THE TURKISH JOURNAL ON ADDICTIONS

www.addicta.com.tr

ORIGINAL ARTICLE

Social Media Addiction and Adolescents: Relationship Between Social Media and Eating Behaviors During Pandemic

Damla Gümüş, Sümeyra Sevim, Mevlüde Kızıl

Department of Nutrition and Dietetics, Hacettepe University Faculty of Health Sciences, Ankara, Türkiye

ORCID iDs of the authors: D.G. 0000-0002-3099-3432, S.S. 0000-0001-9724-2628, M.K. 0000-0003-1380-3243.

Main Points

- Social media (SM) addiction levels of adolescents did not differ between genders.
- Daily SM usage was 2.9 ± 2.2 and 3.2 ± 2.3 hours for boys and girls, respectively.
- Emotional, external, and restrained eating behaviors were higher in girls.
- The SM addiction in adolescents was positively correlated with Dutch Eating Behavior Questionnaire, emotional eating, and external eating behaviors.

ABSTRACT

The present study aimed to investigate the links between internet and social media usage, social media addiction, and eating behaviors of adolescents during coronavirus disease 2019 pandemic in Türkiye. A total number of 346 adolescents (243 girls and 103 boys) participated in the study. Daily internet, social media, and social media tools usage (h/day) were questioned. Participants completed the Social Media Addiction Scale for Adolescents for measurement of social media addiction and the Dutch Eating Behavior Questionnaire for investigation of eating behaviors. Daily internet and social media usage were found to be 6.1 ± 3.2 and 2.9 ± 2.2 hours, respectively, for boys and 6.0 ± 3.1 and 3.2 ± 2.3 hours, respectively, for girls. Social media addiction levels did not differ between genders, whereas the Dutch Eating Behavior Questionnaire and its subscales (emotional, external, and restrained eating) were statistically higher in girls ($p < .001$). The Social Media Addiction Scale for Adolescents was positively correlated with daily internet and social media usage duration, Dutch Eating Behavior Questionnaire, emotional eating, and external eating. Considering the potential interactions between social media and eating behavior, it is necessary to develop effective interventions regarding adolescents' social media usage, eating behaviors, and attitudes.

Keywords: Adolescents, COVID-19, eating behavior, social media, social media addiction

Corresponding Author:
Mevlüde Kızıl
E-mail:
mkizil@hacettepe.edu.tr

Received: October 31, 2022
Accepted: January 6, 2023
Publication Date: March 15, 2023

Introduction

Excessive and uncontrolled use of social media (SM) has been explained by general addiction models and extreme interest in SM, acting with an uncontrollable motivation to log in or use SM. Spending excessive time on SM is defined as "SM addiction" (Schou Andreassen & Pallesen, 2014). The SM addiction is also called SM disorder, excessive SM use, problematic SM use, and compulsive SM use. Uncontrolled use of SM is thought to have negative interactions with depression, anxiety disorder, loneliness, well-being, self-esteem, and self-control (Kuss et al., 2014). Overuse of SM might affect the social functioning of the individuals, and it might be associated with a decrease in psychological well-being (Andreassen et al., 2016). Since adolescents show increasing social interactions, raised awareness of social norms, and desire for social approval, they undergo more significant social influence than other age groups. The SM addiction has been found to be more common in adolescents and young adults than in adults (Kuss et al., 2014).

Eating disorders are characterized by dietary restriction, obsessive thoughts about foods and

Cite this article as: Gümüş, D., Sevim, S., & Kızıl, M. (2023). Social media addiction and adolescents: Relationship between social media and eating behaviors during pandemic. *Addicta: The Turkish Journal on Addictions*, *10*(1), 59-66.

body weight, compensatory exercise, and psychological problems (Culbert et al., 2015). Previous studies have reported that exposure to diet and exercise-focused SM accounts was associated with the risk of eating behavior disorders, including orthorexia and bulimia nervosa (Cohen et al., 2017; Holland & Tiggemann, 2017). A recent meta-analysis which included 10 studies examining the relationship between the internet and SM usage and eating disorders revealed a significant relationship between problematic internet usage and anorexia nervosa, bulimia nervosa, binge eating disorder, loss of eating control, and diet restriction in young people. Furthermore, problematic internet usage was reported as a determinant of eating disorders (Hinojo-Lucena et al., 2019).

The use of SM might cause a risk in terms of certain attitudes and behaviors that can affect nutrition and health status, especially in adolescents. Adolescents might become vulnerable in terms of body image, nutritional status, and eating behaviors. As a result, they might develop undesirable behaviors such as meal skipping, diet restriction, and eating disorders (Uzunian & Vitalle, 2015). Wilksch et al. (2020) reported that image-oriented SM tools were associated with increased eating disorders at younger ages.

Internet and SM addiction are considered one of the current challenges of society. In particular, during the coronavirus disease 2019 (COVID-19) pandemic, there has been an increase in the use of SM and general online platforms accessed by adolescents worldwide due to the pandemic restrictions and quarantines (Muzi et al., 2021; Paschke et al., 2021). In a previous study, problematic SM use during the pandemic was associated with binge eating and emotional – behavioral problems among Italian adolescents (Muzi et al., 2021). It is crucial to examine the relationship between internet and SM usage and adolescents' eating behavior and to work on the development of necessary precautions and recommendations regarding the issue. Therefore, this study aimed to examine the relationship between adolescents' internet and SM usage habits, SM addiction, and eating behaviors (for blindless) during the COVID-19 pandemic.

Methods

Study Design and Participants

The study sample comprised a representative sample of adolescents aged between the ages of 10 and 19 who volunteered to participate in the study. The type of the study was quantitative, descriptive, and cross-sectional. Parents' consent was taken for underage participants. Accordingly, individuals under 10 and over 19 years of age, unwilling to participate in the survey, and minors whose parents disapproved of participating were not included. An online questionnaire created via Google form which could be answered by smartphone or on a computer was used for the data collection during April – May 2021. Flyers containing information about the study and an invitation to participate in the study were distributed in schools in order to reach and contact the study sample. Participants who volunteered to participate in the study contacted the researchers via the contact information on the flyers for their further questions and/or agreement for their involvement. Parent and adolescent participation consent forms and the online questionnaire form were sent via e-mail. A total number of 376 participants participated in the study during the study period. However, due to the missing information of 30 participants, overall 346 participants' data were considered. Ethical approval for this study was obtained from Hacettepe University Ethics Committee (Protocol number: E-68552689-000-00001486686), and the study was conducted according to the Declaration of Helsinki.

Data Collection Tools and Evaluation of Data

A four-part online questionnaire form was sent to the participants via e-mail for the collection of the data. Sociodemographic characteristics (age, gender, class of education, etc.) of the participants were asked first, and secondly, eating habits and anthropometric measurement statements (Body weight and height). The third part of the questionnaire consisted of Dutch Eating Behavior Questionnaire (DEBQ), and the fourth part was about SM usage and addiction.

Social Media Usage and Social Media Addiction

Participants were asked to state their daily SM and internet usage (h/day). Moreover, the duration of SM tools usage, including visual content (YouTube, Instagram, Snapchat, Pinterest, TikTok, and Facebook) in a typical day, was questioned. The level of SM tools usage was categorized as none, moderate (0.1 – 5 hours), and high (+5 hours).

The Social Media Addiction Scale for Adolescents (SMASA), consisting of nine self-administered items, was used to determine the SM addiction levels. The validity and reliability of this scale were carried out by Özgenel et al. (2019). The scale is scored as a five-point Likert-type scale (1—Never, 2—Rarely, 3—Sometimes, 4—Very Often, 5—Always), and the total score is obtained by the sum of the scores corresponding to the answers given to each item. Getting a higher score on the scale indicates an increased SM addiction level; a lower score indicates a low level of SM addiction. The Cronbach's alpha value was found .878 which indicates high internal consistency for the scale.

Eating Behaviors

The eating behavior of the participants was evaluated by the DEBQ. The DEBQ, developed by Van Strien et al. (1986), is a 5-point Likert-type (1—Never, 2—Rarely, 3—Sometimes, 4—Frequent, 5—Very often) scale consisting of 33 questions. The instrument evaluates three eating styles of overeating: emotional eating (13 items; e.g., "Do you have a desire to eat when you are feeling lonely?"), external eating (10 items; e.g., "If food smells and looks good, do you eat more than usual?"), and dietary restraint (10 items, e.g., "If you have put on weight, do you eat less than you usually do?"). Higher total scores or scores of subscales indicate a negative situation related to eating behavior. The Turkish version validated by Bozan et al. (2011) was used in this study. The DEBQ produced excellent internal consistency in this study (α = .937). Cronbach's alphas were .915 for restrained eating, .962 for emotional eating, and .888 for external eating indicating high internal consistency.

Statistical Analysis

All data were analyzed using Statistical Package for Social Sciences version 27 (IBM Corp., Armonk, NY, USA). Descriptive statistics were calculated for all study participants. According to the Kolmogorov – Smirnov test, data were screened for normality, and it was found that all data were normally distributed. Pearson correlational coefficient assessed the relationship between SM usage duration, SMASA, DEBQ, and DEBQ

subscales. After checking the statistical assumptions for regression, multiple regression was also used to investigate the relationship between the SM usage duration, SMASA, and DEBQ. In this case, subscales of DEBQ were dependent variables and SM usage duration and SMASA were independent variables. The differences in restrained eating, emotional eating, and external eating according to the levels of the usage of different SM tools were analyzed by performing analysis of variance (ANOVA). Tukey's multiple comparison test determined the significance of the difference between groups. In the case of two groups according to the level of SM tools usage, the statistical evaluation was carried out with the *t*-test. *p* Values < .05 were considered statistically significant.

Results

The characteristics of the subjects are presented in Table 1. Of the participants, 29.8% were boys, and 70.2% were girls, with an average age of 15.5 ± 1.8 and 15.6 ± 1.5 years, respectively. Most participants (89.3%) were in high school. The girls' mean body mass index (BMI) was 21.6 ± 11.7 kg/m^2, and while most of the participants (67.1%) had normal BMI (18.5 – 24.9 kg/m^2), 1.6% were

Table 1.
Sample Characteristics by Gender (n = 346)

	Girls			**Boys**			
	Frequency (Percent)			**Frequency (Percent)**			
N	243 (70.2)			103 (29.8)			
Education							
Secondary	9 (3.7)			6 (5.8)			
High	218 (89.7)			91 (88.3)			
Dropped out	16 (6.6)			6 (5.8)			
BMI							
Underweight	62 (25.5)			16 (15.5)			
Normal	163 (67.1)			64 (62.1)			
Overweight	14 (5.8)			19 (18.4)			
Obese	4 (1.6)			4 (3.9)			
	Mean (SD)			Mean (SD)			*p**
Age	15.6 (1.5)			15.5 (1.8)			.782
Internet usage time (h/day)	6.0 (3.1)			6.1 (3.4)			.949
SM usage time (h/day)	3.2 (2.3)			2.9 (2.2)			.282
BMI	21.6 (11.7)			22.2 (4.0)			.630
SMASA	17.9 (7.2)			16.6 (7.4)			.137
DEBQ	79.8 (23.7)			62.8 (18.3)			**<.001**
Restrained eating	22.9 (9.3)			17.6 (7.3)			**<.001**
Emotional eating	29.4 (14.6)			21.7 (11.3)			**<.001**
External eating	30.1 (8.9)			25.3 (8.1)			**<.001**
	Levels of SM Tools Usage						
	Non	Moderate	High	Non	Moderate	High	
SM Tools	Frequency (Percent)			Frequency (Percent)			χ^2
YouTube	3 (2.9)	90 (87.4)	10 (9.7)	9 (3.7)	219 (90.1)	15 (6.2)	.486
Instagram	24 (23.3)	68 (66.0)	11 (10.7)	48 (19.8)	173 (71.2)	22 (9.1)	.633
Facebook	84 (81.6)	18 (17.5)	1 (1.0)	231 (95.1)	12 (4.9)	0 (0)	**<001**
Snapchat	75 (72.8)	27 (26.2)	1 (1.0)	99 (40.7)	140 (57.6)	4 (1.6)	**<.001**
Pinterest	92 (89.3)	10 (9.7)	1 (1.0)	151 (62.1)	92 (37.9)	0 (0)	**<.001**
TikTok	85 (82.5)	17 (16.5)	1 (1.0)	174 (71.6)	60 (24.7)	9 (3.7)	.074

Note: BMI = Body mass index; DEBQ = Dutch Eating Behavior Questionnaire; Freq = Frequency; SD = Standard deviation; SMASA = Social Media Addiction Scale for Adolescents.
*Significance values were calculated by *t*-test.
χ^2 Significance values were calculated by chi-square.
The bold indicates statistically significant values ($p < .05$).

obese. The boys' mean BMI was 22.2 ± 4.0 kg/m^2, whereas most of the participants (62.1%) had normal BMI (18.5 – 24.9 kg/m^2), 3.9% were obese.

Boys' mean internet usage duration (6.1 ± 3.2 hours) was higher than the girls' (6.0 ± 3.1 hours), whereas girls' mean SM usage duration (3.2 ± 2.3 hours) was higher than the boys' (2.9 ± 2.2 hours). However, these differences were not statistically significant ($p > .05$). Likewise, the girls' SMASA scores (17.9 ± 7.2) were higher than the boys' (16.6 ± 7.4) ($p > .05$). Notably, the girls' DEBQ and all three subscale scores were statistically higher than the boys' ($p < .001$). The levels of the usage of different SM tools are also given in Table 1. According to the participants' statements, girls frequently used YouTube, Instagram, Snapchat, Facebook, TikTok, and Pinterest, while boys frequently used YouTube, Instagram, Snapchat, Pinterest, TikTok, and Facebook.

Correlations between the study variables are shown in Table 2. Age and BMI were not significantly correlated with any variables in girls ($p > .05$). However, internet and SM usage time, and SMASA were positively correlated with each other and DEBQ, emotional eating, and esternal eating scores. Furthermore, moderate and high correlations were found between DEBQ and its subscales, apart from restrained – external eating. BMI was positively correlated with internet usage time ($r = .320$, $p < .01$) and restrained eating ($r = .289$, $p < .01$) in boys. In addition, while internet usage time was correlated with SM usage time, SMASA, and DEBQ, SM usage time was only correlated with SMASA in boys. Importantly, SMASA were moderately correlated with DEBQ ($r = .540$, $p < .01$), as well as weakly correlated with emotional ($r = .500$, $p < .01$) and external eating ($r = .417$, $p < .01$). Moreover, DEBQ was weakly correlated with restrained eating and highly correlated with other subscales in boys.

A multiple linear regression analysis was performed to evaluate whether the independent variables were predictors of DEBQ subscales by gender. Results suggested that SM usage time or SMASA did not significantly contribute to the model for restrained eating in both genders ($p > .05$). In the boys' sample, the predictor variables accounted for ~27% of the variance associated with the dependent variable ($R^2_{adjusted} = .274$) for emotional eating. Each predictor was then examined to determine whether it significantly contributed to the model (Table 3). Consequently, SM usage duration ($\beta = -.215$, $t = -2.32$, $p = .023$, $pr^2 = .05$) and SMASA ($\beta = .590$, $t = 6.35$, $p < .001$, $pr^2 = .29$) were found significantly contribute to the model in boys. Likewise, the predictor variables accounted for ~16% of the variance associated with the dependent variable ($R^2_{adjusted} = .159$) for external eating in boys. While SMASA ($\beta = .437$, $t = 4.374$, $p < .001$, $pr^2 = .16$) significantly contributed to the model, SM usage duration ($\beta = -.177$, $t = -0.483$, $p = .630$, $pr^2 = .002$) did not significantly contribute to the model in boys. For the girls' sample, the predictor variables accounted for ~10% of the variance associated with the dependent variable ($R^2_{adjusted} = .104$) for emotional eating. Similarly, the predictor variables accounted for ~16% of the variance associated with the dependent variable ($R^2_{adjusted} = .158$) for external eating. Unlike the SM usage time, SMASA significantly contributed to both models in girls (for emotional eating: $\beta = .305$, $t = 4.87$, $p < .001$, $pr^2 = .09$; for external eating: $\beta = .364$, $t = 5.99$, $p < .001$, $pr^2 = .13$).

The relationship between the levels of SM tools usage and DEBQ subscales was investigated using one-way ANOVA (see Figure 1 for boys and Figure 2 for girls). There was not any significant difference between the mean of restrained eating, emotional eating, and external eating by the level of accessing YouTube (Figure 1A), Instagram (Figure 1B), Facebook (Figure 1C), or TikTok (Figure 1F) in boys. However, a significant relationship was found in Snapchat and Pinterest, where Figure 1D and E shows that those spending more time on these SM tools had higher emotional eating scores ($p < .001$).

Unlike boys, a significant relationship was found for YouTube and Instagram in girls. Figure 2A and B shows those spending more time on these tools had higher emotional eating scores ($p = .016$ and $p = .033$, respectively) in girls. Snapchat was the only SM tool where a significant difference was found for external eating ($p = .026$).

Table 2.
Bivariate Correlations Between the Study Variables by Gender (Boys' data Below the Diagonal, and Girls' Data Above the Diagonal)

	Variables	1	2	3	4	5	6	7	8	9
1.	Age	–	.014	.053	−.066	.063	.009	−.061	.036	.020
2.	Internet usage time (h/day)	.052	–	.466**	.220**	.025	.200**	−.005	.164*	.258**
3.	SM usage time (h/day)	.141	.411**	–	.236**	.041	.189**	.045	.155*	.201**
4.	SMASA	−.084	.297**	.417**	–	−.034	.365**	.055	.324**	.391**
5.	BMI	.039	.320**	.158	.011	–	.076	.104	.061	−.001
6.	DEBQ	−.061	.255**	.120	.540**	.115	–	.512**	.892**	.701**
7.	Restrained eating	−.074	.091	.138	.140	.289**	.433**	–	.238**	.037
8.	Emotional eating	−.078	.185	.031	.500**	.059	.843**	.099	–	.498**
9.	External eating	.036	.263**	.134	.417**	−.042	.728**	.035	.435**	–

Note: BMI = Body mass index; DEBQ = Dutch Eating Behavior Questionnaire; SM = social media; SMASA = Social Media Addiction Scale for Adolescents. Correlations are Pearson's correlation coefficient.
*$P < .05$; Correlation is significant at the .05 level (2-tailed).
**$P < .01$;Correlation is significant at the .01 level (2-tailed).

Table 3.
Multiple Linear Regression Analyses for the Assessment of Predictors of DEBQ Subscales by Gender

	Variables	Categories	*B*	SE	*β*	*t*	*p*	95% CI		Adj. R^2	*F*	*p*
								Lower	Upper			
Boys	Restrained eating	Constant	15.0	1.8		8.3	<.001**	11.4	18.6	.008	1.405	.250
		SM usage time (h/day)	.317	.358	.096	.885	.378	−.393	1.027			
		SMASA	.099	.107	.100	.925	.357	−.113	.311			
	Emotional eating	Constant	9.983	2.397		4.165	<.001**	5.227	14.739	.274	20.252	<.001**
		SM usage time (h/day)	−1.105	.477	−.215	−2.318	.023*	−2.051	−.159			
		SMASA	.906	.143	.590	6.354	<.001**	.623	1.189			
	External eating	Constant	17.844	1.842		9.685	<.001**	14.189	21.499	.159	10.653	<.001**
		SM usage time (h/day)	−.177	.366	−.048	−.483	.630	−.904	.550			
		SMASA	.479	.110	.437	4.374	<.001**	.262	.697			
Girls	Restrained eating	Constant	21.3	1.68		12.7	<.001**	18.0	24.7	−.004	.501	.607
		SM usage time (h/day)	.138	.270	.034	.511	.610	−.394	.669			
		SMASA	.061	.085	.047	.716	.475	−.107	.229			
	Emotional eating	Constant	16.756	2.479		6.758	<.001**	11.872	21.640	.104	15.067	<.001**
		SM usage time (h/day)	.523	.397	.083	1.318	.189	−.259	1.305			
		SMASA	.611	.126	.305	4.867	<.001**	.364	.858			
	External eating	Constant	20.693	1.470		14.081	<.001**	17.798	23.587	.158	23.735	<.001**
		SM usage time (h/day)	.445	.235	.115	1.892	.060	−.018	.909			
		SMASA	.446	.074	.364	5.990	<.001**	.299	.592			

Note: β = standardized regression coefficient; B = unstandardized regression coefficient; CI = confidence intervals; DEBQ = Dutch Eating Behavior Questionnaire; SE = unstandardized standard error; SM = social media; SMASA = Social Media Addiction Scale for Adolescents; *t* = *t*-test value. *P<.05; **P<.001.

Discussion

This study was conducted to investigate the relationship between internet and SM usage, SM addiction, and eating behaviors of adolescents during pandemic. As a result of the measures and restrictions applied during the pandemic period, the daily usage of internet, screen time, and SM has increased with the transfer of various activities such as education and socialization to online environments (Fernandes et al., 2020). Studies conducted on other populations of the world also showed that SM usage increased compared to the pre-pandemic period (Fernandes et al., 2020; Lemenager et al., 2021). In the present study, participants' daily internet usage duration was found almost a quarter of the day. Likewise, in a previous study conducted on Turkish adolescents, the daily internet usage of half of the participants was found 6 hours and more during the pandemic (Sarıalioğlu et al., 2022). Moreover, the increased levels of internet usage by Turkish adolescents during the pandemic were found associated with COVID-19 anxiety (Güldal et al., 2022). Reasons for increased usage of the internet might be coping with the stress and anxiety during the pandemic (Gao et al., 2020).

The literature asserts that males and females engage with SM tools differently; therefore, effects of SM might differ between genders (Abolfathi et al., 2022; Serenko et al., 2021). Hence, the evaluations were applied by gender in the present study. The findings indicate that daily internet and SM usage and SM addiction did not differ between girls and boys, whereas DEBQ, emotional, restrained, and external eating behaviors were found significantly different. Likewise, previous reports showed that girls were more likely to adopt disordered eating among adolescents (Hautala et al., 2008; Kjelsås et al., 2004). Moreover, although some studies have shown that problematic SM use was more common in females than males, some reports stated no relation between gender and problematic SM usage similar to the present results (Andreassen et al., 2017; Gioia et al., 2020; Wu et al., 2013).

Researchers stated that the addictive and/or excessive use of online networks might pose health risks such as mental problems, addiction, and disorders (Al-Kandari & Al-Sejari, 2021; Cohen et al., 2018). In the present study, daily internet and SM usage and SM addiction were correlated with DEBQ, emotional eating, and external eating in girls, while SM addiction was correlated with DEBQ, emotional eating, and external eating

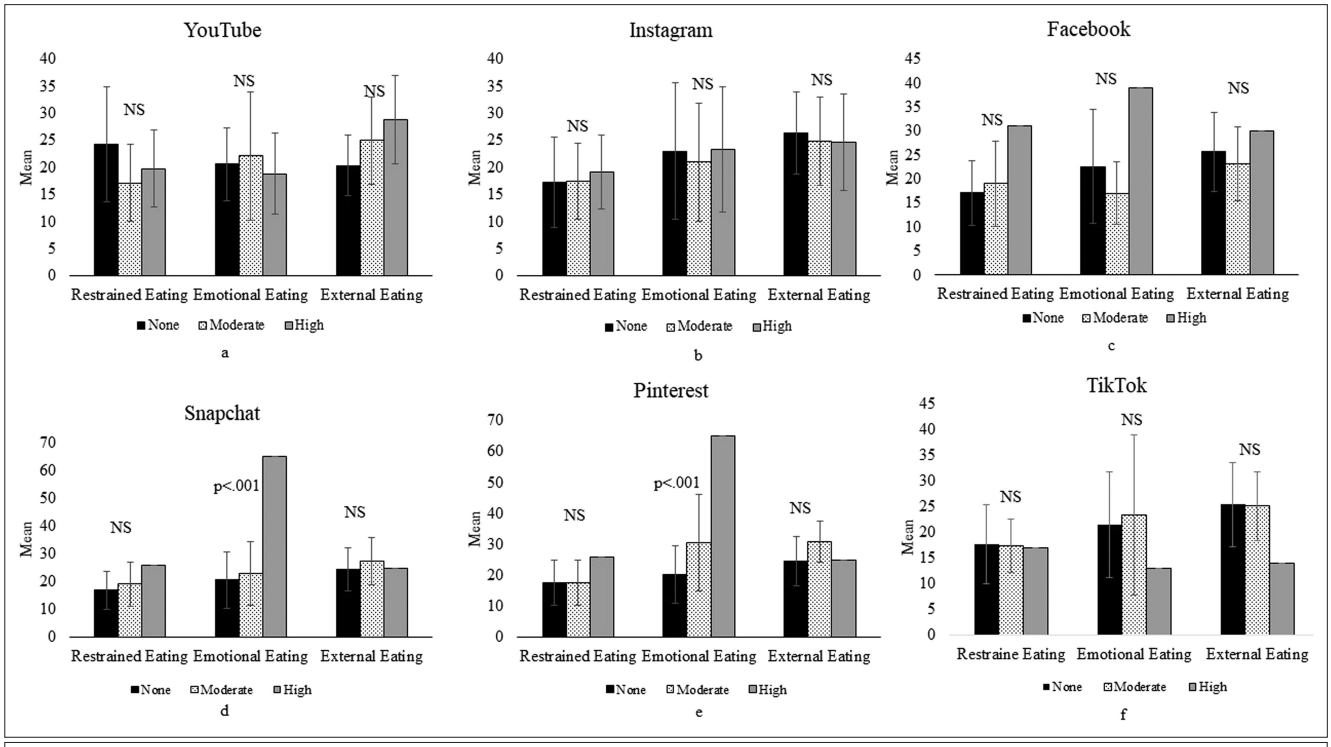

Figure 1. Restrained Eating, Emotional Eating, and External Eating Scores According to the Levels of Social Media (SM) Tools Usage Among Boys. None, Not Using this SM Tool; Moderate, Spending 0.1 – 5 h/day on this SM tool; and High, Spending +5 h/day on this SM Tool. NS = not significant ($p > .05$).

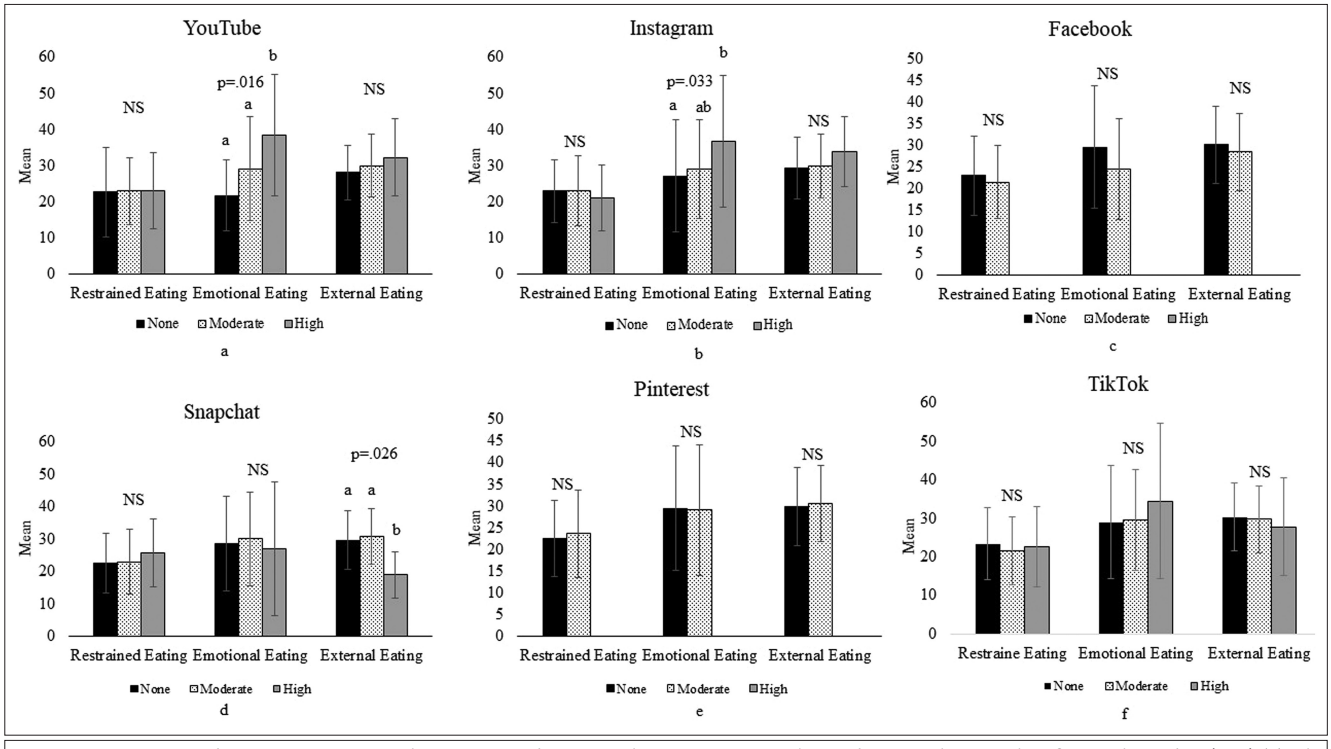

Figure 2. Restrained Eating, Emotional Eating, and External Eating Scores According to the Levels of Social Media (SM) Tools Usage Among Girls. NS = Not Significant ($p > .05$). None, Not Using this SM Tool; Moderate, Spending 0.1 – 5 h/day on this SM Tool; and High, Spending +5 h/day on this SM Tool. NS = Not Significant ($p > .05$).

in boys. Similarly, in a study investigating the effects of SM addiction during the pandemic period, SM addiction was found positively associated with emotional eating and external eating behaviors among young adults (Ayyıldız & Şahin, 2022). Findings of a previous study showed that weight and shape concerns of adolescents and young people in the United States might have increased due to the pandemic, and participants came across content about weight and shape on SM (Schmid et al., 2022). In another previous study conducted on adolescents, higher levels of engagement with SM were found as linked with image and eating concerns, and participants who share images on SM had higher scores for body-related and eating concerns (McLean et al., 2015). Adolescents generally begin to learn and make decisions about healthy behaviors for the first time in the puberty period (Tadena et al., 2020). They are considered in a sensitive period for shaping nutrition and eating behaviors (Szabo et al., 2019). Sampasa-Kanyinga et al. (2015) showed a relationship between SM use and an unhealthy diet in adolescents. Likewise, Baldwin et al. (2018) examined the effect of SM usage on food selection among adolescents aged 10 – 16 and found that adolescents with high online interaction with food and beverage advertisements had a higher tendency to consume unhealthy food and drink. Moreover, Rodgers et al. (2020) examined a biopsychosocial model of SM usage and body image concerns, irregular nutrition, and muscle-building behaviors in adolescents. They found that SM usage was moderately associated with greater internalization of external appearance ideals, external appearance comparison, dietary restriction, body dissatisfaction, and muscle-building behaviors (Rodgers et al., 2020).

Results of a recent review and meta-analysis study showed that different eating disorders were related to problematic internet usage and also problematic internet usage is a predictor of eating disorders in university students (Hinojo-Lucena et al., 2019). In the present study, SM usage time or SMASA did not significantly affect restrained eating among boys' and girls' samples. On the other hand, when SM usage time significantly negatively affected only emotional eating, SMASA positively predicted increases in emotional eating and external eating in boys. Furthermore, only SMASA positively predicted increases in emotional eating and external eating in girls. Even though girls had higher time spent on SM, it was not a predictor of problematic eating behaviors for girls. The present study confirmed the importance of the difference between SM usage time and problematic SM usage. Interestingly, although girls had a significantly higher mean of SMASA, DEBQ, and its subscale than boys, the tested model accounted for a higher percentage of variance among boys compared to girls.

Researchers have shown that greater internet and SM usage, particularly photograph-based tools, were associated with eating disorder behaviors. (Gioia et al., 2020; McLean et al., 2015). Therefore, the relationship between SM tools, which are image-based, and DEBQ subscales was examined in the present study. YouTube, Instagram, and Snapchat were the most frequently used SM tools for both genders. Girls spending more time on YouTube and Instagram, and boys spending more time on Snapchat and Pinterest had higher emotional eating scores. Interestingly, no significant relationship was not found between eating behaviors and Facebook or TikTok usage levels. Our findings are partially consistent with other studies that suggested Instagram and Snapchat are even more self-image-based tools of SM than Facebook and these tools are particularly popular among the younger population. However, researchers have stated that the popularity of specific SM tools tends to change over short periods of time (Fardouly & Vartanian, 2016; Wilksch et al., 2020). Therefore, the evaluation of a specific SM tool and its association with eating behaviors might be difficult to conduct.

Limitations and Directions/Suggestions for Future Research

Although we demonstrated that eating disorders had a relationship with SM usage and SM addiction, it was not possible to determine a causal relationship between these variables because of the cross-sectional design of our study. Another limitation of this study was the inability to examine the nutritional assessment and food choices of the participants due to the online collection of the data.

The current findings suggest that higher SM addiction was associated with stronger eating disorders. Our results contribute to the existing research on gender differences in SM and eating disorders by showing that observed differences in eating disorders might be in part due to problematic SM usage. Overall, the present findings provide that problematic SM usage might play an important role in predicting undesirable eating behaviors and eating disorders, especially emotional and external eating. Future research should continue to investigate the effects of SM on eating disorders and develop strategies for preventing the potential negative effects of SM on health.

Ethics Committee Approval: Ethics committee approval was received from the Hacettepe University Ethics Committee (Document number: E-35853172-000-00001515089).

Informed Consent: Written informed consent was obtained from the participants and parents of the participants who agreed to take part in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – D.G., S.S., M.K.; Design – D.G., S.S., M.K.; Supervision – M.K.; Materials – D.G., S.S., M.K.; Data Collection and Processing – D.G., S.S.; Analysis and Interpretation – D.G., S.S.; Literature Review – D.G., S.S.; Writing – D.G., S.S. M.K.; Critical Review – M.K.

Acknowledgments: The authors acknowledge the participants and their parents for their valuable time and responses.

Declaration of Interests: The authors declare that they have no competing interest.

Funding: The authors declare that this study had received no financial support.

References

Abolfathi, M., Dehdari, T., Zamani-Alavijeh, F., Taghdisi, M. H., Ashtarian, H., Rezaei, M., & Irandoost, S. F. (2022). Identification of the opportunities and threats of using social media among Iranian adolescent girls. *Heliyon*, *8*(4), e09224. [CrossRef]

Al-Kandari, Y. Y., & Al-Sejari, M. M. (2021). Social isolation, social support and their relationship with smartphone addiction. *Information, Communication and Society*, *24*(13), 1925 – 1943. [CrossRef]

Andreassen, C. S., & Pallesen, S. (2014). Social network site addiction-An overview. *Current Pharmaceutical Design*, *20*(25), 4053 – 4061. [CrossRef]

Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors*, *64*, 287 – 293. [CrossRef]

Ayyıldız, F., & Şahin, G. (2022). Effect of social media addiction on eating behavior, body weight and life satisfaction during pandemic period. *British Food Journal*, *124*(9), 2980 – 2992. [CrossRef]

Baldwin, H. J., Freeman, B., & Kelly, B. (2018). Like and share: Associations between social media engagement and dietary choices in children. *Public Health Nutrition*, *21*(17), 3210 – 3215. [CrossRef]

Bozan, N., Bas, M., & Asci, F. H. (2011). Psychometric properties of Turkish version of Dutch Eating Behaviour Questionnaire (DEBQ). A preliminary results. *Appetite*, *56*(3), 564 – 566. [CrossRef]

Cohen, R., Newton-John, T., & Slater, A. (2017). The relationship between Facebook and Instagram appearance-focused activities and body image concerns in young women. *Body Image*, *23*, 183 – 187. [CrossRef]

Cohen, R., Newton-John, T., & Slater, A. (2018). 'Selfie'-objectification: The role of selfies in self-objectification and disordered eating in young women. *Computers in Human Behavior*, *79*, 68 – 74. [CrossRef]

Culbert, K. M., Racine, S. E., & Klump, K. L. (2015). Research review: What we have learned about the causes of eating disorders – a synthesis of sociocultural, psychological, and biological research. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *56*(11), 1141 – 1164. [CrossRef]

Fardouly, J., & Vartanian, L. R. (2016). Social media and body image concerns: Current research and future directions. *Current Opinion in Psychology*, *9*, 1 – 5. [CrossRef]

Fernandes, B., Nanda Biswas, U., Tan-Mansukhani, R., Vallejo, A., & Essau, C. A. (2020). The impact of COVID-19 lockdown on internet use and escapism in adolescents. *Revista de Psicología Clínica con Niños y Adolescentes*, *7*(3), 59 – 65. [CrossRef]

Gao, J., Zheng, P., Jia, Y., Chen, H., Mao, Y., Chen, S., Wang, Y., Fu, H., & Dai, J. (2020). Mental health problems and social media exposure during COVID-19 outbreak. *PLoS One*, *15*(4), e0231924. [CrossRef]

Gioia, F., Griffiths, M. D., & Boursier, V. (2020). Adolescents' body shame and social networking sites: The mediating effect of body image control in photos. *Sex Roles*, *83*(11 – 12), 773 – 785. [CrossRef]

Güldal, Ş., Kılıçoğlu, N. A., & Kasapoğlu, F. (2022). Psychological flexibility, coronavirus anxiety, humor and social media addiction during COVID-19 pandemic in Turkey. *International Journal for the Advancement of Counseling*, *44*(2), 220 – 242. [CrossRef]

Hautala, L. A., Junnila, J., Helenius, H., Väänänen, A. M., Liuksila, P. R., Räihä, H., Välimäki, M., & Saarijärvi, S. (2008). Towards understanding gender differences in disordered eating among adolescents. *Journal of Clinical Nursing*, *17*(13), 1803 – 1813. [CrossRef]

Hinojo-Lucena, F. J., Aznar-Díaz, I., Cáceres-Reche, M. P., Trujillo-Torres, J. M., & Romero-Rodríguez, J. M. (2019). Problematic internet use as a predictor of eating disorders in students: A systematic review and meta-analysis study. *Nutrients*, *11*(9), 2151. [CrossRef]

Holland, G., & Tiggemann, M. (2017). "Strong beats skinny every time": Disordered eating and compulsive exercise in women who post fitspiration on Instagram. *International Journal of Eating Disorders*, *50*(1), 76 – 79. [CrossRef]

Kjelsås, E., Bjørnstrøm, C., & Götestam, K. G. (2004). Prevalence of eating disorders in female and male adolescents (14 – 15 years). *Eating Behaviors*, *5*(1), 13 – 25. [CrossRef]

Kuss, D. J., Griffiths, M. D., Karila, L., & Billieux, J. (2014). Internet addiction: A systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design*, *20*(25), 4026 – 4052. [CrossRef]

Lemenager, T., Neissner, M., Koopmann, A., Reinhard, I., Georgiadou, E., Müller, A., Kiefer, F., & Hillemacher, T. (2020). COVID-19 lockdown restrictions and online media consumption in Germany. *International Journal of Environmental Research and Public Health*, *18*(1), 14. [CrossRef]

McLean, S. A., Paxton, S. J., Wertheim, E. H., & Masters, J. (2015). Photoshopping the selfie: Self photo editing and photo investment are associated with body dissatisfaction in adolescent girls. *International Journal of Eating Disorders*, *48*(8), 1132 – 1140. [CrossRef]

Muzi, S., Sansò, A., & Pace, C. S. (2021). What's happened to Italian adolescents during the COVID-19 pandemic? A preliminary study on symptoms, problematic social media usage, and attachment: Relationships and differences with pre-pandemic peers. *Frontiers in Psychiatry*, *12*. [CrossRef]

Özgenel, M., Canpolat, Ö., & Ekşi, H. (2019). Ergenler için sosyal medya bağımlılığı ölçeği (ESMBÖ): Geçerlik ve güvenirlik çalışması. *Addicta: The Turkish Journal on Addictions*, *3*, 631 – 664. [CrossRef]

Paschke, K., Austermann, M. I., Simon-Kutscher, K., & Thomasius, R. (2021). Adolescent gaming and social media usage before and during the COVID-19 pandemic. *Sucht*, *67*(1), 13 – 22. [CrossRef]

Rodgers, R. F., Slater, A., Gordon, C. S., McLean, S. A., Jarman, H. K., & Paxton, S. J. (2020). A biopsychosocial model of social media use and body image concerns, disordered eating, and muscle-building behaviors among adolescent girls and boys. *Journal of Youth and Adolescence*, *49*(2), 399 – 409. [CrossRef]

Sampasa-Kanyinga, H., Chaput, J. P., & Hamilton, H. A. (2015). Associations between the use of social networking sites and unhealthy eating behaviours and excess body weight in adolescents. *British Journal of Nutrition*, *114*(11), 1941 – 1947. [CrossRef]

Sarıalioğlu, A., Atay, T., & Arıkan, D. (2022). Determining the relationship between loneliness and internet addiction among adolescents during the Covid-19 pandemic in Turkey. *Journal of Pediatric Nursing*, *63*, 117 – 124. [CrossRef]

Schmid, J. C., Rose, K. L., Hadler, N. L., Amaro, X., Frank, A., Wilkie, E., Chang, T., & Sonneville, K. R. (2022). Content analysis of the impact of COVID-19 on weight and shape control behaviors and social media content of US adolescents and young adults. *Eating Behaviors*, *45*, 101635. [CrossRef]

Schou Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors*, *30*(2), 252 – 262. [CrossRef]

Serenko, A., Turel, O., & Bohonis, H. (2021). The impact of social networking sites use on health-related outcomes among UK adolescents. *Computers in Human Behavior Reports*, *3*, 100058. [CrossRef]

Szabo, K., Piko, B. F., & Fitzpatrick, K. M. (2019). Adolescents' attitudes towards healthy eating: The role of self-control, motives and self-risk perception. *Appetite*, *143*, 104416. [CrossRef]

Tadena, S., Kang, S. R., & Kim, S. J. (2020). The influence of social media affinity on eating attitudes and body dissatisfaction in Philippine adolescents. *Child Health Nursing Research*, *26*(1), 121 – 129. [CrossRef]

Uzunian, L. G., & Vitalle, M. S. d. S. (2015). Social skills: A factor of protection against eating disorders in adolescents. *Ciencia and Saude Coletiva*, *20*(11), 3495 – 3508. [CrossRef]

Van Strien, T., Frijters, J. E. R., Bergers, G. P. A., & Defares, P. B. (1986). The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. *International Journal of Eating Disorders*, *5*(2), 295 – 315. [CrossRef]

Wilksch, S. M., O'Shea, A., Ho, P., Byrne, S., & Wade, T. D. (2020). The relationship between social media use and disordered eating in young adolescents. *International Journal of Eating Disorders*, *53*(1), 96 – 106.[CrossRef]

Wu, A. M., Cheung, V. I., Ku, L., & Hung, E. P. (2013). Psychological risk factors of addiction to social networking sites among Chinese smartphone users. *Journal of Behavioral Addictions*, *2*(3), 160 – 166. [CrossRef]

Genişletilmiş Özet

Giriş

Sosyal medyanın problemlematik kullanımı dünya çapında adolesanlar arasında giderek yaygınlaşmakta ve çeşitli davranışsal ve psikolojik sorunlara yol açtığı belirtilmektedir. Sosyal medyanın istenmeyen yeme davranışları ve düzensiz yeme ile ilişkili olduğu düşünülmektedir. Pandemi döneminde internet ve sosyal medya kullanımındaki artış göz önüne alındığında, bu dönemde sosyal medyanın yeme davranışları ile olası ilişkisinin belirlenmesi önem kazanmıştır. Bu çalışma, Türkiye'de COVID-19 pandemisi sırasında adolesanların internet ve sosyal medya (SM) kullanımı, SM bağımlılığı ve yeme davranışları arasındaki ilişkiyi araştırmayı amaçlamıştır.

Yöntem

Bu araştırma nicel, tanımlayıcı ve kesitsel bir çalışma olarak planlanmıştır. Çalışmaya 10-19 yaş arası toplam 346 adolesan (243 kız ve 103 erkek) katılmıştır. Verilerin toplanması için katılımcılara e-posta yoluyla dört bölümden oluşan çevrimiçi anket formu gönderilmiştir. Bu anket formu ile sosyodemografik özellikler (yaş, cinsiyet, eğitim sınıfı vb.), beslenme alışkanlıkları, beyana dayalı antropometrik ölçümler (Vücut ağırlığı ve boyu), günlük internet ve sosyal medya (SM) kullanım süreleri ve SM araç kullanımları (saat/gün) sorgulanmıştır. Ayrıca anket formu ile, SM bağımlılığının değerlendirilmesi için Ergenler için Sosyal Medya Bağımlılığı Ölçeği (SMASA)'yı ve yeme davranışlarının değerlendirilmesi için Hollanda Yeme Davranışı Anketi (DEBQ)'ni tamamlamışlardır.

Tüm veriler SPSS 27 sürümü (IBM Corp., Armonk, NY, ABD) kullanılarak analiz edilmiştir. Tüm katılımcılar için tanımlayıcı istatistikler hesaplanmış ve Kolmogorov – Smirnov testine göre veriler normallik açısından taranarak ve tüm verilerin normal dağıldığı bulunmuştur. Pearson korelasyon katsayısı ile, SM kullanım süresi ve SMASA, DEBQ ve DEBQ alt ölçekleri arasındaki ilişki değerlendirilmiştir. Regresyon için istatistiksel varsayımlar kontrol edildikten sonra, SM kullanım süresi, SMASA ve DEBQ arasındaki ilişkiyi araştırmak için Çoklu regresyon analizi yapılmıştur. DEBQ alt ölçekleri'nin farklı SM araçlarının kullanım düzeylerine göre farklılıkları ANOVA yapılarak analiz edilmiş ve gruplar arasındaki farkın önemi Tukey'in çoklu karşılaştırma testi ile belirlenmiştir. SM araçlarını kullanım düzeyine göre iki grup olması durumunda istatistiksel değerlendirme t-testi ile yapılmıştır. p değerleri <0.05 istatistiksel olarak anlamlı kabul edildi.

Bulgular

Günlük internet ve SM kullanımı erkeklerde sırasıyla 6,1±3,2 saat ve 2,9±2,2 saat, kızlarda ise 6,0±3,1 saat ve 3,2±2,3 saat olarak bulundu. SM bağımlılık düzeyleri cinsiyetler arasında farklılık göstermezken, DEBQ ve alt ölçekleri (Duygusal, dışsal ve kısıtlayıcı yeme) kızlarda istatistiksel olarak daha yüksekti ($p<0,001$). SMASA, günlük internet ve SM kullanım süresi, DEBQ, duygusal ve dışsal yeme ile pozitif korelasyon gösterdi.

Erkeklerin ortalama internet kullanım süresi (6,1±3,2 saat) kızlarınkinden (6,0±3,1 saat), kızların ortalama SM kullanım süresi (3,2±2,3 saat) de erkeklerinkinden (2,9±2,2) daha yüksek bulunmuştur. Ancak bu farklılıklar istatistiksel olarak anlamlı değildir ($p>0.05$). Benzer şekilde kızların SMASA puanları (17,9±7,2) erkeklerin (16,6±7,4) puanlarından daha yüksek bulunmuştur ($p>0,05$). Diğer taraftan kızların DEBQ ve alt ölçek puanları erkeklerinkinden istatistiksel olarak daha yüksek bulunmuştur ($p<0,001$). Katılımcıların ifadelerine göre, kızlar sırasıyla en çok YouTube, Instagram, Snapchat, Facebook, TikTok ve Pinterest'i kullanırken, erkekler ise YouTube, Instagram, Snapchat, Pinterest, TikTok ve Facebook'u sıklıkla kullanmıştır.

Kızlar için, internet ve SM kullanım süresi, SMASA birbirleriyle ve DEBQ, Duygusal Yeme ve Dışsal Yeme ile pozitif korelasyon göstermiştir. Ayrıca, DEBQ ve alt ölçekleri arasında (kısıtlayıcı&dışsal yeme dışında) orta ve yüksek düzeyde ilişki bulunmuştur. Erkekler için internet kullanım süresi; SM kullanım süresi, SMASA ve DEBQ ile ilişkili iken, SM kullanım süresi sadece SMASA ile ilişkilendirilmiştir. Önemli olarak, SMASA, DEBQ ile orta derecede ($r=0.540$, $p<0.01$) ve ayrıca Duygusal ($r=0.500$, $p<0.01$) ve Dışsal Yeme ($r=0.417$, $p<0.01$) ile zayıf bir korelasyon göstermiştir. Ayrıca, DEBQ, erkeklerde Kısıtlı Yeme ile zayıf ve diğer alt ölçeklerle yüksek oranda ilişkili bulunmuştur.

Bağımsız değişkenlerin cinsiyete göre DEBQ alt ölçeklerinin yordayıcıları olup olmadığını değerlendirmek için çoklu doğrusal regresyon analizi yapılmıştır. Sonuçlar, SM kullanım süresinin veya SMASA'nın her iki cinsiyette de Kısıtlayıcı Yeme modeline önemli ölçüde katkıda bulunmadığını göstermiştir ($p>0.05$). Erkeklerde, Duygusal Yeme için bağımlı değişkenle ilişkili varyansın ~%27'sini yordayıcı değişkenler açıklamıştır ($R^2_{adjusted}=0,274$). Daha sonra her bir tahmin edici, modele önemli ölçüde katkıda bulunup bulunmadığını belirlemek için incelenmiş ve SM kullanım süresi ($\beta=-.215$, $t=-2.32$, $p=.023$, $pr2=.05$) ve SMASA ($\beta=.590$, $t=6.35$, $p<0.001$, $pr2=.29$)'nin erkeklerde modele önemli ölçüde katkıda sağladığı bulunmuştur. Benzer şekilde, yordayıcı değişkenler, erkeklerde Dışsal Yeme için bağımlı değişkenle ilişkili varyansın ~%16'sını açıklamıştır ($R^2_{adjusted}=0.159$), SMASA ($\beta=.437$, $t=4.374$, $p<0.001$, $pr2=.16$) modele anlamlı katkı sağlarken, SM kullanım süresi ($\beta=-.177$, $t=-.483$, $p=.630$, $pr2= .002$) erkeklerde modele önemli ölçüde katkıda bulunmamıştır. Kızlar için ise, yordayıcı değişkenler, Duygusal Yeme için bağımlı değişkenle ilişkili varyansın ~%10'unu oluşturmuş ($R^2_{adjusted}=0.104$), Dışsal Yeme için bağımlı değişkenle ilişkili varyansın ~%16'sını açıklamıştır ($R^2_{adjusted}=0.158$). SM kullanım süresinden farklı olarak, SMASA kızlarda her iki modele de önemli katkı sağlamıştır (Duygusal Yeme için: $\beta=.305$, $t=4.87$, $p<0.001$, $pr2=.09$; Dışsal Yeme için: $\beta=.364$, $t=5.99$, $p<0.001$, $pr2=.13$).

SM araçlarının kullanım düzeyleri ile DEBQ alt ölçekleri arasındaki ilişki tek yönlü ANOVA kullanılarak araştırılmıştır. Erkeklerde YouTube, Instagram, Facebook ve TikTok'a erişim düzeyine göre Kısıtlayıcı Yeme, Duygusal Yeme, Dışsal Yeme ortalamaları arasında anlamlı bir fark bulunmamış, ancak Snapchat ve Pinterest'te anlamlı bir ilişki bulunmuştur. Bu SM araçlarına daha fazla zaman harcayanların Duygusal Yeme puanları daha yüksek bulunmuştur ($p<0,001$). Erkeklerden farklı olarak kızlarda YouTube ve Instagram için anlamlı bir ilişki bulunmuştur. Bu araçlara daha fazla zaman harcayan kızların Duygusal Yeme puanlarının daha yüksek olduğunu (sırasıyla $p=0.016$ ve $p=0.033$) göstermektedir. Ayrıca Snapchat, Dışsal Yeme için anlamlı bir fark bulunan tek SM aracı olmuştur ($p=0.026$).

Tartışma

Araştırma sonuçları daha yüksek SM bağımlılığının daha güçlü yeme bozuklukları ile ilişkili olduğunu göstermektedir. Ayrıca bu çalışma yeme bozukluklarında gözlenen farklılıkların kısmen sorunlu SM kullanımından kaynaklanabileceğini göstererek, SM ve yeme bozukluklarındaki cinsiyet farklılıklarına ilişkin mevcut araştırmalara katkıda bulunmaktadır.

Sınırlılıklar

Yeme bozukluklarının SM kullanımı ve SM bağımlılığı ile ilişkisi olduğunu göstersek de, çalışmamızın kesitsel tasarımı nedeniyle bu değişkenler arasında nedensel bir ilişki belirlemek mümkün olmamıştır. Bu çalışmanın bir diğer sınırlılığı, verilerin çevrimiçi toplanması nedeniyle katılımcıların beslenme değerlendirmesi ve besin seçimlerinin incelenememesidir.

Öneriler

SM ile yeme davranışı arasındaki olası etkileşimler göz önüne alındığında, adolesanların SM kullanımı, yeme davranışları ve tutumlarına yönelik etkili müdahalelerin geliştirilmesi gerekmektedir.