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Exploring the interplay between social media addiction, mindful eating, intuitive eating, orthorexia nervosa, and mental health in young adults

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ABSTRACT

Background: Considering the reported negative effects of social media on mental health and the popularity of healthy eating movements on these platforms, a potential relationship between orthorexia nervosa (ON), intuitive eating, mindful eating, and social media addiction warrants investigation. **Aims**: This study aimed to explore the complex relationship between social media addiction, mindful eating, intuitive eating, ON, depression, anxiety, and stress in young adults. **Subjects and Methods:** A cross-sectional study was conducted on 303 students, in Istanbul, Türkiye, between December 2023 and May 2024. Participants completed an online questionnaire assessing demographic characteristics, Orthorexia Nervosa Questionnaire (ORTO-11), Intuitive Eating Scale – 2nd edition (IES-2), Mindful Eating Questionnaire (MEQ), Depression, Anxiety, Stress Scale-Short Form (DASS-21), and Social Media Addiction Scale (SMAS). Body weight and height information were self-reported. Data were analyzed using SPSS 24.0. **Results**: Of the participants, 67.7% were at risk of ON. According to ON classification, IES-2 and SMAS scores of participants with the risk of ON were higher and statistically significantly different compared to the participants with no risk of ON ($p < 0.001$, and $p = 0.047$, respectively). The ORTO-11 showed a positive moderate correlation with IES-2 scores ($r = 0.401$, $p < 0.01$), however, it showed a negative weak correlation with MEQ ($r = -0.362$, $p < 0.01$). Additionally, there was a negative weak correlation with ORTO-11 and SMAS ($r = -0.104$, $p < 0.05$). Logistic regression analysis revealed that all predictors were associated with the risk of ON. These variables predicted 13% of the variance. **Conclusion**: The results suggest that modern social media may contribute to orthorexic symptoms, mindful and intuitive eating behaviors, and mental health outcomes.

Keywords: intuitive eating, mindful eating, orthorexia nervosa, social media addiction.

ARTICLE INFORMATION

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1 Introduction

Social media platforms have become integral to contemporary communication, facilitating the exchange of information, messages, videos, and images can be sent and received, produced, or shared (Ahmed et al., 2019). With over 5 billion users worldwide, representing 62.6% of the global population, social media has become a ubiquitous tool (Kepios, 2024). Especially among young people, social media is frequently preferred for socializing, entertainment,

communication, and staying updated on current events (Çömlekçi & Başol, 2019). While social media offers numerous benefits, including facilitating communication with family and friends, simplifying daily tasks through applications such as: language translation tools, artificial intelligence, etc., reducing social isolation, aiding, learning, increasing self-expression and a sense of freedom, supporting creative thinking and strengthening civic engagement (Galea et al., 2024), it also presents significant risks. Threats, harassment, and cyberbullying prevalent on the internet, can contribute to depression, anxiety, self-harm, and social isolation, especially among adolescents (Elsayed, 2021). The relationship between depression, anxiety, and social media has been well-documented in recent research (Cunningham et al., 2021; Primack et al., 2021). Excessive social media use, characterized by high intensity, and misuse has been associated with depression. Beyond psychological disorders, social media can also negatively influence dietary habits (Purba et al., 2023). This risk is particularly increased in individuals with low food literacy. Studies have demonstrated that individuals with negative eating behaviors tend to follow nutrition-related topics more frequently on social media (Sipahi & Demirel, 2021).

Orthorexia nervosa (ON) is a recently proposed eating disorder that is characterized by an excessive preoccupation with healthy eating and the control of calories (Scarff, 2017). Prevalence rates for ON remain higher compared to other eating disorders varying between 6.9% and 88% across studies (Niedzielski & Kaźmierczak-Wojtaś, 2021; Oberle et al., 2021). Eating disorders, including ON, can have significant negative consequences for mental health, often manifesting in combination with depression, anxiety, and stress (Awad et al., 2021). Individuals with distorted perceptions of body image struggle with low self-esteem (Costandache et al., 2023). ON intensifies these feelings through strict dietary rules and anxiety about deviating from self-imposed norms (Scarff, 2017). Addressing ON requires a holistic approach that addresses both the behavioral and emotional aspects (Strahler et al., 2018). It is important to highlight the correlation between ON and various symptoms of disordered eating, including restraint, preoccupations with body weight, and disordered attitudes (Missbach et al., 2015; Mitrofanova et al., 2021). Disordered attitudes include a range of unhealthy behaviors such as dieting to maintain weight and severe food restrictions (Hobart & Smucker, 2000).

Psychology and nutrition intersect in the concept of mindfulness and mindful eating (ME). ME promotes conscious, non-judgmental awareness of eating habits, focusing on savoring each bite and understanding the body's cues and needs (Monroe, 2015). Mindful eating can help alleviate the complex psychological distress of orthorexia and the negative effects of social media by promoting self-awareness and a non-reactive attitude towards food (Christodoulou et al., 2024). Intuitive eating (IE) is another popular dietary approach that emphasizes healthy eating, mindful eating, body acceptance, and self-compassion, promoting enjoyment of food without dieting or attaching moral values to food or eating behaviors (Tylka & Kroon Van Diest, 2013). The primary goal of intuitive eating is to develop an inner awareness of hunger and satiety cues by being aware of the body's signals about eating and trusting them (Warren et al., 2017). In essence, the IE approach is centered on attuning to the body's intrinsic hunger and satiety signals, fostering a balanced relationship with food by rejecting restrictive dietary norms and embracing a diverse range of foods without guilt. In contrast, the ME methodology prioritizes the act of being fully present during a meal, increasing awareness of the sensory experience and emotions associated with food, and encouraging a more conscious and intentional approach to eating. The periodic emergence of various dietary trends on social media may influence users to adjust their dietary intake. This is particularly concerning for individuals at risk for eating disorders, as dietary information shared on social media can have a negative impact.

The relationship between ON and social media use is unclear. However, considering the reported negative effects of social media on mental health and the increasing popularity of the healthy eating movement on these platforms, a relationship between ON, intuitive eating, mindful eating, and social media addiction warrants investigation. This study aimed to explore this complex relationship between social media addiction, mindful eating, intuitive eating, ON, depression, anxiety, and stress in young adults.

2 Subjects and Methods

2.1 Study design and population

This descriptive cross-sectional study was conducted among university students in Istanbul, Türkiye, between December 2023 and May 2024. A power analysis was performed to determine the sample size, with a calculated prevalence of 20%, a type 1 error rate (α) of 0.05, a type 2 error rate (β) of 0.20, and a test power of 1- β = 0.80. Based on these parameters, the total number of participants was determined to be 156.

Exclusion criteria included regular use of any supplements or medication (antidepressants, antihypertensives, antimicrobials, painkillers), presence of conditions affecting appetite, chronic or systemic illness, psychiatric illness, eating behavior therapy, and pregnancy or lactation.

Participants completed an online questionnaire assessing demographic characteristics (sex, age, chronic disease,

physical activity status, dietary habits, etc.), Intuitive Eating Scale – 2nd edition (IES-2), Mindful Eating Questionnaire (MEQ), Depression, Anxiety, Stress Scale-Short Form (DASS-21), and Social Media Addiction Scale was performed. In addition, self-reported body weight (kg) and height (cm) were used to calculate BMI using the formula: weight (kg)/height (m)*height(m).

The study adhered to the principles outlined in the Declaration of Helsinki. Ethical Approval was obtained from the Istanbul Gelisim University Ethics Committee (Approval number: 2023-09, date: 20.11.2023). All participants provided written and verbal informed consent prior to their involvement in the study.

2.2 Orthorexia nervosa questionnaire (ORTO-11)

The ORTO-11 scale, initially developed by Donini et al. (2004) based on Bratman's test in Italy, was originally designated as ORTO-15. Arusoğlu et al. (2008) established the Turkish validity and reliability of ORTO-11. The Likert-4 type scale comprises 11 questions assesses respondents' behaviors related to the selection, purchase, and preparation of food, as well as respondent behavior with regard to the consumption of food that has been evaluated as "healthy". Responses are scored on a 4-point scale ("never," "sometimes," "often," or "always"), with a total score of less than 24 indicating a risk of orthorexia nervosa (ON), while a score of 24 or above suggests no risk (Arusoğlu et al., 2008). The Cronbach alpha value for this study was found to be 0.794.

2.3 Intuitive eating scale – 2nd edition (IES-2)

The IES-2 was developed by Tylka & Kroon Van Diest (2013) as a means of measuring individuals' tendency to follow their physical hunger and satiety cues when making decisions regarding the timing, quantity, and composition of their food intake. Bas et al. (2017) established the validity and reliability study of the Turkish version of IES-2. IES-2 comprises 23 items and four sub-scales: Unconditional Permission to Eat (6 items), Eating for Physical rather than Emotional Reasons (8 items), Reliance on Hunger and Satiety Cues (6 items), and Body-Food Choice Congruence (3 items). Items are rated on a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Items 1, 2, 3, 6, 7, 8, and 9 are reverse scored. The higher the score on the scale, the higher the level of intuitive eating behavior. The Cronbach alpha value for this study was found to be 0.919.

2.4 Mindful eating questionnaire (MEQ)

The MEQ was developed by Framson et al (2009) with the objective of investigating the processes underlying eating behavior, rather than the specific foods consumed. Köse et al (2016) examined the validity and reliability of the Turkish version of the MEQ. This Likert-5 type scale (1: never, 2: rarely, 3: sometimes, 4: often, 5: always) contains 30 questions and 7 subscales: Eating without Thinking, Emotional Eating, Eating Control, Awareness, Eating Discipline, Conscious Nutrition, and Interference. Items 1, 7, 9, 11, 13, 15, 18, 24, 25, and 27 on the scale are scored in a direct manner, whereas the remaining questions are scored in reverse. The higher the score on the scale, the greater the level of eating awareness. The Cronbach alpha value for this study was found to be 0.897.

2.5 Depression, anxiety, and stress scale short form (DASS-21)

To assess symptoms of depression, anxiety, and stress, participants completed the Depression, Anxiety, and Stress Scale Short Form (DASS-21), originally developed by Lovibond (1995). The validity and reliability of the Turkish version of the DASS-21 were examined by Sariçam (2018). The DASS-21 is a self-report questionnaire consisting of three subscales: depression, anxiety, and stress. Each subscale includes seven items designed to measure negative emotional states. Respondents rate each item on a 4-point Likert-type scale. The total score for each subscale is calculated by multiplying the sum of item scores by 2 and then interpreting the result according to a severity rating index (Lovibond, 1995). The severity rating index for depression is as follows: 0 – 4 = normal, 5 – 6 = mild depression, 7 – 10= moderate depression, 11 – 13 = severe depression, and >13 = very severe depression. For anxiety, the corresponding scores are: 0 – 3 = normal, 4 – 5 = mild anxiety, 6 – 7= moderate anxiety, 8 – 9 = severe anxiety, and > 9 = very severe anxiety. Lastly, for stress, the scores are: 0 – 7 = normal, 8 – 9 = mild stress, 10 – 12 = moderate stress, 13 – 16 = severe stress, and > 16 = very severe stress. The Cronbach alpha value for this study was 0.939.

2.6 Social media addiction scale (SMAS)

The Social Media Addiction Scale (SMAS) is a five-point Likert scale designed to assess the degree to which university students are addicted to social media. It comprises 41 items in total (Tutgun-Ünal & Deniz, 2015). The items in the scale are rated as "1" never, "2" rarely, "3" sometimes, "4" frequently and "5" always. The SMAS yields a total score ranging from 41 to 205. Based on these scores, social media addiction levels are categorized as follows: 41 – 73 indicates no addiction, 74 – 106 indicates slight addiction, 107 – 139

indicates moderate addiction, 140 – 172 indicates high addiction, and 173 – 205 indicates very high addiction. The Cronbach alpha value for this study was 0.979.

2.7 Statistical analysis

All statistical analyses were performed using SPSS Statistics 24.0 (Statistical Package for the Social Sciences, Inc.; Chicago, IL, United States). The distribution of variables was tested using the Kolmogorov-Smirnov test. Data are expressed as numbers or means (SD). Student's t-test was used to compare measured variables for those with normal distribution and the Mann-Whitney U test for those without normal distribution. Chi-squared test was used for categorical variables. A linear regression model was utilized to identify independent predictors of ORTO-11. For statistical testing, a p-value ≤ 0.05 was considered statistically significant.

3 Results

3.1 Characteristics of the study participants

A total of 303 students participated in the study. The mean age was 23.10 ± 4.31 years. A statistically significant difference in age was observed between sexes (p = 0.002). Regarding academic standing, 48.5% of the students were in the 4th year, 20.8% were in the 2nd year, 16.8% were in the third 3rd year, 11.9% were in the 1st year, and 2.0% were in the preparatory year. The majority of students reported no chronic diseases (78.2%) and did not engage in regular physical activity (73.6%). Mean body weight and BMI were 58.69 ± 10.45 kg and 21.91 ± 3.67 kg/m^2, respectively, for female students. For male students, these values were 76.84 ± 13.70 kg and 24.26 ± 3.37 kg/m^2 (Table 1).

Table 1. Demographic characteristics of students (n = 303)

Characteristics	Total (n=303)	Male (n=63)	Female (n=240)
Age (years) (mean ± SD)*	23.10 ± 4.31	24.82 ± 7.04	22.65 ± 3.10
Class year			
Prep year	6 (2.0)	2 (3.2)	4 (1.7)
1st	36 (11.9)	4 (6.3)	32 (13.3)
2nd	63 (20.8)	14 (22.2)	49 (20.4)
3rd	51 (16.8)	12 (19.0)	39 (16.3)
4th	147 (48.5)	31 (49.2)	116 (48.3)
Presence of a chronic disease			
Yes	66 (21.8)	12 (19.0)	54 (22.5)
No	237 (78.2)	51 (81.0)	186 (77.5)
Regular Physical activity			
Yes	80 (26.4)	22 (34.9)	58 (24.2)
No	223 (73.6)	41 (65.1)	182 (75.8)
Regular Sleep			
Yes	177 (58.4)	40 (63.5)	137 (57.1)
No	126 (41.6)	23 (36.5)	103 (42.9)
Height (cm)	166.51 ± 8.21	177.58 ± 6.45	163.61 ± 5.79
Body weight (kg)	62.46 ± 13.39	76.84 ± 13.70	58.69 ± 10.45
BMI (kg/m²)	22.40 ± 3.73	24.26 ± 3.37	21.91 ± 3.67

*p< 0.05, BMI: Body mass index

3.2 Relationship between orthorexia nervosa, mental health, intuitive eating, mindful eating, and social media addiction

Table 2 presents the relationship between ORTO-11 and measures of depression, stress, anxiety, IES-2, MEQ, and SMAS. Participants at risk of orthorexia nervosa, as classified by ORTO-11, exhibited significantly higher scores on the IES-2 and SMAS compared to those without risk (p < 0.001 and p = 0.047, respectively). Additionally, 31.7%, 29.8%, 6.8%, and 2.4% of individuals with ON risk were categorized as low, moderate, high, and extremely high in social media addicted, respectively (p = 0.024).

3.3 Correlation between ORTO-11, DASS-21, IES-2, MEQ-2, and SMAS

The SMAS exhibited a weak positive correlation with depression (r = 0.255), anxiety (r = 0.235), and IES-2 scores (r = 0.182). Conversely, it displayed a negative correlation with ORTO-11 (r = 0.104). Besides, a moderate correlation was observed between SMAS and stress (r = 0.308) and MEQ (r = 0.401). Moreover, ORTO-11 demonstrated a positive moderate correlation with IES-2 scores (r = 0.401), however, a negative moderate correlation with MEQ (r = -0.362) (Table 3).

3.4 Predictors of Orthorexia Nervosa

To identify the factors associated with ON, a logistic regression was performed. The results shown in Table 4 indicated that all predictors were significantly associated with the risk of ON. These variables collectively explained 13% of the variance.

4 Discussion

The significance of the present study lies in its contribution to understand the intricate relationship between ON, IE, ME, mental health, and social media addiction among university students in the digital age. Our findings highlight ON as a major concern among university students due to its prevalence and potential physical, psychological, and social consequences. Previous studies have reported varying prevalence rates of ON, ranging from 6.9% and 88% depending on the country and the diagnosis tool employed (Niedzielski & Kaźmierczak-Wojtaś, 2021; Oberle et al., 2021). Pökön et al. (2021) found that 63% of adult individuals in a non-obese Turkish population were at risk of ON. Certain demographic groups, such as students studying nutrition, sports sciences, or medicine, female students, individuals with higher BMI, and those dieting, are more likely to be at risk of ON (Parra-Fernández et al., 2018; Gramaglia et al., 2019).

Table 2. The relationship between ORTO-11 and DSAA-21, IES-2, MEQ, and SMAS

Parameters	No risk of ON (n= 98)	Risk of ON (n= 205)	Total (n= 303)	p-value
Total score of depression	6.90 ± 4.96	7.05 ± 4.78	7.00 ± 4.83	0.699
Total score of stress	8.13 ± 4.89	7.66 ± 4.74	7.81 ± 4.79	0.372
Total score of anxiety	6.89 ± 4.79	6.33 ± 4.51	6.51 ± 4.60	0.405
Total score of IES-2	2.58 ± 0.55	2.87 ± 0.63	2.67 ± 0.59	0.001**
Total score of MEQ	3.05 ± 0.85	3.01 ± 0.70	3.02 ± 0.75	0.452
Total score of SMAS	96.32 ± 34.37	106.38 ± 39.00	99.57 ± 36.17	0.047*
Depression classification	n (%)	n (%)	n (%)	
Normal (0-4. scores)	37 (37.8)	68 (33.2)	105 (34.7)	
Mild (5-6 scores)	6 (6.1)	26 (12.7)	32 (10.6)	
Moderate (7-10 scores)	37 (37.8)	66 (32.2)	103 (34.0)	0.363
Severe (11-13 scores)	8 (8.2)	23 (11.2)	31 (10.2)	
Extremely severe (>13 scores)	10 (10.2)	22 (10.7)	32 (10.6)	
Anxiety classification	n (%)	n (%)	n (%)	
Normal (0-3 scores)	29 (29.6)	65 (31.7)	94 (31.0)	
Mild (4-5 scores)	15 (15.3)	24 (11.7)	39 (12.9)	
Moderate (6-7 scores)	14 (14.3)	36 (17.6)	50 (16.5)	0.703
Severe (8-9 scores)	11 (11.2)	29 (14.1)	40 (13.2)	
Extremely severe (>9 scores)	29 (29.6)	51 (24.9)	80 (26.4)	
Stress classification	n (%)	n (%)	n (%)	
Normal (0-7 scores)	45 (45.9)	109 (53.2)	154 (50.8)	
Mild (8-9 scores)	19 (19.4)	33 (16.1)	52 (17.2)	
Moderate (10-12 scores)	15 (15.3)	29 (14.1)	44 (14.5)	0.804
Severe (13-15 scores)	13 (13.3)	25 (12.2)	38 (12.5)	
Extremely severe (>16 scores)	6 (6.1)	9 (4.4)	15 (5.0)	
SMAS classification	n (%)	n (%)	n (%)	
Not addictive (41-73 scores)	18 (18.4)	60 (29.3)	78 (25.7)	
Less addictive (74-106 scores)	37 (37.8)	65 (31.7)	102 (33.7)	
Moderately addictive (107-139 scores)	23 (23.5)	61 (29.8)	84 (27.7)	0.024*
Highly addictive (140-172 scores)	14 (14.3)	14 (6.8)	28 (9.2)	
Very highly addictive (173-205 scores)	6 (6.1)	5 (2.4)	11 (3.6)	

*p< 0.05, **p< 0.001. IES-2: Intuitive eating scale, MEQ: Mindful eating questionnaire, SMAS: Social media addiction scale

Table 3. Correlation between ORTO-11 and depression, stress, anxiety, IES-2, MEQ, and social media addiction scores

	SMAS	Depression	Stress	Anxiety	IES-2	MEQ	ORTO-11
SMAS	-	0.255**	0.308**	0.235**	0.182**	0.401**	-0.104*
Depression	-	-	0.746**	0.723**	0.045	0.172*	-0.043
Stress	-	-	-	0.746**	0.053	0.221**	-0.112
Anxiety	-	-	-	-	-0.017	0.177*	-0.102
IES-2	-	-	-	-	-	0.331**	0.401**
MEQ	-	-	-	-	-	-	-0.362**

*p< 0.05, **p< 0.001. IES-2: Intuitive eating scale, MEQ: Mindful eating questionnaire, SMAS: Social media addiction scale

Furthermore, it is crucial to note that ON may have a substantial negative impact on an individual's mental health, social functioning, and eating habits (Horovitz & Argyrides, 2023). The present study found that more than two-thirds of university students were identified as being at risk of ON.

Notably, a positive moderate correlation was observed between the risk of ON and IE, while a moderate negative correlation was found with ME. ON is an eating disorder characterized by an obsessive preoccupation with strict dietary patterns and a fear of unhealthy foods. In contrast, IE is an approach that promotes reliance on the body's natural hunger and satiety cues to guide eating behavior. This method encourages individuals to prioritize their own needs and feelings over restrictive diets and food regulations (Rodgers et al., 2021). Individuals with ON are highly selective about their dietary choices. While this approach may superficially resemble some intuitive eating principles, there are fundamental differences. Both approaches consider the health effects of food. However, IE promotes a relaxed and flexible relationship with food, whereas individuals with ON adhere to rigid rules in their food choices (Thorne et al., 2022).

Table 4. Predictors of ON using the regression analysis

	Unstandardized coefficients		Standardized coefficients						
	B	SE	Beta	t	Sig	F	Sig	R	R squared effect size
1 (constant)	20.314	2.555		7.952	< 0.001**	3.154	0.044*	0.144	0.014
Age	0.162	0.077	0.122	2.093	0.037*				
Sex	1.466	0.820	0.104	1.878	0.075				
2 (constant)	23.639	2.790		8.473	< 0.001**	4.778	0.003*	0.214	0.036
Age	0.160	0.076	0.121	2.096	0.037*				
Sex	1.663	0.814	0.118	2.043	0.042*				
IES-2	-1.202	0.428	-0.159	-2.808	0.005*				
3 (constant)	32.265	3.027		10.660	< 0.001**	12.590	< 0.001**	0.380	0.133
Age	0.063	0.074	0.048	0.847	0.398				
Sex	1.575	0.772	0.112	2.041	0.042*				
IES-2	-0.359	0.431	-0.048	-0.833	0.405				
MEQ	-3.277	0.559	-0.342	-5.867	< 0.001**				
4 (constant)	32.337	3.070		10.533	< 0.001**	10.044	< 0.001**	0.380	0.130
Age	0.062	0.075	0.047	0.838	0.402				
Sex	1.564	0.777	0.111	2.013	0.045*				
IES-2	-0.355	0.433	-0.047	-0.820	0.413				
MEQ	-3.245	0.598	-0.339	-5.423	< 0.001**				
SMAS	-0.001	0.009	-0.009	-0.149	0.882				

IES-2: Intuitive eating scale, MEQ: Mindful eating questionnaire, SMAS: Social media addiction scale *p < 0.05, **p < 0.001. [a] Predictors (Constant), Sex, age. [b] Predictors (Constant), Sex, age, IES-2. [c] Predictors (Constant), Sex, age, IES-2, MEQ. [d] Predictors (Constant), Sex, age, IES-2, MEQ, social media. Dependent variable: ORTO-11

However, the relationship between ON and IE is complex. Some studies suggest an inverse relationship between ON and IE with lower levels of positive eating attitudes (Anastasiades & Argyrides, 2022; Babbott et al., 2022; Koçyiğit et al., 2022; Rodgers et al., 2021). In the present study, the observed positive correlation between the risk of ON and IE may be attributed to individuals with ON misinterpreting the principles of intuitive eating or transitioning to this approach. Specific contextual factors and associations have been identified for this positive correlation, such as mid-range levels of ON symptoms in men being associated with higher levels of IE. Furthermore, healthy orthorexia has been characterized by elevated levels of IE (Anastasiades & Argyrides, 2022; Rodgers et al., 2021).

Mindful eating is a strategy that encourages a healthy relationship with food. It involves being aware of hunger and fullness cues, savoring food, and minimizing emotional eating. However, the relationship between ON and ME is complex. Both concepts are concerned with eating behavior and differ in their underlying philosophies. Whereas orthorexia is characterized by rigidity, fear, and negative psychological effects, ME promotes flexibility, enjoyment, and psychological well-being. Studies have found that ON symptoms are associated with lower levels of ME (Demirer & Yardımcı, 2024; Miley et al., 2022; Thorne et al., 2022). Similarly, the present study revealed a negative association between the risk of orthorexia nervosa and MEQ scores. This negative correlation may be mediated by factors such as guilt, shame, different eating patterns, and psychological outcomes, like increased anxiety, social isolation, and stress (Kalika et al., 2023; Thorne et al., 2022).

In addition to the previously mentioned factors, social media addiction may contribute to the development of ON in university students. This phenomenon can be attributed to the impact that social media has on body image perceptions, eating attitudes, social appearance anxiety, and behaviors related to food (Brytek-Matera et al., 2018). In light of these considerations, the current study sought to examine the relationship between ON risk and social media addiction. The findings indicate a weak negative correlation between the SMAS and ORTO-11. Similarly, Hamurcu & Yılmaz (2023) reported a negative correlation between the duration of social media use and ORTO-11 scores among Turkish nursing students. Nevertheless, a growing body of literature suggests that social media use is associated with an increase tendency to develop ON (Asil et al., 2023; Tarsitano et al., 2022; Yurtdaş-Depboylu et al., 2022). Discrepancies in correlation results may be attributed to factors such as sample size, population, and the proportion of individuals diagnosed with ON.

Another noteworthy finding of this study is the positive correlation between social media addiction and depression, stress, and anxiety. Several studies pointed out the close association between ON and mental health issues, particularly depression, stress, and anxiety. Individuals with mental health issues are more likely to exhibit orthorexic tendencies driven by fear, guilt, and isolation (Awad et al., 2021). Social media addiction has been associated to a range

of psychological issues, including the fear of missing out, social comparison, and the replacement of real-world interactions with online ones. These factors can negatively impact self-esteem, life satisfaction, and mental health by keeping users constantly engaged, potentially leading to addiction and compulsive use. It is becoming increasingly clear that social media addiction, which shares characteristics with other behavioral addictions, can have a detrimental impact on mental health. By modifying the brain's front striatal-limbic circuitry, social media use can contribute to the development of depression, stress, and anxiety (Nguyen et al., 2020; Zubair et al., 2023). A number of studies have similarly demonstrated a correlation between social media addiction and an increased likelihood of depression, anxiety, and depression among various demographic groups (Malaeb et al., 2021; Nguyen et al., 2020; Şentürk et al., 2021).

This study has both strengths and limitations. Firstly, questionnaire forms were employed to assess the risk of ON, social media addiction, intuitive eating, and mindful eating, instead of a clinical interview. Secondly, the current findings are based on correlational research and not establish causal inferences. The cross-sectional design of the study prevents the establishment of a direct cause-effect relationship. Thirdly, the data were collected from university students, with a majority being female (79.2%). Therefore, the results cannot be generalized. Despite these limitations, the study has several strengths. To the best of our knowledge, this is the first study to evaluate the relationship between orthorexia nervosa, depression, anxiety, stress, intuitive eating, mindful eating, and social media addiction in university students. To assess these relationships, we employed valid and reliable scales and questionnaires.

5 Conclusion

The results of this study showed that social media addiction, in conjunction with the risk of orthorexia nervosa, may trigger anxiety, stress, and depression. It is recommended to address these issues through healthy diets, awareness, a positive attitude towards food, and reducing social media usage.

While the present study revealed these issues among university students, future research should focus on these in diverse groups, including children, adolescents, adults, and elderly. Additionally, future studies should address the determination of nutritional status.

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