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How does Internet Addiction Affect Adolescent Lifestyles? Results from a School-Based Study in the Mediterranean Region of Turkey

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ABSTRACT

Purpose: The habits acquired during adolescence may continue into adulthood. Therefore, the identification and prevention of Internet addiction is an important goal. The aim of this study was to investigate the effects of Internet addiction on the lifestyles of adolescents in a sample in the Mediterranean region of Turkey.
Design and methods: The sample consisted of 367 adolescents. Data were collected using a personal information form, the Internet Addiction Scale, and the Healthy Lifestyle Behaviours Scale-II between January and June 2018. This manuscript has been prepared according to Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.
Results: The mean Internet addiction score among the included adolescents was found to be moderate. Males aged 17 years with divorced parents and adolescents who have poor relationships with family members and friends had higher average Internet addiction scores. A negative and moderate relationship between Internet addiction and healthy lifestyle behaviours was identified among adolescents.
Conclusions: Internet addiction is negatively and moderately predictive of an adolescent's lifestyle.
Practice implications: Strengthening relationships with family and friends can prevent adolescents from developing Internet addictions and increase healthy lifestyle behaviours. Courses should be added to the curriculum that aim to improve the understanding of the risks and benefits (e.g. e-mail, Internet tools) associated with the Internet for both school staff and students. The results of the present study can be used to guide the development of a healthy Internet use program targeted at adolescents for use by school nurses.
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Introduction

Today, the Internet is used by over four and a half billion people worldwide (Internet World Stats, 2020), including approximately 60 million users in Turkey (TSI, 2019). According to studies by the Turkey Statistical Institute (2005), 8.7% of families in Turkey had Internet access in their homes in 2005, a rate that increased to 87.9% by 2019 (TSI, 2019). The rapid global spread of the Internet has resulted in numerous studies reporting problems associated with the increased popularity and frequency of Internet use, including widespread Internet addiction, which is considered to be an entirely new type of addiction (Fumero et al., 2018; Kuss & Lopez-Fernandez, 2016). Internet addiction occurs when an individual spends much more time on the Internet than is considered reasonable. There is no definitive definition or consensus about Internet addiction and it is assumed to be a very broad concept. Internet addiction is included in the determination to reach a uniform definition and in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. Despite this, researchers and clinicians encountered difficulties in identifying Internet addiction as an impulse control disorder (Saraiva et al., 2018). Internet addiction is defined as the decrease in the importance of time when the Internet is not used, excessive irritability and aggression in cases where the Internet is not accessible despite the demand, and the disruption of the social, work and family life of the individual (Simsek et al., 2019).

Internet addiction has been observed in all age groups; however, the most at-risk group is adolescents. Internet addiction can cause many personal problems, including social, psychological, and physical health problems, especially among adolescents (Fumero et al., 2018; Özparlak & Karakaya, 2020; Uysal & Balci, 2018). One of the most prominent features of adolescents is their sense of curiosity (Clark et al., 2019), and the Internet can provide easy access to information that can satisfy that curiosity (Şahin et al., 2016). However, uncontrolled access to the Internet can increase the risk of addiction among adolescents. Internet addiction is a rapidly growing problem among adolescents (Fumero et al., 2018; Kaltiala-Heino et al., 2004), which

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has resulted in a recent increase in the number of studies examining the effects of Internet addiction on individuals aged 12–17 years (Uysal & Balci, 2018; Yu & Shek, 2013).

The prevalence of uncontrolled, unintended, and long-term Internet use by young people has been shown to negatively affect healthy behaviours (Alaçam et al., 2015; Özparlak & Karakaya, 2020; Şimşek et al., 2015). Chung et al. (2019) determined that Internet addiction negatively affected growth and development among adolescents. In addition, other research has shown that Internet addiction has resulted in an overall decrease in the general public's interest in exercise and has negatively affected nutrition and interpersonal relationships, robbing individuals of sufficient mechanisms for coping with stress (Al-Gamal et al., 2016; Alpaslan et al., 2015; Kuss & Lopez-Fernandez, 2016). Determining the factors that contribute to Internet addition is critical to the development of strategies to prevent and control this behaviour. According to a study performed by Uysal and Balci (2018), programs that address Internet addiction must be developed and evaluated. The aim of the present study was to investigate the effects of Internet addiction on the lifestyle of adolescents in a sample from the Mediterranean region of Turkey. To achieve this goal, these situations should first be defined. In the present study, two research questions are addressed. How does Internet addiction affect the lifestyles of adolescents? What factors affect the development of Internet addiction and the lifestyles of adolescents?

Methods

Study design

This study was performed as a cross-sectional, comparative, and correlational study. This study complied with the guidelines for Strengthening the Reporting of Observational Studies in Epidemiology (STROBE). The STROBE Statement is a checklist of items that should be addressed in articles reporting the three main study designs of analytical epidemiology - "cohort", "case control" and "cross-sectional studies". The checklist consists of 22 items. The aim is to provide guidance for accurate and complete reporting of observational research (Von Elm et al., 2014) (Supplementary File 1).

Participants and setting

The population of this study consisted of 6000 adolescents between the ages of 12 and 17 years. Two high schools and seven secondary schools were selected for the study from among the schools in a large city in the Mediterranean region of Turkey using the cluster sampling method. Students from each school were selected for the study using the stratified sampling method. Thus, efforts were made to prevent the potential for bias. These nine schools have a total enrolment of 6000 students. The number of samples required to observe a significant effect was calculated using the G * Power 3.0.10 program (Faul et al., 2007), resulting in a recommended sample size of 361 with a 5% margin of error and a 95% confidence interval. The final sample consisted of 367 adolescents who were students at these schools and who volunteered to participate in the research.

Data collection

Data collection was conducted between January 2018 and June 2018. A pilot application of the questionnaire was conducted on a total of 20 students between the ages of 12 and 17 years. A total of 375 surveys were collected to allow for the possibility that some surveys would contain incomplete data and be unusable. Eight questionnaires were excluded from the analysis because they contained incomplete data, and a total of 367 questionnaires were analysed. During the data collection process, care was taken not to interrupt the students' regular school courses. The time during which data collection was performed was planned in cooperation with the teachers and according to the students' course schedules. Prior to the collection of data, the adolescents and teachers were informed of the purpose of the study, and both verbal and written permission was obtained. After the purpose of the study was explained to the adolescents, their informed consent was obtained. Data were collected through face-to-face interviews. There was no time limit for completing the survey. Completing the questionnaire took approximately 10–15 min for each participant.

Data collection tools

Data were collected using paper-and-pencil surveys. A personal information questionnaire and two surveys were administered, including the Young Internet Addiction Test (IAT) and the Healthy Lifestyle Behaviours Scale-II (HLBS-II). The personal information form was developed by the researchers, based on similar previously described in the literature, and consisted of 22 items. The IAT was developed by Young (1998), and the validity and reliability of the IAT were tested by Bayraktar (2001) in Turkey. The test was shown to be capable of evaluating the Internet addiction levels of adolescents aged 12–17 years. The Cronbach's alpha value of the translated test was found to be 0.91. The test requires measures responses to 20 total items based on a 5-point Likert scale. In the IAT, the participants were asked to respond to each question as 'Never', 'Rarely', 'Occasionally', 'Very often', and 'Continuously', which corresponded to 1, 2, 3, 4, and 5 points, respectively. Dependence severity scores of 20–49, 50–79, and 80–100 were classified as normal, moderate, and severe, respectively. The HLBS-II was developed by Walker and Hill-Polrecky (1996), and the validity and reliability of a Turkish adaptation were evaluated by Bahar et al., 2008. The Cronbach's alpha value of the scale was 0.94. The HLBS-II includes a total of 52 items and contains 6 subscales: health responsibility, exercise, nutrition, self-actualisation, interpersonal support, and stress management. The general score of the scale is the point of giving importance to healthy lifestyle behaviours. All items on the scale are positive. Respondents rate each question using a 4-point Likert scale, and the lowest possible mean score is 1, whereas the highest possible mean score is 4. In the HLBS-II, the participant is asked to select 'Never', 'Sometimes', 'Often', and 'Regularly' (Cronbach's alpha values of the scales used in the present study are given in Table 1).

Data analysis

Data were analysed using the statistical program SPSS 23.0 (IBM, Armonk, NY, USA). Cronbach's alpha coefficient was used to determine the reliability of the scales used in this study. Frequency, percentage distribution, and arithmetic mean were used to analyse the demographic characteristics of the adolescents. To determine whether differences exist in the adolescents' Internet addiction and healthy lifestyle behaviours according to demographic characteristics, an analysis of variance (ANOVA), followed by post hoc *t*-tests and Tukey's tests, were used.

Table 1
Cronbach's alpha values and scores of Internet addiction and healthy lifestyle behaviours ($N = 367$).

Variables	Cronbach's alpha	Score	SD	Min	Max
IAT					
Total Score	0.82	59.58	0.78	20.00	100.00
HLBS II					
Scale Mean Score	0.79	2.55	0.52	1.00	4.00
Personal Health	0.80	2.15	0.67	1.00	4.00
Physical Activity	0.83	2.46	0.91	1.00	4.00
Diet	0.75	2.34	0.61	1.00	4.00
Spritiual Development	0.82	2.87	0.78	1.00	4.00
Interpersonal Relations	0.77	2.78	0.75	1.00	4.00
Stress Management	0.80	2.60	0.68	1.00	4.00

SD = Standard Deviation, Min = Minimum, Max = Maximum.

Pearson's correlation coefficient analysis was used to investigate the relationships between adolescents' Internet addiction and healthy lifestyle behaviours. A regression analysis was performed to investigate the effects of Internet addiction on lifestyle. The significance level was set to 0.05.

Ethical approval

To conduct the present study, ethics committee approval was obtained. This study was performed according to the Declaration of Helsinki (WMA Declaration of Helsinki, 2013). Written permission was obtained from the Directorate of National Education and from each school where data collection was conducted. Planning was performed in concert with the school teachers to collect data at an appropriate time for the students. Thus, the educational process of the students was able to continue as normal. The purpose of the study was explained to the participants, and informed consent was obtained. Thus, the ethical principle of informed consent was fulfilled.

Results

Cronbach's alpha coefficients and scores of internet addiction and healthy lifestyle behaviours

Table 1 shows the Cronbach's alpha values and the scores for the IAT (59.58 ± 0.78) and HLBS-II (2.55 ± 0.52); the mean scores for both tests among adolescents were found to be moderate.

Sociodemographic characteristics of adolescents

A total of 367 adolescents participated in this study. Females represented 60.5% of the participants, and the mean age of the participants was 14.38 years (*SD*: 1.74 years). Among the study population, 87.5% reported that their parents were married, and 62.9% had good relationships with their family members. Approximately 54.8% of the adolescents had good relationships with their friends, and 52.3% of their families enjoyed good economic status. Success at school was reported by 45.8% of the participants (Table 2). Internet use for 0–2 h each day was reported by 42.0% of participants, 56.1% of them began to use the Internet between the ages of 6 and 10, and 56.7% did not have anyone who supervised their Internet usage. The reliability of the information on the Internet was uncertain according to 60.8% of the participants, and 31.1% used the Internet primarily to play computer games, whereas 31.9% used Facebook and other social media sites. The results showed that 32.9% reported problems with sleeplessness due to long-term Internet use (Table 3).

Adolescent characteristics associated with internet addiction and lifestyle

Comparisons between the descriptive characteristics of adolescent participants and their mean IAT and HLBS-II scores (Table 2), showed significant differences in test scores according to the values of certain variables ($p < 0.05$). Adolescents who were male, 17 years old, had divorced parents, and poor relationships with family members and friends had statistically significantly higher average IAT scores and lower average HLBS-II scores. Adolescents who were female, 12 years old, living with their parents, and had good relationships with family and friends, had high HLBS-II scores.

Internet addiction and lifestyle in terms of internet use for adolescents

When the characteristics of adolescents' Internet use were compared with their mean IAT and HLBS-II scores (Table 3), significant differences were identified between certain variables ($p < 0.05$). Adolescents who used the Internet for seven hours or more, daily, and primarily for gaming purposes had higher levels of Internet addiction.

Table 2
Adolescents' characteristics associated with Internet addiction and lifestyle (N = 367).

Characteristics	n	%	IAT	HLBS II
Gender				
Female	222	60.5	50.23	2.89
Male	145	39.5	65.76	2.40
			$p = 0.001$[a]	$p = 0.001$[a]
Age (years)				
12	71	19.3	42.92	2.79
13	62	17.0	47.74	2.61
14	65	17.7	49.03	2.51
15	58	15.8	56.72	2.42
16	47	12.8	59.14	2.40
17	64	17.4	61.98	2.38
			$p = 0.001$[a]	$p = 0.001$[a]
Marital status of parents				
Married	321	87.5	49.60	2.64
Divorced	46	12.5	58.79	2.46
			$p = 0.007$[a]	$p = 0.537$
Adolescents' relationship with family members				
Wery well	77	21.1	47.39	2.63
Well	231	62.9	52.12	2.45
Not well	59	16.0	66.00	2.20
			$p = 0.001$[a]	$p = 0.001$[a]
Adolescents' relationship with friends				
Wery well	128	34.9	46.83	2.65
Well	201	54.8	52.77	2.41
Not well	38	10.3	68.17	2.09
			$p = 0.001$[a]	$p = 0.001$[a]
Economic situation of the family				
Wery well	36	9.8	49.22	2.57
Well	192	52.3	50.88	2.51
Not well	139	37.9	54.70	2.47
			$p = 0.334$	$p = 0.089$
Academic success				
Wery well	47	12.8	43.51	2.66
Well	168	45.8	43.44	2.60
Not well	145	41.4	47.25	2.44
			$p = 0.162$	$p = 0.796$

[a] Remains statistically significant.

In addition, the mean HLBS-II scores were higher among those participants who did not start using the Internet until after 11 years of age and those who used it for two hours or less each day.

Relationship between internet addiction and lifestyle in adolescents

A negative and moderate relationship was identified between the level of Internet addiction and lifestyle among adolescents ($r = -0.384$, $p = 0.004$, Table 4). Internet addiction levels among adolescents were found to have a significant negative impact on lifestyle, with moderate explanatory power ($R^2 = 0.334$, $p = 0.001$, Table 5).

Discussion

Recent studies have reported that adolescence represents the stage during which individuals are the most prone to becoming dependent on the Internet. Therefore, the majority of research examining Internet addiction has used adolescent samples (Chen & Gau, 2016; Özparlak & Karakaya, 2020; Şimşek et al., 2015; Uysal & Balci, 2018). Internet addiction has been found to have negative effects on mental, psychosocial, and physical health among adolescents (Özparlak & Karakaya, 2020). In this study, the effects of Internet addiction on adolescents' lifestyles were confirmed.

Scores of internet addiction and healthy lifestyle behaviours

When the IAT and HLBS-II scores of the adolescent participants were examined, the mean scores for both were found to be moderate.

Table 3
Internet addiction and lifestyle in terms of Internet use for adolescents (N = 367).

Characteristics	n	%	IAT	HLBS II
Daily internet usage time (hour)				
0–2	154	42.0	43.28	2.65
3–4	129	35.1	52.16	2.51
5–6	41	11.2	60.43	2.39
≥ 7	43	11.7	62.21	2.30
			$p = 0.001$[a]	$p = 0.001$[a]
Age of internet use (years)				
≤ 5	28	7.6	53.35	2.46
6–10	206	56.2	49.84	2.60
11 ≥	133	36.2	52.23	2.73
			$p = 0.210$	$p = 0.012$[a]
Existence of a supervisor of internet use				
Yes	159	43.3	49.09	2.54
No	208	56.7	51.67	2.52
			$p = 0.179$	$p = 0.666$
Finding Internet information reliable				
Yes	71	19.3	50.70	2.58
No	73	19.9	53.30	2.48
Undecided	223	60.8	49.59	2.54
			$p = 0.320$	$p = 0.478$
Intended use of the internet				
Homework	74	20.2	41.29	2.58
Watch movies, listen to music, etc.	52	14.2	53.94	2.53
Computer games	114	31.1	59.90	2.58
Facebook etc. use social media sites	117	31.9	53.22	2.46
Other	10	2.6	47.83	2.31
			$p = 0.001$[a]	$p = 0.418$
Long time internet usage issues				
Unbalanced diet	71	19.3	55.08	2.48
Pain in the neck muscles	75	20.4	47.36	2.56
Burning in eyes	92	25.1	48.51	2.52
Sleeplessness	108	32.9	51.03	2.54
Other	21	2.3	45.38	2.43
			$p = 0.074$	$p = 0.255$

[a] Remains statistically significant.

Internet addiction status has also been reported at moderate levels in other studies (Alaçam et al., 2015; Kuss & Lopez-Fernandez, 2016). Based on the results of studies performed by the Turkey Statistical Institute (2013), children begin using computers at an average age of 8 years, begin to use the Internet by 9 years, and begin to use a mobile phone at 10 years. The Internet is used almost daily by 45.6% of children, and an average of 79.5% of children between the ages of 6 and 15 use the Internet to play games. Children have difficulty managing their time on the Internet and may react negatively to their parents' attempts to limit it (American Academy of Child and Adolescent Psychiatry, 2015). In addition to a number of conveniences, such as the ability to access and share an almost unlimited quantity of information, extended and frequent Internet use been associated with a number of problems (Naseri et al., 2015). Internet usage worldwide has expanded rapidly, and this increase is expected to continue as the Internet becomes an integral part of everyday life (Kaltiala-Heino et al., 2004). Because Internet use now starts at an early age and increases rapidly, children are believed to be at an increased risk of developing Internet addiction. Therefore, Internet addiction, which was detected at a moderate level in the present study, might increase in the future, and early preventive measures have been suggested. According to the findings reported by Uysal and Balci (2018), the Healthy Internet Use Program might reduce the rate of Internet addiction among adolescents. Adolescents and their families should be trained and supervised in healthy Internet usage.

Table 4
Relationship between Internet addiction and adolescents' lifestyle (N = 367).

Variables	1	2	3	4	5	6	7	8
1. IAT	1							
2. HLBS II	−0.384[a]	1						
3. Personal Health	−0.320[a]	0.685[a]	1					
4. Physical Activity	−0.355[a]	0.700[a]	0.381[a]	1				
5. Diet	−0.327[a]	0.725[a]	0.498[a]	0.401[a]	1			
6. Spritiual Development	−0.342[a]	0.775[a]	0.404[a]	0.404[a]	0.428[a]	1		
7. Interpersonal Relations	−0.327[a]	0.722[a]	0.335	0.327[a]	0.448[a]	516[a]	1	
8. Stress Management	−0.317[a]	0.731[a]	0.407[a]	0.420[a]	0.430[a]	0.430[a]	0.508[a]	1

[a] Remains statistically significant.

Table 5
Multiple regression analysis of internet addiction with adolescents' lifestyle (N = 367).

Variables	HLBS II
IAT	β
	−6.339
R^2	0.334
Adjustred R^2	0.331
F	12.204
p	0.001[a]

[a] Remains statistically significant

Adolescents' characteristics associated with internet addiction and lifestyle

In this study, the Internet addiction scores of male 17-year-old adolescents were higher than those of other participants. According to the results of the present study, Internet addiction is more prevalent among males than females overall. Internet addiction increases with age among adolescents, starting at the age of 12 (Chen & Gau, 2016). Therefore, studies that aim to identify strategies for preventing Internet addiction among children should include participants younger than 12. Similarly, education and counselling for children and their families regarding healthy Internet use should begin before the age of 12. In this study, Internet addiction among those adolescents who reported poor relationships with friends was found to be higher than those who reported good relationships with friends. The identification of adolescent characteristics that can predict the development of internet addition can be used to identify opportunities for the deployment of effective healthy Internet usage programs. When planning programs, family factors, gender differences, and the health behaviours of adolescents must be considered. Peer support is considered to be a key factor for the prevention of Internet addiction (Şimşek et al., 2015). In this study, the Internet addiction of adolescents with poor family relationships was also identified at higher levels than for those with good family relationships. Family relationships are an important determinant of children's Internet addiction (Chung et al., 2019; Marsh et al., 2006). Therefore, children and their families should be considered together in projects aimed at preventing Internet addiction. The longitudinal study performed by Yu and Shek (2013) emphasised the encouragement of positive family relationships as a method for the prevention of Internet addiction among adolescents. School nurses have a responsibility to help adolescents develop healthy Internet use habits and should play a consulting role by providing adolescents and their parents with information regarding healthy Internet use and helping them to develop effective strategies for the maintenance of healthy Internet use. If an appropriate environment is provided, and appropriate interventions are implemented, healthy Internet usage skills and wellness habits can be achieved among adolescents (Uysal & Balci, 2018). Existing literature on the prevention of Internet addiction remains scarce. Studies aimed at prevention should target not only children and adolescents at risk of Internet addiction but also parents, teachers, and peers who interact with children and adolescents at risk of Internet addiction (Vondráčková & Gabrhelik, 2016).

Internet addiction and lifestyle in terms of internet use for adolescents

The Internet addiction scores of adolescents who use the Internet for greater than seven hours each day and those who use the Internet primarily to play computer games were found to be higher than those of other participants. When previous studies of Internet addiction were reviewed, those who use the Internet for games and communication or for chatting purposes were found to have higher levels of Internet addiction than others (Kuss & Lopez-Fernandez, 2016; Şahin et al., 2016). Internet addiction levels were found to be lower when the Internet was used primarily for educational purposes (Şahin et al., 2016). In addition, research has indicated that Internet addiction levels increase with increased Internet usage time. Internet addiction occurs at significantly higher levels among individuals who use the Internet more than five hours a day compared with those who use the Internet less than five hours a day (Naseri et al., 2015). However, Şahin et al. (2016) insist that the timing of Internet usage is less important than the purposes of internet usage. According to various studies on this subject, the developmental period between 12 and 17 years represents a critical period in the development of Internet addiction (Chen & Gau, 2016; Şimşek et al., 2015; Uysal & Balci, 2018). Aydoğdu-Karaaslan (2015) determined that 88% of children spend 2–5 h of their free time on the Internet every day, and 71% of children play digital games on the Internet during this time. Among children who attend school, 2–5 h spent on the Internet daily leaves no time to fulfil their academic responsibilities. When the Internet is used excessively and in an uncontrolled manner, serious problems can develop. Parents are responsible for anticipating these situations and protecting their children. As long as these risks can be foreseen, they can be prevented. Parents, schools, and healthcare workers should be informed regarding safe and limited Internet use among adolescents. Internet use has been increasing rapidly over the years, not only in children but also in adults in Turkey (TSI, 2005, 2019). The proportion of individuals between 16 and 74 years of age who use the Internet in Turkey was estimated at 75.3%, according to a 2019 study by the Turkey Statistical Institute.

Relationship between internet addiction and the lifestyles of adolescents

A negative and moderate relationship between Internet addiction and lifestyles in adolescents was identified. A regression analysis was applied to test the effects of Internet addictions on adolescents' lifestyles. According to the results of the regression analysis, Internet addiction had a negative effect on the lifestyle of adolescents, and the model's explanatory power was moderate. In the literature, studies have revealed that Internet addiction is associated with decreases in exercise, negative nutritional effects, and disruptions in interpersonal relationships, causing various psychological imbalances and reducing an individual's resources for coping with stress (Al-Gamal et al., 2016; Alpaslan et al., 2015; Kuss & Lopez-Fernandez, 2016). These studies suggested that Internet addiction affects lifestyle, and the findings of the present study were in line with the literature. More time spent on the Internet appears to represent a negative lifestyle choice for individuals with Internet addiction. Developing a healthy lifestyle has been shown to significantly improve life satisfaction. Life satisfaction can be achieved when an individual lives in accordance with his or her own criteria. Individuals are thought to alter their lifestyle choices relative to the Internet to increase their life satisfaction. Habits gained during adolescence are likely to continue into adulthood (Marsh et al., 2006). Therefore, the habits gained during this period can affect an adolescent's entire life, either positively or negatively. Adolescents have the opportunity to create habits associated with the safe and limited use of the Internet between the ages of 12 and 17 years. To achieve the good habit of moderation, cooperation between schools, parents, and children is essential. Schools and parents should plan and implement social projects that aim to promote the moderate use of the Internet. This study recommends that courses focused on safe Internet use and positive lifestyle skills be included in schools.

Implications for paediatric nursing practice

Paediatric nurses should plan interventions by viewing adolescents as a disadvantaged group that may be at risk for Internet addiction. Counselling sessions mediated by paediatric nurses may also be helpful as interventions to prevent the development of Internet addiction. Measures should be implemented to increase awareness among adolescents of safe and healthy Internet use. Combined, these efforts should help adolescents learn how to use the Internet properly.

Strengths and limitations

The strengths of this study include that the data were collected using scales with high levels of validity and reliability, and the adolescents who participated in this study were recruited and evaluated using homogeneous procedures. One limitation of this study was that it was conducted in a large city in a Mediterranean region of Turkey; therefore, the results cannot be generalised to the country as a whole or beyond the borders of Turkey.

Conclusion

Adolescents who have poor family and friend relationships and who use the Internet more than seven hours each day represent an at-risk group for Internet addiction. Internet addiction among adolescents can negatively affect their lifestyles. Adolescents with low levels of Internet addiction are more likely to adopt healthy lifestyle behaviours. Nurses and teachers who work at health and educational institutions should monitor the Internet use of adolescents to identify early indicators of addiction to promote the development of healthy lifestyle behaviours. The implementation of interventions may increase the awareness of the negative effects of internet use and promote healthy lifestyle behaviours. Nurses, schools, and families should cooperate to prevent the development of Internet addiction among adolescents. Awareness projects and healthy Internet usage programs should be planned, which include teachers, adolescents, and their parents.

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Ethical approval

In order to conduct the study, ethics committee approval was obtained from Akdeniz University Clinical Trials Ethics Committee (Approval No: 70904504/505). This study was performed according to the Helsinki Declaration.

Author contributions

Conception and design: AK, AİD.
Data collection: AK.
Analysis and interpretation: AK, AİD.
Writing the manuscript: AK, AİD.
Critical revision of the manuscript: AK, AİD.
All authors approved the final version for submission.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.pedn.2021.01.021.

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