



The Association between Physical Activity Levels and Social Media Addiction among Adolescents: A Descriptive Correlational Study

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Abstract

The aim of this study is to evaluate the relationship between physical activity levels and social media addiction in adolescents. The study was structured as a descriptive correlational research, comprising a cohort of 160 volunteer students (90 female and 70 male) residing in Ağrı, Turkey. The female students had an average age of 15.5 ± 1.2 years, while the male students had an average age of 15.0 ± 1.4 years. Data collection was conducted using two instruments: the Social Media Addiction Scale for Adolescents and the abbreviated version of the International Physical Activity Questionnaire. Data analysis encompassed correlation and regression techniques, with statistical analysis performed using the SPSS statistical software version 26 (SPSS, Inc., Chicago, IL, USA). The results of the study revealed that there was no significant relationship between the participants' physical activity levels and their social media addiction (Beta = 0.53, $p > 0.05$). It's noteworthy that the R-squared value is negative (-0.07). However, a strong positive correlation was identified between the participants' gender and their overall physical activity levels ($z = -2.41$, $p < 0.05$). This positive correlation was also observed in all sub-dimensions, specifically in walking ($z = -2.16$, $p = 0.02$), vigorous activity ($z = -2.22$, $p = 0.02$), and moderate activity ($z = -2.61$, $p = 0.01$). Furthermore, there was no difference in the mean score distributions of the Social Media Addiction Scale for Adolescents by gender ($F = 1.34$, $p = 0.23$). However, a weak positive correlation was found between social media addiction and the age of the students ($r = 0.362$, $p = 0.01^*$). In conclusion, this study does not establish a significant association between social media addiction and physical activity levels in adolescents. However, it highlights a positive correlation between participants' gender and their physical activity levels. These findings may be useful in developing interventions to promote physical activity and reduce social media addiction in adolescents.

Keywords: Behavior, Lifestyle, Social Media Impact.

Özet

Ergenlerde Fiziksel Aktivite Düzeyleri ve Sosyal Medya Bağımlılığı Arasındaki İlişki: Tanımlayıcı Korelasyonel Bir Çalışma

Bu çalışmanın amacı, ergenlerde fiziksel aktivite düzeyleri ile sosyal medya bağımlılığı arasındaki ilişkiyi değerlendirmektir. Çalışma, Ağrı'da ikamet eden 160 gönüllü öğrenciden (90 kız ve 70 erkek) oluşan bir kohortu içeren tanımlayıcı bir korelasyonel araştırma olarak yapılandırılmıştır. Kız öğrencilerin yaş ortalaması 15.5 ± 1.2 , erkek öğrencilerin yaş ortalaması ise 15.0 ± 1.4 'tür. Veri toplama iki araç kullanılarak gerçekleştirilmiştir: Ergenler için Sosyal Medya Bağımlılığı Ölçeği ve Uluslararası Fiziksel Aktivite Anketi'nin kısaltılmış versiyonu. Veri analizi korelasyon ve regresyon tekniklerini kapsamış ve istatistiksel analiz SPSS istatistik yazılımı sürüm 26 (SPSS, Inc., Chicago, IL, ABD) kullanılarak gerçekleştirilmiştir. Çalışmanın sonuçları, katılımcıların fiziksel aktivite düzeyleri ile sosyal medya bağımlılıkları arasında anlamlı bir ilişki olmadığını ortaya koymuştur (Beta = 0.53, $p > 0.05$). R-kare değerinin negatif (-0.07) olması dikkat çekicidir. Bununla birlikte, katılımcıların cinsiyetleri ile genel fiziksel aktivite düzeyleri arasında güçlü bir pozitif korelasyon tespit edilmiştir ($z = -2.41$, $p < 0.05$). Bu pozitif korelasyon, özellikle yürüme ($z = -2.16$, $p = 0.02$), şiddetli aktivite ($z = -2.22$, $p = 0.02$) ve orta şiddetli aktivite ($z = -2.61$, $p = 0.01$) olmak üzere tüm alt boyutlarda da gözlemlenmiştir. Ayrıca, Ergenler için Sosyal Medya Bağımlılığı Ölçeğinin ortalama puan dağılımlarında cinsiyete göre bir fark bulunmamıştır ($F = 1.34$, $p = 0.23$). Ancak, sosyal medya bağımlılığı ile öğrencilerin yaşları arasında pozitif yönde zayıf bir korelasyon bulunmuştur ($r = 0.362$, $p = 0.01^*$). Sonuç olarak, bu çalışmada ergenlerde sosyal medya bağımlılığı ile fiziksel aktivite düzeyleri arasında anlamlı bir ilişki kurulmadığı ortaya konmuştur. Ancak, katılımcıların cinsiyetleri ile fiziksel aktivite düzeyleri arasında pozitif bir korelasyon olduğunu vurgulanmaktadır. Bu bulgular, ergenlerde fiziksel aktiviteyi teşvik etmeye ve sosyal medya bağımlılığını azaltmaya yönelik müdahalelerin geliştirilmesinde faydalı olabilir.

Anahtar Kelimeler: Davranış, Yaşam tarzı, Sosyal Medya Etkisi.

INTRODUCTION

Physical activity can be defined as activities that take place with energy consumption by using our muscles and joints in daily life, increase heart and respiratory rate and result in fatigue at different intensities. In daily life, running, walking, cycling for at least 30 minutes every day, using the stairs instead of the elevator, doing housework, and doing physical activity in the garden develops an active lifestyle (1, 2). Physical activity reduces the risk of chronic disease and early mortality, and makes an important contribution to preventing bone, muscle, and joint diseases. In addition, it has been stated that regular moderate physical activity can prevent the formation of cardiovascular diseases, prevent obesity, improve mood, and increase life satisfaction (3). Lack of physical activity can cause chronic diseases such as obesity, coronary heart disease, non-insulin dependent diabetes, and mental problems (3, 4).

Adolescence represents a pivotal stage in the transition to adulthood, typically coinciding with high school years, during which both social and academic responsibilities concurrently intensify. The literature has documented the potential decrease in physical activity and subsequent reduction in calorie expenditure among young individuals resulting from technological advancements (5). In recent years, there has been a growing recognition that this prevailing trajectory may be disrupted by the adoption of technology as a forward-looking instrument to promote physical activity, exemplified by the emergence of exergaming (4, 6). Nevertheless, it becomes imperative to scrutinize the role of social media, which commands the most substantial portion of individuals' internet usage.

In today's world, characterized by widespread mobile and online presence, social media can be defined as a tool that provides individuals and organizations with an open platform for sharing and communication without boundaries. It facilitates communication among individuals and institutions, fostering free discourse. Online social groups are structured around the use of words, visuals, video recordings, and audio to convey ideas to other group members through media applications and behaviors, collectively constituting the realm of social media (7, 8).

Adolescents use social networks for various reasons such as communication with family and friends, accessing information and entertainment (9). Agosto et al., (10), Ahn (11) and Donmez et al., (12) found that adolescents and young people mostly use social networks to interact with others. The reason why social media is used for interaction purposes is that friendships and communication between children and young people are seen as an important need (13).

Social media addiction is a psychological problem that causes problems such as preoccupation, repetition, and conflict in many aspects of a person's daily life, such as private, work/academic, and social areas (14). With intense use of social media, the occurrence of problems in fulfilling the responsibilities of individuals and the hindrance of this in their life activities lead to disruption of activities in the daily life of individuals, spending more time on social media, and loss of time (15). Students who spend a lot of time on the internet and social media applications can be influenced by these applications and break away from social life (16). In addition, it has been stated that social media negatively affects interpersonal relationships (17), psychological health (18), and private life (19). In light of all these considerations, the aim of this study is to investigate the relationship between social media addiction and physical activity levels in adolescents.

METHOD

Research group

The research group consisted of volunteer students (90 female, 70 male) residing in Agri, Turkey. Two scales were used as the data collection tool. The first scale used in the study is the Social Media Addiction Scale for Adolescents (20) and the other is the short form of the "International Physical Activity Questionnaire" (21). Both of these scales are validated and reliable.

International Physical Activity Questionnaire (IPAQ)

The International Physical Activity Questionnaire (IPAQ) was used to determine the physical activity level of the volunteers (22). The validity and reliability of the questionnaire in Turkish were conducted by Sağlam et al. in 2010 (23). In the study, a self-administered short form of 7 questions covering the last 1 week was used to evaluate the level of physical activity. The calculation of the total score of the short form includes the sum of time (minutes) and frequency (days) of walking, moderate-intensity activity, and vigorous activity. The sitting score is calculated separately. The questionnaire includes questions about physical activity that was done for at least 10 minutes in the last week. A score is obtained as "MET-minutes/week" by multiplying the minutes, days, and MET values. Walking time (minutes) was multiplied by 3.3 METs to calculate the walking score. In the calculation, 4 METs for moderate-intensity activity and 8 METs for vigorous activity were taken. Physical activity levels include those who are not physically active (<600 MET-min/week), low physical activity level (low active) (600-3000 METmin/week), and adequate physical activity level (beneficial for health) (>3000 MET-min/week) (22).

Social Media Addiction Scale for Adolescents

The Social Media Addiction Scale for Adolescents was created by Ozgenel et al. (2019) and consists of 9 items graded on a 5-point Likert scale (Never-1, Rarely-2, Sometimes-3, Often-4, Always-5) (20). There are no reverse scored items in the scale. A minimum score of 9 points and a maximum score of 45 points can be obtained from the scale. To obtain a total score from the scale, the answers given to all items are collected. The higher the total score calculated, the higher the individual's social media addiction is, and the lower the total score, the lower the individual's social media addiction is. The Cronbach Alpha value of the scale was found to be 0.90 and was found to be 0.88 after its use in the study (3).

Data collection process and analysis of data

The data for this research were collected through face-to-face interviews in March 2023, utilizing self-administered forms. The data acquired in this study were analyzed using the SPSS statistical software version 26 (SPSS, Inc., Chicago, IL, USA). Numbers, percentages, minimum and maximum values, mean and standard deviation were used in the evaluation of the data. However, the conformity of the data to the normal distribution was also examined with the Shapiro-Wilk's test and it was found that the data were not suitable for the normal distribution. In the analysis of the data, percentages, frequencies, chi-square test were used to

examine the relationship between binary categorical variables and Mann Whitney U test was used to determine the relationship between the variables. In our study, “ $p < 0.05$ ” was considered statistically significant.

Ethical aspect of research

Throughout the research, the ethical principles outlined in the Helsinki Declaration were adhered to. Prior to commencing the study, requisite approval was obtained from the Non-Interventional Ethics Committee of Agri Ibrahim Cecen University, with the protocol number E-95531838-050.99-67830. Before starting to answer the survey questions, the students participating in the research were fully informed about the study via the link created for the survey form, and their informed consent was obtained prior to them filling out the survey questions.

Limitations of the research

Collecting the research data online and conducting the research in a single institution constitute the limitations of the research.

FINDINGS

It was determined that 55.6% of the individuals were women, whereas 44.4% were men, with an average age of 15.26 ± 1.35 years. Specifically, female students had an average age of 15.5 ± 1.2 years, while male students had an average age of 15.0 ± 1.4 years (Table 1).

Table 1. Descriptive Statistics of Individuals

Variables	(n:160)	Average Age (X±SS)	%
Gender	Woman (n:90)	15.5 ± 1.2	55.6
	Male (n:70)	15.0 ± 1.4	44.4
Total (n:160)		15.26 ± 1.35	100

There is no difference between the Social Media Addiction Scale for Adolescents mean score distributions by gender ($p > 0.05$) (Table 2).

Table 2. The Relationship Between Individuals' Gender and Social Media Addiction

	Woman (n :90)	Male (n :70)	Total (n :160)	F	P
When I don't use social media, I get angry, worried, or sad.	2.91 ± 1.19	2.93 ± 1.00	2.92 ± 1.08	1.37	0.24
There are always activities that I think about doing or will do on social media on my mind.	2.85 ± 1.45	2.48 ± 1.12	2.65 ± 1.28	0.03	0.84
Since I use social media a lot, I don't have time for other activities or hobbies such as movies, theater, music, or sports.	2.54 ± 1.12	2.37 ± 1.17	2.45 ± 1.14	0.42	0.36
While browsing social media, I extend the time by saying "just a little more."	3.08 ± 1.31	3.35 ± 1.17	3.23 ± 1.23	0.09	0.63
Although social media negatively affects my work, school, or family life, I continue to use it.	2.94 ± 1.28	3.17 ± 1.13	3.07 ± 1.19	0.14	0.70
I have a hard time trying to control, reduce or stop my social media use.	3.57 ± 1.24	3.37 ± 1.23	3.46 ± 1.23	0.05	0.82
I use social media more to feel happy.	2.60 ± 1.00	2.80 ± 1.09	2.71 ± 1.05	0.07	0.78
I hide the amount of time I spend on social media from my family or people around me.	2.34 ± 1.02	2.62 ± 1.00	2.50 ± 1.01	0.04	0.82
Because of the time I spend on social media, I have serious conflicts in my relationships with people (family, friends and social environment).	2.91 ± 1.03	3.17 ± 1.05	3.06 ± 1.04	2.42	0.12
Total Score Average	26.22 ± 3.60	25.77 ± 4.44	26.07 ± 3.98	1.34	0.23

The mean total score of social media addiction according to the age of the participants is shown in Table 3. Accordingly, a weak positive correlation was found between social media addiction and the age of the students ($p < 0.05$).

Table 3. The Relationship Between Individuals' Ages and Social Media Addiction

Age	SMBI Rating Range		Mean	SD	r-p
	Minimum	Maximum			
13 (n:16)	19	34	24.46	3.83	0.362 P=0.01*
14 (n:42)	16	32	24.96	3.32	
15 (n:26)	12	35	25.88	3.82	
16 (n:36)	16	35	26.78	4.37	
17 (n:40)	15	36	27.42	4.60	
Total (n:160)	12	36	26.07	3.98	

* $p < 0,05$

The relationship between the physical activity levels of the participants and their social media addiction is shown in Table 4. No relationship was found between the physical activity levels of the participants and social media addiction ($p > 0.05$).

Table 4. The Relationship Between Individuals' Physical Activity Levels and Social Media Addiction

Dependant Variables	Independent Variable	p	R2	Beta
IPAQ Total Score				
SMASCA Q1		.05	1.94	.12
SMASCA Q2		.31	1.01	-.02
SMASCA Q3		.85	-.17	-.03
SMASCA Q4		.75	-.31	-.08
SMASCA Q5		.52	-.63	.07
SMASCA Q6		.53	.61	.01
SMASCA Q7		.91	.11	.04
SMASCA Q8		.69	.39	-.12
SMASCA Q9		.36	-.92	-.08
SMASCA TOTAL SCORE		.53	-.08	-.07

SMASCA: Social media addiction scale for adolescents.

Table 5 provides a comprehensive overview of the relationship between gender and physical activity levels among the study participants. The table reveals that males, comprising 70 individuals, generally exhibit higher physical activity scores across all categories compared to females (90 individuals). Specifically, males have notably higher mean scores for walking activity, vigorous activity, moderate activity, and total activity. Statistical analysis using the Z-test demonstrates that these differences are statistically significant ($p < 0.05$) in all categories, indicating that gender plays a substantial role in influencing physical activity levels.

Table 5. The Relationship Between Individuals' Gender and Physical Activity Levels

Physical Activity Scores	Male (n:70)		Female (n:90)		Z	p
	Mean±SD	Min-Max	Mean±SD	Min-Max		
Walking Activity Score (MET-min/wk)	518.33±361.98	120-1000	316.48±268.54	120-980	-2.16	0.02
Vigorous Activity Score (MET-min/wk)	1442.30±1224.18	200-4200	410.35±448.33	150-2520	-2.22	0.02
Moderate Activity Score (MET-min/wk)	1116.13±950.81	150-3200	448.88±461.99	150-2520	-2.61	0.01
Total Score (MET-min/wk)	3076.77±1281.23	1160-6740	1175.73±618.35	455-3373	-2.41	0.01

* $p < 0.05$, MET-min/wk: Metabolic equivalent of task per minute per week.

DISCUSSION AND CONCLUSION

In this section, the findings regarding the relationship between social media addiction and physical activity levels in adolescents are discussed in line with the literature.

In our study, we observed that there was no significant difference in the mean score distributions of the Social Media Addiction Scale for Adolescents when analyzed by gender ($p > 0.05$). However, it is worth noting that our findings contrast with some previous studies. For instance, Guner et al. (2022) found that female students exhibited a higher and statistically significant level of social media addiction compared to male students ($p < 0.05$) (24). Similarly, studies conducted by Guney and Tastepe (2020), Eryilmaz and Cukurluoç (2018), and Balci and Golcu (2013) on social media addiction among adolescents have consistently reported a higher prevalence of social media addiction among girls (25-27). These studies have highlighted the differences in social media usage patterns between genders, with females often engaging more in social media activities. However, it's important to acknowledge that our study's results align with some previous research that also did not find a significant difference in social media addiction based on gender among adolescents (28-30). These mixed findings indicate that the relationship between gender and social media addiction is complex and may vary depending on various factors, including cultural, social, and individual differences. Future research in this area may benefit from a more in-depth exploration of the underlying factors contributing to these gender-related differences in social media addiction among adolescents.

A weak positive correlation was found between social media addiction and the age of the students ($p < 0.05$). While it was determined that the level of internet addiction is highest in the age group of 15-16 years (31), the findings regarding social media addiction are more complex. It is also noteworthy that there is no consensus among studies regarding the association between age and social media addiction. For instance, some research has indicated that young people (32-34) tend to exhibit problematic social media use, while others have not found any significant relationship (16, 35) or have reported that older users (36) are more prone to problematic social media use. Factors such as increased independence, academic pressure, social connections, and the need for communication can be cited among the reasons for the potential tendency of increasing social media addiction in adolescents with age (37-39). These factors may contribute to the escalation of social media usage as adolescents grow older.

In our study, no relationship was found between the physical activity levels of the participants and their social media addiction ($p > 0.05$). In a study conducted by Huang et al. (2022), similar to our research, no significant relationship was found between problematic use of the Internet/smartphone and the level of

physical activity (40). These findings do not support the commonly held hypothesis that there would be negative associations between different types of social media addiction and levels of physical activity observed over time, nor do they align with previous study results (41, 42). This intriguing observation may be partially explained by the multitask theory (43), suggesting that the use of social media and online gaming might overlap with physical activity. In other words, the potential health-promoting effects of social media (44) or the health-facilitating effects of online gaming (45) could partly contribute to individuals engaging in physical activity, although this remains a speculative possibility.

A strong positive correlation was found between the genders of the participants and their moderate physical activity and total physical activity levels ($p < 0.01$). Similarly, a positive correlation was found between the gender of the individuals, their walking score, and vigorous physical activity ($p < 0.05$). Studies conducted in the literature review support the result. Baydemir et al. (2018) conducted a study on children aged 11-13 years and found that boys had higher physical activity levels than girls (46). Kocak et al. (2002) found significant differences in the physical activity levels of male and female students aged 11-14 (47). Talema and Yang (2000) stated in their study that boys have a higher level of physical activity than girls (48). Coskun and Ozer (2018) stated in their research that physical activity scores for girls at secondary school level are lower than for boys (49). Karaaslan and Celebioglu (2018) found that the physical activity average score of male students is higher than the average score of female students (50). Keskin et al. (2017) found that male students' scores were higher than female students in their research with secondary school students (51). The findings of our study are consistent with the existing body of literature. The heightened level of physical activity observed in males can be attributed to a range of factors, including inherent biological distinctions, prevailing cultural and societal norms, familial and societal pressures, early life experiences, and the prevailing social environment (52).

In conclusion, the study findings suggest that there is no significant association between social media addiction and physical activity levels in adolescents. However, considering the limitations of this study, further investigation is warranted across different regions and age groups to gain a more comprehensive understanding of this relationship. In an era marked by continuous technological advancements and the widespread use of social media, it becomes imperative to delve into the potential underlying factors and consequences of this association and to implement appropriate measures to address any potential adverse effects. In this context, future research should prioritize examining the impact of social media addiction among adolescents engaged in sports participation and consider comparisons with inactive or sedentary individuals or within various sports disciplines for a more nuanced perspective.

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