	601	17.46	11.59	5.402	.000***
	Male	81	11.93	8.19		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; BMI: Body Mass Index, EDE-Q: Eating Disorders Examination Questionnaire, EAT-26: Eating Attitudes Test -26

In the second phase, the weight changes of participants during the pandemic period were determined based on the information from the demographic information form, and One-way ANOVA was conducted to determine if the total scores of EDE-Q and EAT-26 differed as per the status of weight alteration. The findings are presented in Table 2. According to the One-way ANOVA and Tukey test, individuals reporting weight gain during the pandemic had significantly higher total EDE-Q scores compared to those reporting weight loss or no weight change (respectively; $F(2,679) = 37.84, p = .003$). Regarding eating attitudes, those who experienced weight loss reported higher EAT-26 scores relative to individuals who either gained weight or maintained their weight ($F(2,679) = 25.20, p = .000$).

		Sum Squares	D. F.	Mean Squares	F	P	Weight Change	N	Mean	S.D.
EDE-Q	B. G.	166.40	2	83.20	37.84	.000*	Gain	404	2.38	1.47
Total	W. G.	1493.04	679	2.20			Lose	160	2.34	1.68
	Total	1659.44	681				stable	118	1.06	1.25
EAT 26	B. G.	6090.74	2	3045.37	25.20	.000*	Gain	404	16.58	10.48
Total	W. G.	82047.71	679	120.84			Lose	160	21.19	13.67
	Total	88138.45	681				Stable	118	11.78	8.32

* $p < 0.01$; B.G.: Between Groups, W. G.: Within Groups, BMI: Body Mass Index, EDE-Q: Eating Disorders Examination Questionnaire, EAT-26: Eating Attitudes Test -26

The second phase also entailed a diagnostic interview with the at-risk group, and the distribution of diagnoses is illustrated in Figure 1. This group refers to 24 participants who partook in the diagnostic interview. When evaluating the diagnoses received by the interviewees and the descriptive analyses, the point prevalence of EDs within the entire sample ($N=21$) was determined to be 3%. Among specific ED types, BED was the most prevalent

at 1.3% (N=9), succeeded by BN at 0.7% (N=5), AN at 0.4% (N=3), subthreshold BED at 0.4% (N=3), and subthreshold BN at 0.14% (N=1). The proportion of participants exhibiting disordered eating behaviors, albeit not meeting full ED criteria, was 0.29% (N=2). In the clinical interviews, besides the questions in the DSM-5 Interview Form, additional questions were asked about the lowest and highest weight, changes in ED diagnosis, and previous ED diagnoses. Notably, two individuals, despite not having a low BMI, were classified within the atypical AN category based on clinical judgment during the interviews. In line with guidelines, individuals in remission are advised to be monitored for a minimum of one year, even if their BMI does not fall within the underweight range during the interview period. Consequently, individuals could be categorized into this group based on their status over the past 3 or 6 months. Individuals in remission for more than 1 year were considered as having full remission for AN according to DSM-5; those in remission for less than 1 year were considered as having partial remission (NICE 2017). Among the interviewed participants, 87.5% were diagnosed with an ED. Specifically, 37.5% were diagnosed with BED (with one individual concurrently diagnosed with pica); 20.8% with BN; 12.5% with AN; 12.5% with subthreshold BED; 4.1% with subthreshold BN; 8.3% were identified with disordered eating behaviors not meeting full ED criteria; and one individual (4.1%) did not fulfill any criteria for an ED. Among the individuals interviewed, only one was male (4.2%) and was diagnosed with BED.

Discussion

The primary objective of this research was to evaluate the prevalence of EDs during the Covid-19 pandemic. The research started with an initial screening of 771 individuals for ED symptoms, followed by a targeted online clinical interview involving voluntarily participating high-risk individuals to diagnose EDs. This discussion segment marks the sample characteristics and prevalence outcomes of prior studies and subsequently highlights the research limitations and suggestions for future studies.

The study's sample consisted of young adults, predominantly women, from middle socio-economic levels, and mainly residing in the Marmara Region. Studies in the field of EDs in our country are often conducted with high school and university samples (Vardar and Erzen 2011, Çelik et al. 2016, Kermen et al. 2019, Deveci 2020), leading to a lower average age in previous studies compared to this one. Nonetheless, a trend toward an older participant age has been observed in community sample studies (Semiz et al. 2013, Hay et al. 2015). Another problem is that studies are either conducted only on women or have predominantly female participation (Phillipou et al. 2020, Breiner et al. 2021). Although past studies assumed EDs to be a problem of Western upper-class young women, current research emphasizes that this problem can be seen in every culture, age, and socio-economic level (Huryk et al. 2021). Consistent with the literature, it is noteworthy that participants in this study are predominantly women and identify themselves as middle-income (Ergüney Okumuş 2017). Generally, ED research within the national scope tends to focus on single-city samples (Vardar and Erzen 2011, Semiz et al. 2013, Deveci 2020). This study sought to enhance generalizability by encompassing a nationwide sample, with regional distribution aligning closely with national population data from the Ministry of Interior Turkish Statistical Institute (2022), thereby giving credit to the representativeness of the sample.

The research initially examined differences in BMI and research variables between men and women. Consistent with the literature, it was observed that women generally exhibited lower BMI values than men (Şanlıer et al. 2016, Deveci 2020), yet manifested heightened ED symptomatology, eating attitudes, and ED symptoms (Cevizci 2021, Süel et al. 2021). These parallels with prior studies reinforce the notion that female gender constitutes a significant risk factor for EDs.

The pandemic-induced weight transformations were a focal point of the research, with nearly 60% of participants reporting weight gain—a trend consistent with existing literature highlighting prevalent weight increases during the pandemic, attributed to diminished physical activity, food stockpiling, and escalated stress-induced eating (Chew and Lopez 2021, Sideli et al. 2021). When delving into the interplay between this weight fluctuation and research variables, it was discerned that individuals reporting weight gain scored higher on EDE-Q total scores than those reporting weight loss or stability. Conversely, in terms of eating attitudes, individuals experiencing weight loss reported higher scores on the EAT-26 compared to their counterparts who gained or maintained weight. Given that the EDE-Q evaluates a broader spectrum of eating behaviors, cognitions, and emotions, and the EAT-26 specifically targets restrictive eating, the findings align with expectations, suggesting that weight transformations manifest differently across various eating attitudes and behavior dimensions.

In the second phase of the study, the prevalence and subtype categorization of EDs among high-risk participants were evaluated. The findings disclosed an overall ED prevalence of 3% within the sample. The results revealed BED as the most prevalent subtype at 1.3%, trailed by BN at 0.7%, AN at 0.4%, subthreshold BED at 0.4%, and

subthreshold BN at 0.14%. Additionally, the rate of individuals who did not meet full ED diagnostic criteria but exhibited disordered eating behavior was 0.29%.

Previous data within the national context reflects ED prevalence rates fluctuating between 1.52% and 2.3%, with BED usually dominating, followed by BN and AN (Vardar and Erzenin 2011, Semiz et al. 2013, Deveci 2020). A notable study utilizing DSM-5-based clinical interviews reported prevalence rates for subthreshold AN, BN, BED, and BED at 0.05%, 0.32%, 0.48%, and 0.21%, respectively (Deveci 2020). Contrastingly, research based solely on self-reported data typically signals higher prevalence rates (Çelik et al. 2016, Harmançi et al. 2021). Globally, ED prevalence is documented to vary between 1% and 8% (Hay 2020). Pandemic-centric studies reveal variable findings; one research using EDE-Q found 25.8% of participants in the risk category (Racine et al. 2022), while another using the same scale indicated a 2.7% ED prevalence (Quittkat et al. 2020). A longitudinal study in Italy, comparing scores on EAT-26 before (October 2019) and after (April 2020) the pandemic among adolescents, emphasized an approximate increase of 5% (Cerniglia and Cimino 2023). Similar trends were observed in a study including U.S. college students comparing data between January 2019 and May 2021 (Romano et al. 2023). In this comprehensive study engaging nearly a quarter-million participants deduced that the pandemic marginally elevated the risk of ED symptoms by approximately 7% but didn't significantly affect lifetime ED diagnosis rates. Although these increases are supported by systematic review studies, caution is advised when interpreting the results, especially due to the potential biases introduced using self-report inventories (Güzel et al. 2023).

In parallel research conducted in Norway, a two-tier approach like our study was employed to scrutinize ED diagnoses during the pandemic (Dahlgren et al. 2023). In this adolescent-focused study, 99 individuals who scored above the cutoff point in EDE-Q underwent EDA-5 interviews. The findings revealed a DSM-5 ED prevalence of 9.5%, with the female subgroup recording a 16.4% rate. Subtype analysis indicated AN at 2.7%, BN at 1.1%, BED at 1.9%, and other identified EDs at 10.7%. When compared with the findings of our study, the variance in prevalence rates and subtypes may be attributed to various reasons. The younger demographic in the Norwegian study potentially contributes to the disparity in ED prevalence and subtypes. Another determinant is the portion of high-risk individuals participating in the second phase; a more inclusive interview process might have augmented the diagnostic rates. Furthermore, the timing of data collection with the pandemic phase is important; our study unfolded during a normalization phase with more accessible vaccines and healthcare, in contrast to earlier pandemic stages marked by lockdowns and heightened anxiety, which possibly inflated ED rates (Tavolacci et al. 2021, Romano et al. 2023). These insights reinforce the criticality of conducting ED screenings during stressful periods like pandemics, highlighting the complex interplay of environmental stressors, and demographic characteristics in shaping ED.

Health data evaluations and hospital admission records during the pandemic period underscore an escalation in the prevalence of EDs. As per electronic health records, substantial disparities in ED prevalence have been documented between the past decade and the year 2021 (Taquet et al. 2021). A Japanese study supported these findings, evidencing a marked increase in hospital admissions of ED patients from the onset of the pandemic to a year thereafter (Kurisu et al. 2022). Similarly, a 1% rise in ED diagnoses in pediatric clinic admissions has been reported in Turkey (Akgül et al. 2023). Notably, there's been an upward trend in adolescent and male admissions, particularly indicating a heightened risk of AN in children (Herpertz-Dahlmann et al. 2022, Schreyer et al. 2023). Beyond hospital admissions, a concurrent uptick in ED symptoms as well as depressive and anxiety symptoms has been noted among individuals with various ED diagnoses (Devoe et al. 2022). These observations infer that the pandemic's repercussions on EDs may diverge based on individual characteristics.

Despite the variability in prevalence studies stemming from distinct sample demographics, measurement tools, and methodologies, a general trend toward an increased frequency of EDs during the pandemic emerges. This aligns with the findings of the current research, indicating that the pandemic has created a risk that leads to an increase in the frequency of EDs in our country. The detrimental impact of the pandemic on ED symptoms is recognized as multi-dimensional and complex, catalyzed by escalated stress due to restricted social activities, heightened levels of depression and anxiety, compromised general psychological well-being, and alterations in physical and nutritional routines (Haghshomar et al. 2022, Herpertz-Dahlmann et al. 2022). For those diagnosed with EDs, the challenge of accessing treatment and the adverse influence of media serve as exacerbating factors (Devoe et al. 2022). A qualitative study investigating the experiences of women diagnosed with AN during the pandemic underscored that while social media wasn't universally detrimental, an increased focus on body checking, a preoccupation with cooking recipes, and family conflicts intensified symptoms (Gilsbach and Herpertz-Dahlmann 2023). Although the pandemic's negative imprint on ED symptoms may wane over time, some longitudinal studies report enduring effects a year later (Termorshuizen et al. 2023). This indicates that the pandemic poses a serious risk for ED symptoms and can have long-lasting effects, highlighting the role of

stress in understanding the etiology of EDs and the importance of screening at-risk groups and implementing preventive and, where necessary, therapeutic interventions online (Monteleone 2021).

In terms of clinical outcomes, this research posits that clinicians can expedite the diagnostic process, particularly during ED assessments, through online tools. The EDA-5 facilitates a comprehensive evaluation of various ED clusters in alignment with DSM-5 criteria within a constrained timeframe. The capacity to conduct assessments via online interviews is also perceived as beneficial. Furthermore, the EAT-26 and EDE-Q scales are functional in screening ED symptoms and identifying individuals at risk. Routine screenings, particularly during adolescence, are deemed crucial from a preventive mental health standpoint. Nevertheless, these measures necessitate a preliminary enhancement of clinicians' awareness and understanding of ED prevalence, risk factors, and assessment modalities. The study's outcomes highlight the criticality of stress in the etiology of EDs, suggesting that interventions focusing on stress management in both assessment and treatment might yield favorable outcomes.

This study adopted a two-phase system, not solely dependent on self-reported scales but also incorporating the identification of a risk group and subsequent diagnosis through clinical interviews during the pandemic. While the findings enrich the literature by elucidating the relationship between weight change and eating behavior, as well as the frequency of EDs during the pandemic, they must be evaluated within the context of certain limitations. Firstly, the inability to reach the targeted number of participants and the fact that nearly two-thirds of the participants in the risk group refused to participate in the clinical interview create significant limitations for the generalizability of the research results. Additionally, the low number of male participants in the sample limits the ability to make gender-based comparisons. Online data collection due to pandemic conditions and the nature of self-report scales inherently carries the risk of incomplete or incorrect information. Data collection towards the end of the normalization period also complicates inferences about how eating problems progressed during the early stages of the pandemic, especially during lockdowns. Lastly, the use of a cross-sectional design in the research does not allow for causal inferences about the relationship between variables.

Conclusion

The findings of this study underscore the escalation of eating disorders during the pandemic period. The research findings highlight the need to increase awareness about eating disorders, intensify screenings in at-risk groups, and expand preventive, protective, and therapeutic interventions. Future research endeavors should aim to encompass a broader spectrum of demographic variables, such as age and gender, to yield a more holistic understanding of eating disorder prevalence across diverse populations. Further, enhancing the scope and depth of screening methodologies and integrating comprehensive diagnostic evaluations through clinical interviews will substantially enrich our understanding of these conditions. Longitudinal studies, with a focus on identifying predictive factors of eating disorders, hold the potential to significantly refine prevention strategies targeted at high-risk groups by focusing on specific, impactful variables.

Moreover, the advancement of research incorporating clinical samples and focusing on additional factors correlated with patients' symptoms and treatment prognosis will provide valuable insights. The collective insights gained from these investigative efforts will be instrumental in shaping targeted, effective strategies for the management and treatment of eating disorders, ultimately leading to improved outcomes for those affected by these challenging conditions

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