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Multiple screen addiction among health sciences faculty students: An examination of the relationship with eating disorders, ultra processed food consumption, and e-healthy diet literacy

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ABSTRACT

Objective: Screen addiction is a significant public health problem linked to various health issues, particularly affecting children and young people. This study aimed to evaluate the relationship between screen addiction among university students and eating disorders, ultra-processed food consumption, and nutritional literacy.

Methods: The study was carried out among students enrolled in the Faculty of Health Sciences at Erzurum Technical University. Participants were administered the Eating Disorder Examination Scale (EDE-Q-13) short form, the e-Healthy Diet Literacy Scale (e-HDLQ), the Multiple Screen Addiction Scale (MSAS), and the Screening Questionnaire of Highly Processed Food Consumption (sQ-HPF) questionnaires face-to-face.

Results: This cross-sectional study included 233 participants (26.6% men, 73.4% women; mean age 21.1±1.6 years). Multiple screen addiction was identified in 40.7% of the students. Multiple screen addiction showed weak negative correlations with EDE-Q13 (r=-0.197) and sQ-HPF (r=-0.134) and a weak positive correlation with e-HDLQ (r=0.210) ($p<0.01$). The relationship between MSAS score and sQ-HPF, EDE-Q-13, and e-HDLQ is examined using multivariate multiple regression analysis adjusted for age, gender, meal skipping status, and BMI (Wilks' $\lambda = 0.913$, $F(3, 223) = 7.054$, $p < 0.001$, partial $\eta^2 = 0.087$). The findings showed a negative correlation between MSAS and sQ-HPF ($B = -0.027$, $SE = 0.013$, $p = 0.045$, partial $\eta^2 = 0.018$) and EDE-Q-13 ($B = -0.209$, $SE = 0.065$, $p = 0.001$, partial $\eta^2 = 0.044$) and a positive significant relationship with e-HDLQ ($B = 0.079$, $SE = 0.032$, $p = 0.016$, partial $\eta^2 = 0.026$).

Conclusion: Multiple screen addiction was independently associated with fewer eating disorder symptoms, lower ultra-processed food consumption, and higher e-HDLQ scores. However, e-HDLQ itself was not significantly correlated with either eating disorder symptoms or ultra-processed food consumption, suggesting that literacy alone does not fully explain these associations.

Keywords: health sciences students, screen addiction, health literacy, ultra processed foods, eating disorders

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Introduction

Addiction is clinically defined as "substance use disorder". This disorder is characterized by symptoms such as inability to control a substance, impairment in social and occupational functioning, use in dangerous situations, and tolerance/withdrawal.[1] Screen addiction, as a behavioral addiction, is not included under a separate diagnostic criterion in DSM-5. Despite the lack of a standard definition in the literature, screen addiction is defined as uncontrolled screen use that impairs the quality of daily life.[2] While constructs like smartphone or internet addiction focus on the problematic use of a single platform, multiple screen addiction is broader. It refers to the uncontrolled, simultaneous, or sequential use of several devices—such as smartphones, tablets, computers, and TVs—in a way that interferes with daily life.[3]

The university period is an important transition in which individuals move away from parental control, take on their own life responsibilities, and change their eating habits.[4] During this period, academic stress, irregular sleep schedules, and time management issues lead students to seek quick, practical solutions.[5] University students are the population group that uses the internet and smartphones most intensively for education, socialization, and entertainment.[6] However, this situation also has various negative consequences for students' physical, psychological, and nutritional health.[7] Studies show that increased screen time, especially phone screen time, triggers unhealthy eating behaviors.[8,9]

When the relationship between screen time and nutrition is examined, it is found that excessive screen time plays a decisive role in eating behaviors. Studies show that more time spent in front of screens increases the consumption of high-calorie ultra-processed foods (UPF) in particular.[10,11] However, studies also report the opposite. In a study conducted on students in the second and fifth grades of primary school, although a positive relationship was found between the use of mobile phones, computers, and video games and the consumption of unhealthy foods, it was found that TV viewing habits showed an inverse relationship with the consumption of processed foods in children.[12]

Another important dimension associated with screen addiction is eating disorders. Literature shows a positive correlation between internet and smartphone addiction and binge eating and emotional eating. Furthermore, as screen time increases, individuals tend to turn to food for emotional regulation and lose control over their eating habits.[13,14]

Nutritional literacy and the level of nutritional knowledge can play a significant role in shaping changes in eating behavior. Nutritional literacy is defined as the capacity of individuals to access basic nutritional information, process this information, and use it to improve their health.[15] Another type of health literacy, electronic or digital health nutrition literacy, means having sufficient knowledge and skills to use technology-based health tools.[16] It has been found that intensive internet use increases university students' health literacy.[17] Although it is suggested that increased knowledge encourages healthy eating behaviors, some studies show that there is not always a linear relationship between knowledge level and behavioral change.[18,19] This "knowledge-behavior paradox" can arise from numerous mediating variables such as parental influence, cultural habits, contradictory and questionably reliable content from social media, and inadequate individual self-regulation skills.[20,21] Therefore, to translate digital nutrition literacy into healthy eating behavior, it is emphasized that intervention programs should be developed to support not only access to information but also the critical evaluation, personalization, and integration of information into sustainable behavioral habits.[22,23]

While previous research has predominantly focused on single-device constructs, such as smartphone or internet addiction, relatively little attention has been paid to multiple screen addiction, which reflects problematic engagement across multiple screen-based devices. Consequently, the relationships between multiple screen addiction, eating disorders, ultra-processed food consumption, and digital health literacy have rarely been examined within a single conceptual framework,

Main Points

- A negative relationship was found between multiple screen addiction and both eating disorders and ultra-processed food consumption.
- Higher multiple screen addiction was associated with greater e-healthy diet literacy; however, literacy itself was not significantly associated with eating disorder symptoms or ultra-processed food consumption
- Higher multiple screen addiction scores are associated with increased levels of e-healthy diet literacy among students.

especially among health sciences students, whose education may influence both digital health literacy and eating-related behaviors. In light of all this literature, the aim of this study is to evaluate eating disorders, ultra-processed food consumption, and nutritional knowledge levels in university students with screen addiction.

Material and Methods

Research design and study population

This research is a cross-sectional, descriptive, and analytical study examining the relationship between screen addiction and eating disorders, consumption of highly processed foods, and nutritional literacy among university students. The study was conducted with undergraduate students studying at the Faculty of Health Sciences of Erzurum Technical University. Data collection took place in March, April, and May of 2025. Participants were eligible if they were 18 years of age or older, enrolled as undergraduate students in the Faculty of Health Sciences, and volunteered to participate in the study. Individuals with a self-reported diagnosis of an eating disorder, chronic diseases requiring medical nutrition therapy, pregnancy or lactation, or those currently receiving individualized dietary counseling from a registered dietitian were excluded from the study. Participants who met the inclusion criteria were invited to participate during scheduled class sessions. All invited participants (n=243) agreed to participate and completed the questionnaires.

Data collection instruments

The research was conducted face-to-face, and initial consent for data confidentiality was obtained from the participants. The study utilized the Eating Disorder Assessment Scale (EDE-Q-13) short form, the Healthy Eating Literacy Scale (e-HDLQ), the Multiple Screen Addiction Scale (MSAS), and the Highly Processed Food Consumption (sQ-HPF). In addition, demographic information and a health questionnaire (age, gender, body mass index (BMI), skipping meals, etc.) were administered. Participants self-reported their height and body weight, and BMI was calculated as weight (kg) divided by height squared (m^2).

Eating disorder examination questionnaire (EDE-Q-13) is a short form consisting of 13 questions on a 7-point likert scale (0=never, 1=1–5 days, 2=6–12 days, 3=13–15 days, 4=16–22 days, 5=23–27 days, 6=every day). The sub-dimensions of the scale include restrictive eating, body shape and weight concerns, body dissatisfaction, binge eating, and purging. The EDE-Q-13 score is based on the total score of all items on the scale and each sub-dimension. A higher score indicates a higher prevalence of eating-related psychopathology.[24]

To assess the digital healthy diet literacy levels of individuals, the e-Healthy Diet Literacy Scale (e-HDLQ) whose validity and reliability study was conducted in the Turkish adult population by Karahan Yılmaz, Eskici and Saraç (2023), was used. The scale is a 5-point Likert type and consists of a total of 15 items. Items are scored between “Strongly disagree” (1) and “Strongly agree” (5). The total score of the scale is obtained by summing the scores of the responses given to all items, and higher scores indicate a higher level of e-healthy nutrition literacy. The scores obtained from the scale were evaluated as continuous variables in the analyses.[16]

To determine the level of addiction to multiple screen use among individuals, the Multiple Screen Addiction Scale (MSAS), developed by Sarıtepeci (2021) and whose validity and reliability studies have been conducted, was used. The scale consists of 16 items, each scored between 1 (Never) and 5 (Always). This scale measures the level of addiction individuals have to devices such as phones, televisions, computers, tablets, and game consoles. In the multiple screen addiction scale, a participant is classified as "addicted" if they score ≥ 3 in at least eight of the 15 items.[3]

Screening Questionnaire of Highly Processed Food Consumption (sQ-HPF) developed by Martinez et al. and validated in Turkish by Erdoğan Gövez et al., contains 11 questions assessing the level of processed food consumption. Each "yes" answer to the questions regarding processed foods is worth 1 point. A total score below 3 indicates low, 3-5 points indicate moderate, and 6 points or above indicate high processed food consumption.[25,26]

Statistical analysis

Data analysis was performed using the IBM Social Sciences Statistics (SPSS) Package, Version 26. Descriptive statistics were used to summarise the study variables, including percentages, frequencies, means, and standard deviations. As a result of the analysis performed for the normality test of the data, the skewness and kurtosis (Skewness and Kurtosis)

values of all scales and sub-dimensions were found to be between -2 and +2 and it was assumed that the normality assumption was accepted. The regression analyses have been demonstrated to meet the statistical assumptions. A one-way ANOVA test and Pearson correlation test were performed on the results of the pairwise analyses of multiple screen addiction and eating disorders, health literacy, and processed food consumption. Multivariate multiple regression analysis was performed on the relationship between MSAS score and sQ-HPF, EDE-Q-13, and e-HDLQ. The quality of the study data was assessed using internal consistency checks. These checks were performed primarily using Cronbach's alpha coefficient and by evaluating missing values. The internal consistency of the scales used in the present study was evaluated using Cronbach's alpha coefficients. The Cronbach's alpha values were 0.933 for the Multiple Screen Addiction Scale (MSAS), 0.647 for the e-Health Literacy Questionnaire (e-HDLQ), 0.897 for the Eating Disorder Examination Questionnaire-13 (EDE-Q-13), and 0.685 for the Short Questionnaire to Assess Habitual Consumption of Highly Processed Foods (sQ-HPF). These values indicate satisfactory internal consistency for the MSAS and EDE-Q-13 and moderate internal consistency for the e-HDLQ and sQ-HPF. Less than 3% of the values were missing. Both authors entered the data. Subsequently, both authors checked the accuracy of the data entry to improve quality. During data cleaning, we identified 10 records containing missing values. These ten entries were removed, reducing the sample size from 243 to 233. This increased the consistency of the data and ensured that the statistical analyses were not biased due to missing data.

An a priori power analysis was conducted using G*Power version 3.1.9.4 before participant recruitment. The effect size was estimated based on a previously published study with a comparable study population and nutrition-related outcomes.[27] Assuming a two-tailed independent-samples t test, an effect size of d = 0.665, a significance level of $\alpha = 0.05$, a desired statistical power of 0.99 the minimum required sample size was calculated to be 170 participants. Since the final analytical sample consisted of 233 participants, the study exceeded the required sample size and was considered adequately powered.

Results

The study included 233 individuals (62 men (26.6%) and 171 women (73.4%) (21.1±1.6 years; 22.5±3.1 kg/m2). Multiple screen addiction was observed in 95 individuals (40.7%). The rate of multiple screen addiction was found to be higher in women than in men ($p<0.001$). The average age of individuals with multiple screen addiction (21.4±1.6 years) was significantly higher than that of those without addiction (20.9±1.5 years) ($p=0.028$). The rate of multiple screen addiction differed significantly between individuals who skipped meals and those who did not ($p=0.030$). Multiple screen addiction was also studied in relation to BMI averages and groups. The study evaluated BMI and found no significant difference between multiple screen addiction ($p>0.05$) (Table 1).

Table 2 shows the descriptive statistics and correlation analyses between the variables regarding the participants' scale scores. The mean screen addiction score of the participants was 38.0±12.0; EDE-Q-13 score was 13.7±11.3; e-HDLQ score was 25.5±5.7; and highly processed food consumption score was 7.2±2.2. According to the Pearson correlation analysis results, a weak negative correlation was found between screen addiction and eating disorder score ($r=-0.197$; $p<0.01$). A weak positive correlation was found between screen addiction and health literacy ($r=0.210$; $p<0.01$). A weak negative correlation was determined between highly processed food consumption and screen addiction ($r=-0.134$; $p<0.01$). A weak positive significant correlation was found between eating disorder score and highly processed food consumption ($r=0.184$; $p<0.01$). There was no statistically significant relationship between health literacy and eating disorder scores ($r=0.089$) and consumption of highly processed foods ($r=0.028$) ($p>0.05$).

Table 3 shows a comparison of eating disorder, e-healthy diet literacy, and ultra processed food consumption scores in individuals with and without multiple screen addiction. The mean EDE-Q-13 score was significantly higher in individuals without addiction (15.5±11.6) compared to those with addiction (10.9±10.3) ($p=0.002$). Highly processed food consumption scores were significantly higher in individuals without addiction (7.3±2.3) compared to those with addiction (6.5±2.1) ($p=0.003$). There was no statistically significant difference between the groups in terms of health literacy scores ($p=0.068$).

Table 4 examines the relationship between MSAS score and sQ-HPF, EDE-Q-13 and e-HDLQ using multivariate multiple regression analysis adjusted for age, gender, skipping meals and BMI. The multivariate model was found to be statistically significant (Wilks' $\lambda = 0.913$, $F(3, 223) = 7.054$, $p < 0.001$, partial $\eta^2 = 0.087$). The findings

Table 1. Participant characteristics according to multi-screen addiction

	Total Sample (n=233)	With Addiction (n=95)	Without Addiction (n=138)	p
Age, M±SD	21.1±1.6	21.4±1.6	20.9±1.5	**0.028**
Gender				
Male, n(%)	62 (26.6)	13 (21.0)	49 (79.0)	**<0.001**
Female, n(%)	171 (73.4)	82 (48.0)	89 (52.0)	
BMI, M±SD	22.5±3.1	22.1±3.3	22.9±2.8	0.099
BMI Classification				
Underweight	24 (10.3)	14 (58.3)	10 (41.7)	0.172
Normal weight	170 (73.0)	65 (38.2)	105 (61.8)	
Overweight/Obese	39 (16.7)	16 (41.0)	23 (59.0)	
Meal Skipping Status				
Yes	159 (68.5)	56 (35.2)	103 (64.8)	**0.030**
No	22 (9.5)	11 (50.0)	11 (50.0)	
Sometimes	51 (22.0)	28 (54.9)	23 (45.1)	

Pearson chi-square test and Independent T-test were performed.

Table 2. Descriptive analyses and correlation analysis for multiple screen addiction, eating disorders, e-healthy diet literacy, and ultra processed food consumption

	Total M±SD	MSAS	EDE-Q-13	e-HDLQ	sQ-HPF
MSAS	38.0±12.0	-	-0.197**	0.210**	-0.134**
EDE-Q-13	13.7±11.3	-0.197**	-	0.089	0.184**
e-HDLQ	25.5±5.7	0.210**	0.089	-	0.028
sQ-HPF	7.2±2.2	-0.134**	0.184**	0.028	-

Pearson Correlation Test was performed. *P<0.05; **p<0.01.

Table 3. Comparison of multiple screen addiction status with eating disorders, e-healthy diet literacy, and ultra processed food consumption

	EDE-Q-13	p	e-HDLQ	p	sQ-HPF	p
With Addiction	10.9±10.3	**0.002**	26.3±5.4	0.068	6.5±2.1	**0.003**
Without Addiction	15.5±11.6		24.9±5.9		7.3±2.3	

An independent T-test was performed.

show a significant negative correlation between MSAS and sQ-HPF (B = −0.027, SE = 0.013, p = 0.045, partial η^2 = 0.018) and EDE-Q-13 (B = −0.209, SE = 0.065, p = 0.001, partial η^2 = 0.044), and a significant positive correlation with e-HDLQ (B = 0.079, SE = 0.032, p = 0.016, partial η^2 = 0.026). The effect sizes of the relationship between MSAS score and sQ-HPF, EDE-Q-13, and e-HDLQ are small to moderate. While Table 3 presents unadjusted group comparisons, Table 4 shows the results of a regression analysis adjusted for age, gender, BMI, and skipped meals. Consequently, minor differences between the two analyses are to be expected; these differences reflect the influence of potential confounding variables.

Table 4. Multivariate multiple regression analysis examining the effect of MSAS on EDE-Q-13, e-HDLQ, sQ-HPF

	Predictor	B	SE	F	p	Partial η^2
sQ-HPF	MSAS	-0.027	0.013	4.081	0.045	0.018
EDE-Q-13	MSAS	-0.209	0.065	10.356	0.001	0.044
e-HDLQ	MSAS	0.079	0.032	5.949	0.016	0.026

Values represent adjusted coefficients from the multivariate multiple regression model. Age, sex, meal-skipping and BMI were included as covariates to control for potential confounding. B = unstandardized regression coefficient; SE = standard error. The overall multivariate effect of screen exposure was significant (Wilks' λ = 0.913, F(3, 223) = 7.054, p < .001, partial η^2 = .087).

Discussion

This study investigated the relationship between multiple screen addiction and eating behaviors, health literacy, and consumption of highly processed foods in young adults. Multiple screen addiction was found in 95 individuals (40.7%). The prevalence of multiple screen addiction varied according to gender, age, and skipping meals (p<0.05). When the relationship between MSAS score and sQ-HPF, EDE-Q-13, and e-HDLQ was examined using multivariate multiple regression analysis adjusted for age, gender, and skipping meals. BMI, a significant negative correlation was found between MSAS and sQ-HPF (B = −0.027, SE = 0.013, p = 0.045, partial η^2 = 0.018) and EDE-Q-13 (B = −0.209, SE = 0.065, p = 0.001, partial η^2 = 0.044), and a significant positive correlation was found between MSAS and e-HDLQ (B = 0.079, SE = 0.032, p = 0.016, partial η^2 = 0.026).

A study conducted with high school and middle school students found that screen time overuse was more common among boys.[28] It is known that boys tend to use the internet more than girls do. According to the results of a nationally representative sample study in China, the percentage of men with internet addiction is significantly higher than that of women: 14.8% in men and 7.0% in women.[29] It is observed that social media use is significantly higher among women than among men, and that social media-based screen time is greater.[30] In this study, it was found that women had significantly more addiction than men (p<0.001; Table 1).

A study of 963 Brazilian adolescents found that screen time was not significantly associated with overweight/obesity.[31] Another study of adolescents found no association between screen time and body weight.[32] Another study reported that watching TV and playing video games for more than 1 hour a day was associated with obesity. However, computer or handheld device use was less associated with obesity.[33] In this study, there was no significant difference in BMI value and classification between the screen-addicted and non-screen-addicted groups (Table 1). Furthermore, no effect of BMI on addiction was detected (Table 4). This can be explained by the fact that individuals with higher levels of digital health literacy are more likely to make healthier dietary choices, despite spending more time in front of screens.

A study of children showed that 71% of participants had more than 4 hours of screen exposure and 77% consumed snacks between main meals.[34] In a sample of adolescents in Europe, increased television viewing and computer and internet use were associated with a higher likelihood of sugary drink consumption and a lower likelihood of fruit consumption.[35] No consistent difference was found in eating habits between eating in front of and off-screen. Researchers reported that more studies are needed to understand how eating in front of screens affects diet quality and nutritional status.[36] In this study, the multiple screen addiction group was found to skip meals less often than the non-addiction group (Table 1). For university students, skipping meals appears to be driven more by time constraints and competing responsibilities—such as coursework, employment, and commuting—than by a lack of appetite. Students with high levels of multiple-screen addiction often spend more time engaging in sedentary, home-based activities, meaning they face fewer scheduling barriers to eating regularly. Consequently, the lower rate of meal skipping in this group might simply reflect these differences in daily routines, rather than the direct impact of health literacy or screen-related eating habits. However, this interpretation remains speculative and warrants further investigation in future studies using detailed tracking of daily time use and activity patterns.

Digital health literacy is seen as an important factor in transforming nutritional information obtained from digital platforms into behavior.[16] Especially among adolescents, digital health literacy is a key factor in coping with

information pollution on the internet and resisting unhealthy eating behaviors.[37] Studies conducted in Türkiye have also reported that habits that increase screen exposure, such as social media and smartphone use, are associated with higher digital health literacy.[21,38] A study conducted with nursing students in Turkey found a positive relationship between smartphone addiction and digital health literacy.[38] A study conducted with 554 adults aged 18-64 in Kırklareli showed that social media addiction increased digital health literacy.[21] In this study, a positive relationship was found between screen addiction and health literacy (Table 2).

The literature generally states that screen time increases exposure to advertising and visual stimuli, which in turn encourages UPF consumption.[7,11,39] A study of individuals aged 12-17 found a positive relationship between screen time and UPF consumption. It has been reported that as screen time increases, consumption of fast food, sugary drinks, and ready-made snacks increases.[39] A meta-analysis found moderate evidence of links between screen time and higher energy intake, lower healthy diet quality, and lower quality of life.[7] However, studies emphasize that individuals with high digital media or internet literacy can resist these advertisements and make healthy choices.[40,41] Studies have shown that individuals with high health literacy can better read food labels, tend to choose healthy foods, and avoid ultra-processed foods.[42,43] A study with adolescents found that exposure to 2 hours or more of screen time resulted in participants with high nutritional literacy scoring lower on ultra-processed food consumption compared to those with low nutritional literacy. The study emphasizes that the effect of screen time on eating behavior may vary with the level of nutritional knowledge.[43] In this study, a weak negative correlation was found between multiple screen addiction and ultra-processed food consumption scores (Table 4 and Table 2), and individuals with multiple screen addiction had significantly lower ultra-processed food consumption than those without addiction (Table 3). The observed association between higher health literacy and lower ultra-processed food consumption among individuals with multiple screen addiction should be interpreted with caution. Given the cross-sectional nature of the study, the findings indicate an association rather than a causal effect .[44] These findings suggest that factors beyond the amount of screen use, including health literacy and sociodemographic characteristics, may be associated with dietary behaviors. It is thought that this finding may be explained by the fact that higher levels of digital health literacy have contributed to healthier dietary choices, despite an increase in screen time. These findings suggest that the relationship between screen use and dietary behaviour may depend not only on screen time, but also on factors such as digital health literacy and socio-demographic characteristics. However, as the observed associations were modest, this interpretation should be regarded as hypothesis-generating rather than conclusive.

Social media and internet addiction, as well as mediating factors such as body image and targeting thinness, have been shown to affect eating behavior negatively.[45] In a study with adolescents, problematic social media and mobile phone use was associated with an increased likelihood of all eating disorder symptoms, including binge eating.[46] In a study conducted with university students in Turkey, a positive relationship was found between the level of internet addiction and eating disorders.[47] However, a meta-analysis study reported insufficient evidence between screen time and eating disorders.[7] A significant and weak inverse relationship was found between EDE-Q-13 and MSAS (Table 2 and Table 4). However, the mean EDE-Q-13 score of individuals with multiple screen addiction was found to be significantly lower than that of individuals without addiction (Table 3). This unexpected finding may be associated with the sociodemographic characteristics of the study sample and their relatively high level of health literacy. However, although the observed associations were statistically significant, the corresponding effect sizes were relatively small. Therefore, as these findings indicate modest associations rather than strong or clinically significant effects, they should be interpreted with caution. Further longitudinal and experimental studies are required to determine the practical significance and causal nature of these associations.

A significant limitation of the study is that it is a cross-sectional study conducted only with students from the Faculty of Health Sciences at Erzurum Technical University. Another limitation is that it did not investigate whether screen time, especially considering the educational processes of university students, stems from activities such as online education. Furthermore, neither the participants' daily screen time nor the primary purpose of screen use (e.g., education, social media, entertainment, or gaming) was assessed. Therefore, it was not possible to determine whether the observed associations varied according to the duration or purpose of screen use. Considering that screen use among university students may be influenced by academic activities such as online learning, future studies should evaluate both screen use duration and purpose to provide a more

comprehensive understanding of their relationships with eating behaviors and digital health literacy. Another limitation of this study is that other potentially important confounding variables-such as socio-economic status, physical activity, sleep duration, daily screen time and the primary purpose of screen use-were not assessed and therefore could not be included in the analyses. The absence of these variables may have influenced the observed associations and should be taken into account when interpreting the findings. It is recommended that future studies incorporate these factors in order to provide further elucidation on the relationship between multi-screen addiction and nutrition-related outcomes. Additionally, the Multiple Screen Addiction Scale (MSAS) evaluates the collective addiction level across devices such as phones, televisions, computers, tablets, and game consoles, rather than assessing them individually. Consequently, we could not investigate which specific screen types drove the gender differences observed in our study. It is recommended to examine specific screen types in future studies. Finally, although all participants were enrolled at the Faculty of Health Sciences, no analyses were conducted at the department level. Differences observed between departments in terms of educational background and nutrition-related education may have influenced digital health literacy and dietary behaviours. Therefore, future studies should examine these potential differences through subgroup analyses by department.

Conclusion

This study examined the relationships between multiple screen addiction, eating disorders, consumption of ultra-processed foods, and health literacy among health sciences faculty students. The findings suggest that the relationship between multiple screen use and dietary behaviors may be more complex than implied by the general assumption that unhealthy eating increases as screen time increases. In this sample, higher multiple screen addiction scores were accompanied by higher e-healthy diet literacy and lower ultra-processed food consumption and eating disorder symptomatology; however, these findings represent associations and should not be interpreted as evidence of causal effects. Furthermore, the relationship between multiple screen use and dietary behaviors may not be explained solely by the amount of screen exposure, and factors beyond screen exposure alone may also be relevant when examining dietary behaviors. Future studies should investigate whether characteristics such as the purpose and context of screen use contribute to these associations. Since the health behaviors of university students are multifaceted and may change over time, further longitudinal research is needed to better understand the factors associated with multiple screen addiction and nutrition-related outcomes.

Author contributions

Conception and design: S.A.; Data acquisition: S.A., S.N.A, D.K., S.S.; Data analysis: Ö.E.; Data interpretation: S.A., Ö.E.; Drafting of the manuscript: S.A.; Critical revision of the manuscript: S.A., Ö.E. All authors reviewed the results, approved the final version of the manuscript, and agreed to be accountable for all aspects of this study

Ethical approval

Ethical approval for the research was obtained from the Scientific Research and Publication Ethics Committee of Erzurum Technical University, meeting number 04/12. The research was conducted in accordance with the Helsinki Declaration.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflict of interest

The authors declare that this study was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Generative AI statement

The authors declare that no generative AI or AI-assisted technologies were used in the writing or preparation of this study.

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