



Are the Use and Addiction to Social Networks Associated with Disordered Eating Among Adolescents? Findings from the EHDLA Study

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Accepted: 12 May 2023

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Abstract

The objective of this study was to examine whether the use and addiction of social networks are associated with disordered eating in Spanish adolescents. A cross-sectional study was carried out using data from the Eating Healthy and Daily Life Activities study. The final sample included 653 adolescents (44.0% boys). Social network use (i.e., Facebook, Twitter, Instagram, Snapchat, TikTok) was evaluated by a single item scale with multiple response options. The Short Social Networks Addiction Scale-6 Symptoms was used to determine addiction to social networks. Disordered eating behaviors were assessed with the Sick, Control, One, Fat, Food scale. Adolescents with high social network use had greater odds of disordered eating (odds ratio [OR]=1.88, 95% confidence intervals [CI] 1.17–3.02). Adolescents with high social network addictive behaviors also showed a higher likelihood of presenting disordered eating (OR=2.04, 95% CI 1.34–3.12). Social network use and addiction must be considered factors related to disordered eating among adolescents.

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Keywords Social media · Eating disorders · Youths · Adolescence · Mental health

Eating disorders are serious mental health conditions that involve abnormal eating or weight-control behaviors, leading to severe health complications, such as electrolyte disturbances, leukopenia, or arrhythmias. The Diagnostic and Statistical Manual of Mental Disorders-version 5 (DSM-5) acknowledges eating disorders, which are identified by distinct signs and symptoms and assigned a degree of severity. Examples include anorexia nervosa, bulimia nervosa, binge eating disorder, and eating disorder not otherwise specified (American Psychiatric Association, 2022). The Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2019 recognizes eating disorders as mental illnesses and a public health concern in developed countries (GBD, 2019 Mental Disorders Collaborators, 2022). Over the past 50 years, their prevalence among young people has significantly increased (Treasure et al., 2020). As eating disorders and their component symptoms typically peak during mid-to-late adolescence, it is crucial to comprehend the potential causes of these conditions among young people (Stice et al., 2013).

In addition to diagnosed eating disorders, disordered eating behaviors involve behaviors such as weight-loss dieting, binge eating, excessive exercise, self-induced vomiting, and use of laxatives or diuretics (Toni et al., 2017). While disordered eating behaviors observed during childhood, such as unhealthy weight-control behaviors, can predict outcomes related to eating disorders and obesity in adolescents after five years (Neumark-Sztainer et al., 2006), it is crucial to distinguish disordered eating from eating disorders (Quick et al., 2013). Although these behaviors are not considered full-blown illnesses, they must be evaluated carefully since they have been associated with adverse health-related consequences (Kärkkäinen et al., 2018) and may develop into eating disorders, even though they appear mild (Toni et al., 2017). Recently, a systematic review and meta-analysis including 32 studies with 63,181 children and adolescents from 16 countries by López-Gil et al. (2023a) reported a global prevalence of 22% of these behaviors among this population, highlighting the urgent need against disordered eating to enhance overall health in adolescents.

The impact of traditional media such as television and magazines in creating a risk of eating disorders has been a meaningful research topic for a long time (Wilksch et al., 2020). However, the widespread use of social media and the Internet among adolescents has introduced new dynamics and risks for the development and persistence of eating disorders (Saul et al., 2022). Supporting this proposition, a link between high socialization on social networks and a rise in eating disorders among adolescents has been pointed out (Frieiro et al., 2022). In addition, most adolescents post their photos on the social networks (SNs) (e.g., Instagram, TikTok) so-called “selfies.” Similarly, a meta-analysis including 13,301 participants from 22 studies by Zhang et al. (2021) revealed a low, positive correlation between frequent and intensive SN use and disordered eating behaviors ($r=0.09$). Among adolescents, a previous systematic review by Lozano-Muñoz et al. (2022) including nine studies with 2069 participants (75.3% girls) concluded that SN may promote beauty standards in terms of thinness, allow comparisons between peers increasing concerns about weight, and create spaces that encourage eating disorders (e.g., anorexia, bulimia).

Although these reviews highlight advancements, there are still gaps in our understanding of disordered eating in adolescents. For instance, the meta-analysis by Zhang et al. (2021) only included five out of 22 studies with only adolescents from Oceania and Asia. Furthermore, the review by Lozano-Muñoz et al. (2022) did not include any study from Spain. Because more than 90% of Spanish adolescents (from the age of 14 and older) use

SNs (Carat, 2022) and because the proportion of eating disorders in this country is among the highest of those found globally (López-Gil et al., 2023a, b), there is a clear need for studies in this population. Supporting this notion, there is a lack of studies examining the association between SNs and disordered eating among adolescents (Lozano-Muñoz et al., 2022). Studies determining the relationship between the use and addiction to SNs (especially the most used ones currently) and eating disorders in the adolescent population could be useful to establish intervention programs that consider SNs as an important factor in addressing eating disorders in this population. Therefore, the aim of the present study was to examine whether the use and addiction of SNs are associated with disordered eating in Spanish adolescents.

Materials and Methods

Study Design and Population

This study is cross-sectional using data from the Eating Healthy and Daily Life Activities (EHDLA) study (López-Gil, 2022). A total of 653 adolescents (44.0% boys) were included in this study. A detailed explanation of the sample selection process is shown in Figure S1. The EHDLA study included a representative sample of adolescents aged 12 to 17 years from the *Valle de Ricote* in the Region of Murcia, Spain. This study was conducted in three secondary schools during the 2021/2022 academic year. The detailed methodology of the EHDLA study has been previously published elsewhere (López-Gil, 2022).

To participate in this study, the parents or legal guardians of the adolescents received a written informed consent form, which they signed before enrolling their children. The parents/legal guardians and their children were provided with an information sheet that explained the purpose of the research project, the tests, and the questionnaires used. Furthermore, the adolescents were asked if they were willing to take part in the study.

To be eligible for the study, participants had to meet both conditions: (1) be between the ages of 12 and 17 and (2) live or attend school in *Valle de Ricote*. Certain exclusion criteria were also established, including (1) exemption from physical education classes, as the tests and questionnaires were administered during these lessons; (2) any health condition that restricted physical activity or required special attention; (3) undergoing pharmacological treatment; or (4) lack of parental or legal guardian authorization. This research project received ethical approval from two committees—the Bioethics Committee of the University of Murcia and the Ethics Committee of the Albacete University Hospital Complex and the Albacete Integrated Care Management, with IDs of 2218/2018 and 2021–85, respectively. The study adhered to the Helsinki Declaration and ensured the protection of human rights of the participants who were included.

Measurements

Social Networks (Independent Variable)

Social Network Use The use of SNs (Facebook, Twitter, Instagram, Snapchat, and TikTok) was evaluated by a single item scale for each SN individually, asking adolescents what type of SN they use based on five possible responses: (a) “I never or rarely use them”;

(b) “I am a low consumer”; (c) “I am a medium consumer”; (d) “I am a fairly high consumer”; or (e) “I am a very high consumer” (Casas & Madorell, 2007). For our purposes, we recoded all the possible responses into numeric variables from 0 (“I never or rarely use them”) to 4 (“I am a very high consumer”). Thus, all three SN items were summed to compute an SN use score (ranging from 0 to 25, Cronbach’s alpha [α]=0.60), with greater scores denoting higher SN use (Rodgers et al., 2020). In addition, the SN use score was divided into tertiles as follows: low SN use (0 to 4 points); medium SN use (5 to 7 points); or high SN use (8 to 18 points). Furthermore, with the same single item scale, we also evaluated WhatsApp use. However, since WhatsApp is a messaging application rather than an SN, we decided not to include it in the calculation of the SN use score.

Addictive Behaviors Toward Social Networks The Short Social Networks Addiction Scale-6 Symptoms (SNAddS-6S) (Cuadrado et al., 2020) was used to determine possible addiction to SNs. This tool includes six items with behaviors related to tolerance (i.e., when more and more use is desired), salience (i.e., when using the SN is to be the major concern and the priority motivation), mood modification (i.e., when changes in mood by arousing or relaxing are produced), relapse (i.e., when use is controlled but using them again can lead to a relapse in addiction), withdrawal (i.e., when not being able to use leads to suffering psychological and physical symptoms), and conflict (i.e., when spending too much time impairing other social and normal activities), as well as a unifactorial structure, and was previously validated among Spanish adolescents (Cuadrado et al., 2020). For further analyses, all these behaviors were summed (“No”=0; “Yes”=1) to obtain an overall SN addictive behaviors score (ranging from 0 to 25, Cronbach’s α =0.72), with greater scores denoting higher SN addiction. Furthermore, we divided the overall SN addictive behavior score into tertiles as follows: low addictive behaviors (0 to 1 behavior); medium SN addictive behaviors (2 behaviors); or high SN use high SN addictive behaviors (3 to 6 behaviors).

Disordered Eating (Dependent Variable)

To assess disordered eating, the Sick, Control, One, Fat, Food (SCOFF) questionnaire was administered by two psychologists. This tool consists of five yes/no questions and can be administered by oneself or others. The Spanish version of the SCOFF has been validated for use in primary care (Garcia-Campayo et al., 2005). Two or more positive responses out of five were used as a cutoff point, as this has been shown to have high sensitivity and specificity for detecting disordered eating in primary care (Garcia-Campayo et al., 2005). Furthermore, the decision to choose this tool is justified because it is simple, memorable, and easy to apply and score (Morgan et al., 1999) and could be considered the first approach to detect the need for a more exhaustive and specific assessment (Muro-Sans et al., 2008).

Covariates

Sociodemographic Data

The adolescents reported their own age and sex. Socioeconomic status was evaluated using the Family Affluence Scale (FAS-III) (Currie et al., 2008), which consists of six questions with responses ranging from 0 to 13 points. The scores were added together to calculate the FAS-III score, where a higher score represents a higher socioeconomic status.

Lifestyle

To gather information on physical activity and sedentary behavior among adolescents, the researchers used the Youth Activity Profile Physical (YAP), a self-administered 15-item questionnaire (Saint-Maurice & Welk, 2015). The YAP is designed for young people aged 8 to 17 and asks about activities during the previous week using a 5-point Likert scale. The questionnaire is divided into three sections: activity at school, out-of-school activity, and sedentary habits. Activity at school includes physical education classes, lunchtime, recess, and transportation. The out-of-school section includes activities before and after school, evening activities, and weekend activities. The sedentary habits section asks about time spent watching TV, playing video games, using a computer or cell phone, and overall sedentary time. Scores for physical activity (at school and out-of-school) and sedentary behavior (sedentary habits) were calculated by summing the items in each section. The Spanish version of the Youth Activity Profile (YAP-S) has been validated and adapted for use in Spanish children and adolescents (Segura-Díaz et al., 2021). Furthermore, participants' sleep duration was evaluated by inquiring about their typical bedtime and wake-up time on weekdays and weekends separately. The average daily sleep duration for each participant was calculated using the following formula: $[(\text{average duration of nocturnal sleep on weekdays} \times 5) + (\text{average duration of nocturnal sleep on weekends} \times 2)]/7$.

Anthropometric Measures

Following the standard protocols, the waist circumference was measured to the nearest 0.1 cm at the level of the umbilicus using a constant tension tape. These procedures were all based on the recommendations of the International Society for the Advancement of Kinanthropometry.

Statistical Analysis

The study reported means (M) and standard deviations (SD) for all quantitative variables and frequencies (n) and percentages (%) for all qualitative variables. To test associations of SN use, SN addiction, or covariates with disordered eating, bivariate correlations were carried out using Spearman's rho (ρ) (correlation between continuous variables and a dichotomous variable), point-biserial correlation coefficient (rpb) (correlation between ordinal variables and a dichotomous variable), or phi coefficient (ϕ) (correlation between both dichotomous variables). Since preliminary analyses showed no interaction when testing SN use or SN addiction and sex in relation to disordered eating (i.e., SCOFF ≥ 2 points) (SN use: $p=0.096$; SN addiction: $p=0.889$), sex-split analysis was not performed. Binary logistic regression analyses were conducted to estimate the odds ratio (OR) with 95% confidence interval (CI) of the individual association between different SN use or SN addiction levels (low, medium, and high) and disordered eating. These analyses were also performed to obtain the odds of disordered eating per addition point or addictive behavior in the SN use score and SN addiction score, respectively. Age, sex, socioeconomic status, waist circumference, physical activity, sedentary behavior, and sleep duration were included as covariates. Furthermore, to control for the false positive rate when performing multiple comparisons, the false discovery rate (FDR) p value proposed by Benjamini and Hochberg (1995) was applied. All analyses were performed with STATA software (StataCorp., College Station, TX, USA) for Windows (version 17.0). The threshold for statistical significance was set at a p value ≤ 0.05 .

Results

Table 1 shows the descriptive data of the study participants. Instagram was the most common SNs used by the adolescents (87.6%), while Facebook was the least commonly used (12.9%). Almost all of the adolescents used the messaging application WhatsApp (95.9%). Regarding SN addiction, tolerance was the behavior most frequent among adolescents (63.4%). The proportion of adolescents with disordered eating was 29.9%.

Bivariate correlations between SN use, SN addiction, covariates, and disordered eating among adolescents are shown in Table 2. Instagram use ($rpb=0.08$), Snapchat use ($rpb=0.10$), and SN use score ($rpb=0.08$) were significantly associated with disordered eating. All behaviors related to SN addiction were associated with disordered eating (except for tolerance), with values of Spearman's coefficients ranging from 0.09 to 0.17. Similarly, the Short SNAddS-6S score was associated with disordered eating ($rpb=0.19$). Regarding covariates, female sex ($\rho=0.18$) and waist circumference ($\rho=0.20$) were positively correlated with disordered eating. Conversely, FAS-III score ($\rho=-0.09$) and sleep duration ($\rho=-0.10$) showed negative correlations with disordered eating. Notwithstanding, the strength of all these found correlations was low.

Table 3 shows the results of the binary logistic regression models for disordered eating, including the estimators of the association with both SN use and addiction. Compared to those with low SN use, adolescents with medium SN use and high SN use had greater odds of disordered eating in the unadjusted model (medium use: OR = 1.61, 95% CI 1.05, 2.45; high use: OR = 2.02, 95% CI 1.31, 3.10). In the adjusted model, this result remained significant for those with high SN use (OR = 1.88, 95% CI 1.17, 3.02). Regarding SN addictive behaviors, adolescents with high SN addictive behaviors showed a higher likelihood of presenting disordered eating in both unadjusted and adjusted models (unadjusted: OR = 2.42, 95% CI 1.65, 3.55; adjusted: OR = 2.04, 95% CI 1.34, 3.12) in comparison with those participants with low SN addictive behaviors. All results remained significant after applying the p value correction for multiple comparisons. Additionally, the odds of having disordered eating according to the different SNs used and the different SN addictive behaviors are shown in Figure S2. Regarding SN use, per addition point in Instagram use, a greater likelihood of disordered eating was found) after adjusting for several covariates (OR = 1.20, 95% CI 1.01, 1.43). Concerning SN addiction, the adjusted models showed higher odds of disordered eating when mood modification (OR = 1.78, 95% CI 1.20, 2.63) and conflict (OR = 2.13, 95% CI 1.34, 3.39) were present in the use of SNs among adolescents.

Discussion

Main Findings and Comparisons with Previous Studies

To our knowledge, this is the first study examining the association of the SN use (Instagram, TikTok, Twitter, Snapchat, and Facebook) and SN addiction with disordered eating in a sample of Spanish adolescents. Overall, our findings showed that both the use and addiction to SNs were linked with disordered eating in Spanish adolescents. Individually, Instagram use showed the greatest association with disordered eating. Similarly, mood modification and conflict related to the use of SNs were associated with disordered eating.

Table 1 Descriptive data of the study participants

Variables	Total [*]
Total, <i>n</i> (%)	653 (100.0)
<i>Sociodemographic</i>	
Age	14.0 ± 1.6
Male sex, <i>n</i> (%)	287 (44.0)
FAS-III (score)	8.1 ± 2.1
<i>Anthropometric</i>	
Waist circumference (cm)	73.1 ± 10.6
<i>Lifestyle</i>	
YAP-S PA (score)	2.6 ± 0.7
YAP-S SB (score)	2.6 ± 0.6
Sleep duration (min)	492.2 ± 55.9
<i>SN use</i>	
Instagram user, <i>n</i> (%)	572 (87.6)
Twitter user, <i>n</i> (%)	210 (32.2)
Facebook user, <i>n</i> (%)	84 (12.9)
TikTok user, <i>n</i> (%)	526 (80.6)
Snapchat user, <i>n</i> (%)	170 (26.0)
WhatsApp user, <i>n</i> (%)	626 (95.9)
Social network use (score)	13.4 ± 3.6
<i>SN addiction</i>	
Tolerance, <i>n</i> (%)	414 (63.4)
Saliency, <i>n</i> (%)	156 (23.9)
Mood modification, <i>n</i> (%)	299 (45.9)
Relapse, <i>n</i> (%)	231 (35.4)
Withdrawal, <i>n</i> (%)	158 (24.2)
Conflict, <i>n</i> (%)	153 (23.4)
Short SNAddS-6S (score)	2.2 ± 1.7
<i>Disordered eating</i>	
SCOFF (score)	1.0 ± 1.2
Disordered eating ^a	195 (29.9)

FAS-III, Family Affluence Scale—III; PA, physical activity; SB, sedentary behavior; SN, social networks; SNAddS-6S, Social Networks Addiction Scale-6 Symptoms; YAP-S, Spanish version of the Youth Activity Profile.

^{*}Values are the mean (standard deviation), except where otherwise indicated.

^aAccording to the Garcia-Campayo et al. (2005) criteria.

These findings are in line with the systematic review by Lozano-Muñoz et al. (2022), which pointed out the possible role of SN use in the development of eating disorders. However, caution is needed to compare our findings with those of the other authors for the following reasons. First, several studies included in that systematic review encompassed young adults, which resulted in different sample characteristics. Second, most of the studies among adolescents showed associations between some indicators of SNs in isolation and disordered eating rather than in combination. This could be relevant because most

Table 2 Bivariate correlations between social network use, social network addiction, covariates, and disordered eating among adolescents

Variables	Disordered eating ^a		
	ρ	<i>rpb</i>	ϕ
<i>Main predictors</i>			
SN use			
Instagram use (score)	-	0.08 (0.023)	-
Twitter use (score)	-	0.03 (0.189)	-
Facebook use (score)	-	-0.01 (0.989)	-
TikTok use (score)	-	0.04 (0.189)	-
Snapchat use (score)	-	0.10 (0.005)	-
WhatsApp use (score)	-	-0.01 (0.667)	-
SN use (score)	-	0.08 (0.032)	-
SN addiction			
Tolerance (yes)	-	-	0.05 (0.191)
Saliency (yes)	-	-	0.09 (0.022)
Mood modification (yes)	-	-	0.19 (<0.001)
Relapse (yes)	-	-	0.10 (0.012)
Withdrawal (yes)	-	-	0.13 (0.001)
Conflict (yes)	-	-	0.17 (<0.001)
Short SNAddS-6S (score)	-	0.19 (<0.001)	-
Covariates			
<i>Sociodemographic</i>			
Age	0.01 (0.782)	-	-
Sex (1: boys; 2 girls)	-	-	0.18 (<0.001)
FAS-III (score)	-0.09 (0.039)	-	-
<i>Anthropometric</i>			
Waist circumference (cm)	0.20 (<0.001)	-	-
<i>Lifestyle</i>			
YAP-S PA (score)	0.01 (0.643)	-	-
YAP-S SB (score)	-0.01 (0.777)	-	-
Sleep duration (min)	-0.10 (0.050)	-	-

Data expressed as Spearman's rho (ρ) (correlation between continuous variables and a dichotomous variable), point-biserial correlation coefficient (*rpb*) (correlation between ordinal variables and a dichotomous variable), or phi coefficient (ϕ) (correlation between both dichotomous variables). *FAS-III*, Family Affluence Scale—III; *PA*, physical activity; *SB*, sedentary behavior; *SN*, social networks; *SNAddS-6S*, Social Networks Addiction Scale-6 Symptoms; *YAP-S*, Spanish version of the Youth Activity Profile.

^aAccording to the Garcia-Campayo et al. (2005) criteria.

adolescents use more than one SN (Tremolada et al., 2022). Third, none of the studies included the SN TikTok, which is pervasively used in Spanish adolescents (Carat, 2022). In the present study, we found that a higher use of some specific SNs, such as Instagram, was associated with greater odds of disordered eating. Although the mechanisms of action that could explain the associations of the use and addiction to SNs with disordered eating among adolescents have been little studied, there are some aspects that could allow a more thorough understanding of our research findings.

Table 3 Binary logistic regression analyses of the association between social networks and disordered eating among adolescents

Predictors	Disordered eating					
	Unadjusted			Adjusted		
	OR	95% CI	p	OR	95% CI	p
Continuous variable						
SN use (per one point)	1.05	1.00–1.10	0.050	1.03	0.98–1.09	0.269
Categorical variable						
Low SN use	1 (Ref.)			1 (Ref.)		
Medium SN use	1.61	1.05–2.45	0.028	1.51	0.96–2.39	0.077
High SN use	2.02	1.31–3.10	0.001	1.88	1.17–3.02	0.009
Continuous variable						
SN addiction (per one additional behavior)	1.30	1.17–1.44	<0.001	1.24	1.11–1.39	<0.001
Categorical variable						
Low SN addictive behaviors	1 (Ref.)			1 (Ref.)		
Medium SN addictive behaviors	1.30	0.80–2.11	0.287	1.12	0.67–1.89	0.659
High SN addictive behaviors	2.42	1.65–3.55	<0.001	2.04	1.34–3.12	0.001

CI, confidence intervals; OR, odds ratio; SN, social network.

†p value correction for multiple comparisons by false discovery rate by Benjamini and Hochberg (1995).

Idealized Body Images and Social Comparison

SN platforms often present images of individuals who conform to dominant beauty standards (Gill, 2007). Exposure to these images can lead to social comparison, which may increase body dissatisfaction and disordered eating behaviors (Holland & Tiggemann, 2016). Likewise, social media platforms such as Facebook and Instagram promote “fitness inspiration,” which is the abbreviated term used to describe this “fitness inspiration” based on messages promoting fit/healthy lifestyles (Boepple & Thompson, 2016). These messages can lead to body dissatisfaction and a greater risk for disordered eating (Perloff, 2014). For example, a study by Fardouly et al. (2015) found that exposure to appearance-related content on Facebook was associated with increased body dissatisfaction and negative mood in young women. Similarly, appreciation has been related to lower disordered eating behaviors in adolescents regardless of sex (Baceviciene & Jankauskiene, 2020). Thus, it is reasonable to consider that higher SN use might increase body dissatisfaction, which in turn could contribute to disordered eating behaviors. In particular, research has shown that upward social comparison, or comparing oneself to those perceived as more attractive or successful, can lead to a more negative body image and disordered eating behaviors (Fitzsimmons-Craft et al., 2011). Supporting this notion, Rodgers et al. (2015) indicated that the internalization of the thin ideal promoted by the media was associated with increased body dissatisfaction and disordered eating behaviors in adolescent girls and that peer comparison played a role in this relationship. Furthermore, Stefana et al. (2022) indicated that the relationship between the frequency of Instagram use and mental health outcomes is completely mediated by the tendency for social comparison on this SN.

Social Network Influencers

In Spain, a quarter of adolescents aged 12 to 15 years (24.4%) and half of adolescents (aged 16 to 17 years) (50.2%) follow accounts of influencers or people considered experts (Carat, 2022). Many adolescents on SNs could follow influencers who promote an idealized body image (Fardouly et al., 2015). These influencers may share images of their daily diet and exercise routine, which may lead to their followers adopting the same behaviors (Perloff, 2014). For example, a systematic review by Holland and Tiggemann (2016) found that following fitness influencers on Instagram was associated with increased body dissatisfaction. In addition, celebrity influence has been noted as a common component of advertisements, with adolescents being the population most likely to be affected in relation to food choices (Kucharczuk et al., 2022). Moreover, a further possible reason could be related to “clean eating”, a popular nutrition trend that emphasizes consuming whole, minimally processed foods while avoiding highly processed or artificial foods [35]. Thus, SN influencers’ clean eating posts draw on forms of idealization that aim to garner esteem and attention while also generating a sense of community through food media (Walsh & Baker, 2020). These practices are also configured around an ethics of food that encourages responsible consumption for the individual as a healthy subject. In this sense, previous studies have shown that exposure to messages promoting clean eating can lead to a preoccupation with food and an increased risk of developing disordered eating behaviors (Turner & Lefevre, 2017; Varga et al., 2013). Furthermore, the emphasis on following strict guidelines regarding lifestyle and the perceived social rewards associated with adhering to clean eating can also contribute to the development of obsessive or compulsive behaviors (Moroze et al., 2015). In addition, clean eating messages can contribute to feelings of guilt or shame if individuals do not

adhere to strict guidelines, which can lead to negative attitudes toward food and the body (Simpson & Mazzeo, 2017). Therefore, it is important to promote messages that encourage positive relationships with food and the body rather than contributing to the development of disordered eating behaviors (Simpson & Mazzeo, 2017; Turner & Lefevre, 2017; Varga et al., 2013).

Filters and Photo Editing

Images on SNs are often edited to enhance the appearance of individuals on them. These alterations can create an unrealistic depiction of the human body, which may contribute to body dissatisfaction (Fardouly et al., 2015). For example, a study by Perloff (2014) found that social media use was associated with increased body dissatisfaction, in part due to exposure to idealized body images that were often edited. Furthermore, findings by Lonergan et al. (2020) indicated that greater avoidance of posting “selfies,” increased photo investment, and photo manipulation were associated with higher odds of disordered eating among adolescents. On the other hand, greater body dissatisfaction has been linked to increased symptoms of mental health conditions and can result in a higher risk of disordered eating (Mond et al., 2013). Similarly, a study by Firth et al. (2019) pointed out how the Internet is changing our brain function, particularly with the “digital manipulation of images to inflate physical attractiveness.”

Anonymity and Offensive Behaviors

Some adolescents sign into SNs eager for recognition of their personal value and therefore are sensitive to the judgments of others. However, some adolescents may exhibit violent or offensive behaviors facilitated by the sense of protection and anonymity derived from being hidden behind a virtual account (de Felice et al., 2022). Social media offer acceptance, which can promote honest self-expression; however, they also offer a sense of anonymity and online disinhibition, which can encourage communications that would be considered inappropriate or overtly hostile in a face-to-face setting (Lydecker et al., 2016). Thus, offensive comments about appearance made over the Internet and exposure to pictures adversely may affect the self-esteem and body image of adolescents (Latzer et al., 2015), which are important predictors of eating disorders (Stice, 2002). In addition, cyberbullying or intimidation through SNs often uses criticisms about body image that could reduce self-esteem, and it is an increasingly present factor in young people who have suffered from an eating disorder (de Diego Díaz Plaza et al., 2022). However, caution is required to interpret this hypothesis because there is limited research on the relationship between online anonymity, violent or offensive behaviors, and disordered eating specifically.

Methodological Considerations

The current study has certain limitations that should be mentioned. This was a cross-sectional study and does not allow causal inferences to be made. Future prospective observational and experimental studies are required to examine whether increased use and addiction to SNs leads to increased disordered eating in adolescents. Similarly, it is possible that the questionnaires used in this study may have been subject to differential desirability bias due to information and recall bias among adolescents. Although a meta-analysis has shown the usefulness

of the SCOFF questionnaire as a simple screening tool for disordered eating behavior, more investigation of the SCOFF's validity or the creation of a novel screening tool to identify the spectrum of eating disorders specified in the DSM-5 is required (Kutz et al., 2020). Despite controlling for several essential covariates related to sociodemographic, lifestyle, and anthropometric factors, there is still a possibility of residual confounding, such as waist circumference or sleep duration, that may have influenced the results obtained. Conversely, the inclusion of several SNs used today by adolescents (e.g., TikTok) is a strength of this study. Finally, another strength is the provision of additional cross-sectional evidence that sheds light on the understudied link of the use of and addiction to SNs with disordered eating in adolescents.

In conclusion, SN use and addiction must be considered factors related to disordered eating among adolescents. Given the high proportion of disordered eating found in adolescents globally (López-Gil et al., 2023b), it could be relevant to promote awareness campaigns on the dangers of excessive use of SNs, as well as their responsible use, since they could be related to lower disordered eating behaviors in youths.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11469-023-01081-3>.

Acknowledgements The authors would like to express their gratitude to Ayuntamiento de Archena, as well as the participating adolescents, parents/legal guardians, physical education teachers, schools, and staff, and wish to thank them for the information provided.

Author Contribution Conceptualization, J.F.L.-G.; methodology, J.F.L.-G.; writing—original draft preparation, J.F.L.-G.; writing—review and editing, S.C., A.E.M., E.J.-L., J.A.-H., E.-H.-G., J.M.P.R., P.J.T.-L.; supervision, J.F.L.-G.; project administration, J.F.L.-G. All authors have read and agreed to the published version of the manuscript.

Funding Open Access funding provided by Universidad Pública de Navarra.

Data Availability The data that support the findings of this study are available from the corresponding author, J.F.L.-G., upon reasonable request.

Declarations

Ethics Approval The Bioethics Committee of the University of Murcia and the Ethics Committee of the Albacete University Hospital Complex and the Albacete Integrated Care Management, with IDs of 2218/2018 and 2021–85, respectively.

Informed Consent All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

Conflict of Interest The authors declare no competing interests.

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