Evaluation of Game Addiction, Social Media Addiction and Loneliness Levels in Adolescents with School Attendance Problems

Okula Devam Problemi Olan Ergenlerde Sosyal Medya Bağımlılığı, Oyun Bağımlılığı ve Yalnızlık Seviyelerinin Değerlendirilmesi

Arif ÖNDER, Özge GİZLİ ÇOBAN, Aslı SÜRER ADANİR, Öznur BİLAÇ, Canem KAVURMA

Department of Child and Adolescent Psychiatry, Akdeniz University School of Medicine, Antalya, Turkey

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ABSTRACT

Objective:
School attendance problem (SAP) is a serious issue, and its coexistence with psychiatric disorders is common. Several studies have evaluated the relationship between SAP and alcohol and substance addiction. Although there are many studies on SAP, studies examining the relationship between SAP and game and social media addiction are limited.

Method:
Thirty-one adolescents with SAP between the ages of 12-19 and 33 age and sex-matched healthy controls were included in the study. Psychopathology was evaluated with a diagnostic interview according to DSM 5. Internet Gaming Disorder Scale–Short Form (IGDS9-SF), Social Media Disorder Scale and UCLA Loneliness Scale were given to both of the groups.

Results:
The most common disorders in the study group are attention deficit hyperactivity disorder, oppositional disorder and behavioral disorder. In the study group, the UCLA Loneliness Scale and IGDS9-SF scores were also significantly higher than those in the controls.

Conclusion:
Game addiction and loneliness problems should also be examined in the evaluation of children and adolescents with school attendance problems.

Key Words: School Attendance Problem, School Refusal, Game Addiction, Social Media Addiction, Loneliness

ÖZ

Amaç:
Okula devam problemleri (ODP) çok sayıda psikiyatrik rahatsızlıkla birlikteki görülebilen ciddi bir sorundur. ODP ile alkol ve madde bağımlılığı değerlendirilen çalışmalar mevcuttur. ODP ile ilgili çok sayıda çalışma yapılamamasına rağmen ODP’nin oyun ve sosyal medya bağımlılığı ile ilişkisini inceleyen çalışma sayısı kısıtlıdıır.
Yöntem:
Çalışmaya 12-19 yaş arasında olup ODP olan 31 ergen ile yaş ve cinsiyet olarak eşleştirilmiş 33 sağlıklı kontrol dahil edilmiştir. Çalışma grubunda psikopatoloji, DSM 5’e göre düzensizlik tanısı görüşme ile değerlendirilmişdir. Her iki gruba da İnternet oyun oynamada bozukluğu kısma formu (İOBS9-KF), Sosyal medya bağımlılığı kısma formu ve UCLA yalnızlık ölçüsü uygulanmıştır.

Bulgular:
Çalışma grubunda en sık dikkat eksikliği hiperaktivite bozukluğu, karşı olma karşı gelme bozukluğu ve davranış bozukluğu tanıları saptanmıştır. Çalışma grubunda kontrol grubunda OUCAL yalnızlık ölçüsü ve IOBS9-KF puanları anlamlı olarak yükseklmiştir.

Sonuç:
Okula devam problemleri olan çocuk ve ergenlerin değerlendirilmesinde oyun bağımlılığı ve yalnızlık sorunları da sorgulanmalıdır.

Anahtar Sözcükler: Okula devam problemleri, Okul reddi, Oyun bağımlılığı, Sosyal medya bağımlılığı, Yalnızlık

INTRODUCTION
School attendance problems (SAP) have been the focus of interest from the beginning of the 20th century. Numerous studies have been conducted since Broadwin first described the symptoms in 1932 (1). Despite almost a century of SAP history, there is no consensus on its definition and classification. There are many terms used in different ways and meanings, such as skipping school, avoiding school, school phobia and SAP. Among these terms, SAP is most frequently used. It refers to situations in which a child cannot attend school for any reason and cannot stay in the classroom even if he/she attends. It includes concepts such as school refusal, truancy and school withdrawal (2, 3). Although there are many definitions for SAP in the literature, the definition proposed by Kearny is one of the most recent. It includes two main criteria: 1- For at least 2 weeks, missing at least 25% of total school time, 2- Having serious difficulty in attending classes for at least 2 weeks in a way that significantly disrupts the daily routine of the child and family. A third criterion added to these criteria is the absence of a total of at least 10 days for 15 weeks while the school is open (4). Another concept, school refusal, is defined as school avoidance within the knowledge of the parents due to the child’s anxiety and negative emotions. Truancy is defined as the child not going to school without any valid justification (5, 6). School refusal occurs in 1-5% of all school children. Its frequency peaks at the ages of 5-7, 11 and 14. It is seen in all socioeconomic classes, and girls and boys are affected equally (7).

Children and adolescents with SAP are also at risk for many mental, emotional, social and academic disorders (8). There is a correlation between school refusal and psychiatric disorders such as anxiety and depression (9).

In a study conducted by Havik et al. on 5465 students from 45 schools, poor relationships with peers were found to be an important risk factor for school refusal (10). Nowadays, games addiction, excessive gameplay and video game addiction are frequently used terms for excessive game playing (11). Although it is not an official diagnosis, Internet gaming disorder is included in DSM-5 in the section of the manual known as “Conditions for Further Study,” and this disorder is frequently seen in 12 to 20-year-old men (12). Internet game playing disorder has been defined as repetitive internet gaming, leading to clinically significant impairment or distress. The diagnostic criteria (similar to those for substance addiction) include excessive mental involvement in playing games, withdrawal symptoms, unsuccessful attempts to control the gaming behaviour and loss of interest in other activities (12). The risk of game addiction is higher among young people who spend most of their leisure time with video games (13). The frequency of online game addiction varies between 2.2% and 12%, depending on the method chosen and study design (14). Video game addiction affects children, adolescents and adults in many areas. A significant relationship was found between violent games and aggression (15). Moreover, it can lead to consequences such as unhappiness, anxiety, decreased academic success and loneliness (16). Game addiction was found to be associated with depression, behavioural problems, obesity and related conditions (17, 18).

Children and adolescents spend an important part of their leisure time on social media networks such as Facebook, Twitter and Instagram. While girls use social media more often, boys mostly prefer playing video games (19, 20). A vast majority of adolescents aged 13-17 sign in to their social media accounts more than once a day (20). There are no generally accepted criteria for social media addiction/overuse yet. Even so, there are different definitions, such as Facebook addiction, Twitter addiction and social media addiction (21).

Although the diagnostic criteria are not determined precisely, many studies have shown the social media addiction’s effects on children and adolescents. Excessive social media use is associated with a decrease in academic success, low self-esteem and deterioration in peer relations (22-24). Moreover, it is also related to psychiatric disorders such as attention deficit hyperactivity disorder (ADHD), obsessive compulsive disorder, anxiety and depression (25).

Loneliness levels were higher in children with SAP than in those without SAP (26). Individuals who were lonely or lacked appropriate social skills could develop Internet use behaviours in a strong compulsive pattern, which may result in negative life outcomes (27). Loneliness was evaluated in our study because it affects both school rejection and game-playing behaviour.

Several studies have evaluated the relationship between SAP and alcohol and substance addiction. Although there is no chemical intake in online game addiction, excessive game playing can lead to physical dependence and changes in brain activity like other addictive substances. We hypothesized that
adolescents with SAP have more game addiction, social media addiction and higher loneliness levels than their counterparts without SAP.

MATERIAL and METHODS
Participants: Thirty-one adolescents between the ages of 12-19 who met the criteria for SAP by Kearny, and 33 healthy controls who did not meet the SAP criteria and had no previous psychiatric application were included in the study. The study group was selected from patients who applied to our outpatient clinic from May 2019 to February 2020. The cohort of SAP participants in our study consisted of children who attended school without exhibiting difficulties until adolescence, at which time the issue of school refusal became apparent. As the study aims to examine the school attendance problems beginning in adolescence, children who exhibited attendance problems since they began to elementary school were not included. Children who were unable to attend school due to health problems or unwilling parents were also excluded. Adolescents who did not have any school attendance problems and did not apply to a child-adolescent psychiatry outpatient clinic before were included as the control group. The study group was compared with healthy controls for game addiction, social media addiction and loneliness. All the children participating in the study were evaluated with a diagnostic interview according to DSM 5 by a child and adolescent psychiatrist with at least 5 years of clinical experience in the field; the scales described below were applied.

Measures:
Sociodemographic form: Sociodemographic data including age, sex, socioeconomic level, parent-reported school achievement, duration of school absenteeism and academic grade were noted by researchers.

The Internet Gaming Disorder Scale – Short Form (IGDS9-SF):
The IGDS9-SF scale was developed by Pontes and Griffiths in 2015 (28). Aricak et al. proved its validity and reliability for use in the Turkish population (29). It is a 5-point Likert self report scale consisting of nine items referring to the nine criteria proposed in DSM-5. Increasing scores in the scale indicate that the severity of internet game addiction has increased.

Social Media Disorder Scale (SMDS):
SMDS is a yes/no scale developed by van den Eijnden et al., consisting of 9 items (30). Tas demonstrated its validity and reliability for use in the Turkish language (31). A yes answer is coded as 1 point, and no point is deducted for a no answer. It is a self-report scale, and increasing scores indicate that the severity of social media addiction increases.

UCLA Loneliness Scale:
It is consisted of 20-items and used to measure one’s subjective feelings of social isolation and loneliness levels. It was developed by Russel et al. in 1978 and revised in 1980 (32, 33). Demir proved its validity and reliability for use in the Turkish population (34). The score obtained from the scale varies from 20-80. An increase in scale points indicates an increase in the loneliness level of the participant.

Statistical analysis:
SPSS 20 was used for statistical analysis. T-test or Mann-Whitney U test was used to compare the scale scores of the groups, and the chi-square method was used to identify the differences between the frequencies of discrete data. Spearman test was used for correlation evaluation. The statistical significance level was accepted as p <0.05.

RESULTS
The study included 31 patients and 33 healthy controls. There was no significant difference between groups for age, gender, mother’s age, father’s age, mother’s education, father’s education and family income (Table I). Absenteeism of children with SAP in the last 30 school days was 13.81 ± 6.23 days. They attended school irregularly for an average of 7.98 months (long term holidays such as summer vacation and semester break were not included in the calculation of this period). Academic success and academic grade were found to be statistically significant between 2 groups (Table I).

Table I: Comparison of Study and Control groups in terms of sociodemographic data

| Measure                                      | Patient group (n=31) | Control group (n=33) | P    |
|----------------------------------------------|---------------------|----------------------|------|
| Sex (male/female)¹ | 23/8 (%74.2/25.8) | 19/14 (%57.6/42.4) | 0.195|
| Age² (Median-Q1-Q3) | 14 (13-15) | 16 (13-17) | 0.145|
| Academic grade³ (Median-Q1-Q3) | 8 (7-10) | 11 (8.25-12) | 0.018|
| Academic success⁴ | 7/11/12 | 13/17/1 | 0.003|
| Absenteeism in the last 30 school days⁵ (Median-Q1-Q3) | 16 (8-20) | 1 (1-3) | <0.001|
| Mother’s age⁶ (Median-Q1-Q3) | 42 (39.25-48) | 40 (37-43) | 0.080|
| Father’s age⁶ (Median-Q1-Q3) | 45.50 (39-50.25) | 44 (39.5-47) | 0.531|
| Mother’s education⁷ | 14/7/5 | 10/15/3 | 0.135|
| Father’s education⁷ | 9/11/5 | 8/16/4 | 0.628|
| Family Income⁸ | 7/16/8 | 8/18/4 | 0.472|
| BMI (Median-Q1-Q3) | 21.61 (20.08-24.72) | 21.98 (19.50-23.23) | 0.768|

¹ Good/moderate/bad , 2 Primary school/secondary school-high school/ University  
² Below the minimum wage/above the minimum wage but less than twice the minimum wage/ those who have more than twice the minimum wage.

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In the study group, a comparison of game addiction, social media addiction and loneliness levels for gender showed that game addiction was significantly higher in boys than in girls (boys/girls (mean and standard deviation): 27.91 ± 7.57/17.75 ± 6.25, Z:-2.89 p: 0.004).

**DISCUSSION**

Although many studies have evaluated the reasons for SAP, no study has examined its relationship with game addiction and social media addiction. Although SAP is not included as a separate diagnosis in DSM-5, Internet gaming disorder takes place in the section of the manual known as “Conditions for Further Study.” DSM has identified 9 criteria. The 9th criterion emphasised that Internet gaming disorder may negatively impact education (12, 35).

According to a model developed by Kearney and Silverman to understand SAP, negative reinforcers such as avoiding situations that cause anxiety in school, or social conditions and/or positive reinforcers such as having an enjoyable time when not attending school, receiving tangible benefits or gaining parents’ attention have been effective in school refusal behaviour. The pleasure that video games create in the child during the game can also be a positive reinforcer for school refusal. Studies show that reinforcers such as watching TV and having fun at home during school time worsen SAP (8, 36).

Several studies have evaluated the relationship between SAP and addiction. Research reveals that skipping school is a significant risk factor for alcohol, cigarette and marijuana use (37). Hallfors et al. showed that students with higher school absenteeism and below-average graduation degrees were more likely to use cigarettes, alcohol and marijuana than other students. Moreover, they were more prone to get involved in crime and attempt suicide (38). Although there is no chemical intake in online game addiction, excessive game playing can lead to physical dependence and changes in brain activity like other addictive substances (39). SAP may cause alcohol and substance addiction and increase the risk of game addiction. In our study, the high level of game addiction in the study group can be explained with these findings. Research shows a relationship between the time spent in game-playing and academic achievement in high school students (40). Similarly, a negative correlation between academic success and game addiction scores was found in our study. A study conducted by Carroll showed a correlation between absenteeism for a school term and a decrease in reading and math test scores in 7 to 11-year-old children (41). Gottfried demonstrated that unexcused absence caused a drop in reading and math test scores (42). Anand et al. observed that there was a negative correlation between the amount of time spent on playing video games and students’ grade-point average and Scholastic Aptitude Test scores (43).

The study group showed higher SMDS scores than the control group, but this difference did not reach a statistically significant level. Young people use social media for different purposes, such as meeting their friends, messaging, playing games, meeting new people and sharing photos (21).
Although the use of social media brings many risks, it can also be useful for improving the communication skills of children and adolescents, increasing their knowledge and expanding their social network. The use of social media may not result in SAP for this reason. However, video games may result in school refusal as they increase social isolation. Social media addiction was also high in the control group (18%). Thus, a high rate of social media addiction was found not only in the SAP group but also in the control group.

Another important difference between the study group and the control group was the level of loneliness. In the study group, loneliness levels were found to be significantly higher. Similarly, Havik et al.’s study on 5465 students from 45 schools showed that poor relationships with peers were important risk factors for school refusal (10). A study conducted on 1009 high school students revealed that loneliness was associated with many psychiatric symptoms and disorders such as depression, anxiety, social phobia, suicidal thoughts, self-injurious behaviour and eating disorders (44). In another study, Odaci and Kalkan found a positive correlation between problematic internet use and loneliness levels (45). A study examining loneliness and SAP demonstrated that children with SAP had difficulties in peer relationships and felt more alone (46). Loneliness can lead to school rejection and increased game-play behaviour. The lonely children will be disrupted from school, which will cause them to play more games. An increased amount of time spent playing games may worsen feelings of loneliness (47).

An examination of the diagnoses in the study group showed that ADHD and disruptive behaviour disorders (conduct disorder and oppositional defiant disorder) were leading the pack. Considering the studies examining the relationship between school refusal and psychopathology, Egger et al. reported that patients with mixed type of school refusal showed significantly high conduct disorder, ADHD, oppositional defiant disorder and substance use (48). Andreassen and colleagues noted a significant relationship between game addiction and ADHD (25). In a study conducted by Egger et al., the rate of a comorbid psychiatric disorder was found in 88.2% of the children with anxiety-based school refusal and truancy. Anxiety-based school refusal was associated with separation anxiety and depression. Truancy was associated with disruptive behaviour disorders and depression (48).

In our study, the rate of anxiety disorders was relatively low. One explanation for this finding may be that our study group consisted of secondary school students. Anxiety-based school refusal usually starts at an earlier age (48, 49). The mean age of our study group was 14.26 years, which may result in fewer anxiety disorders and more disruptive behavioural disorders. In addition, excluding school refusals beginning in primary school period may have caused a decrease in the rate of anxiety disorders.

In our study, game addiction scale scores were higher in boys than in girls. This finding is consistent with the research of Andreassen et al. that being female was significantly associated with the use of social media; being male was significantly associated with the problematic use of video games (25).

CONCLUSIONS
In our study, particularly game addiction and loneliness levels were higher in the study group. It would be useful to focus on these two factors in the evaluation and treatment of school refusals.

There are strengths and limitations of the study. To the best of our knowledge, this is the first study examining the relationship between SAP and Internet gaming disorder. The most important limitation of our study is its cross-sectional nature. It is difficult to predict whether game addiction is the cause or result of SAP. Therefore, follow-up studies are imperative. The study was also limited by its small sample size. An important reason could be that students who were rarely absent from school were not included. In our study, the mean duration of absenteeism was 13.93 days in the last month. The mean period since the beginning of the absenteeism was approximately 8 months. Working with a group that was absent for such a long time and not dismissed from school led to a decrease in our sample size.

Declarations:
Ethics Committee Approval: Ethics approval and Consent to participate: Approval was obtained from the Akdeniz University Faculty of Medicine Clinical Research Ethics Committee for the study (2019/368). This study was conducted in accordance with the Helsinki Declaration. All children and parents participating in the study were given information about the study, and the parents provided written consent.

Informed Consent: According to the Helsinki Declaration, all the rights of the participants were protected and written informed consents were obtained before the procedures.

Author Contributions: Concept –AO, ÖGÇ, ASA; Design - AÖ, ÖGÇ, ASA, CK, ÖB; Supervision - ASA; Resources –AÖ, ÖGÇ, ASA, CK, ÖB Materials - AÖ, ÖGÇ, ASA, CK, ÖB; Data Collection and/or Processing - AÖ, CK, ÖB Analysis and/ or Interpretation – AÖ, ÖGÇ; Literature Search - AÖ, ÖGÇ, ASA, ÖB; Writing Manuscript - AÖ, ÖGÇ, ASA; Critical Review – ÖG, CK, ÖB.

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