Turkish Journal of Pediatric Disease

Original Article

Family relationships in the digital age: The impact of problematic screen use on parent–adolescent relationships

Bilal Yılmaz[1], Elif Küçük[2]

[1]Department of Pediatrics, Kartal Dr. Lütfi Kırdar City Hospital, İstanbul, Türkiye, [2]Department of Psychiatry, Yüksek Ihtisas University, Ankara, Türkiye

Corresponding Author: **Elif Küçük** e-mail: drelfkucuk@gmail.com

Received : 06.04.2026, Accepted : 20.07.2026 DOI: 10.12956/TJPD.2026.1347

ABSTRACT

Objective: Problematic screen use (PSU) in adolescence has been linked to impaired well-being, but its associations with parent–adolescent relationship quality remain insufficiently characterized. This study examined whether PSU levels were associated with positive relationship, negative relationship, and openness dimensions in mother– and father–adolescent relationships.

Materials and Methods: This cross-sectional study included 196 adolescents aged 11–18 years who presented to a pediatric outpatient clinic. Data were collected using a Sociodemographic Information Form, the Child–Adolescent Digital Addiction Scale, and the Parent–Adolescent Relationship Quality Scale. Group differences were evaluated using appropriate non-parametric statistical methods.

Results: The mean age of the participants was 14.29±2.21 years, and 59.7% were female. Positive relationship with mother scores differed significantly across PSU groups (p=0.029), with post hoc analysis indicating a difference primarily between healthy users and adolescents in the digital addiction group. Negative relationship with mother scores also differed significantly (p<0.001), with healthy users scoring lower than those in the excessive use and digital addiction groups. Paternal openness (p=0.007), positive relationship with father (p = 0.038), and negative relationship with father (p=0.012) also varied significantly across groups, whereas maternal openness showed a borderline association (p=0.055).

Conclusion: Higher PSU was associated with poorer parent–adolescent relationship quality, particularly in the domains of conflict and positive relational functioning. These findings suggest that assessment of adolescent PSU should incorporate family relational processes, especially trust-based communication and parent–adolescent conflict.

Keywords: Adolescents, family conflict, technology addiction, parent-child relations

Introduction

The widespread integration of digital technologies into adolescents' daily lives has become increasingly prominent. However, problematic screen use (PSU) cannot be reduced simply to the amount of time spent in front of screens. Emerging evidence suggests that PSU, rather than self-reported screen time alone, may be more closely linked to adolescent well-being, particularly when it is accompanied by functional impairment (1). Accordingly, recent research has shifted its focus from screen time per se to the broader construct of PSU, which encompasses maladaptive, compulsive, and functionally impairing patterns of engagement with digital activities such as social media, smartphone use, and gaming (1). In this context, the defining feature is not merely duration of use, but rather diminished control over screen-related behaviors and disruption in daily functioning associated with such use (1). PSU has been described as involving compulsive and distress-related features, whereas prolonged screen exposure does not necessarily indicate problematic use (2). Moreover, in the original development study of the Digital Addiction Scale, the construct of digital addiction was shown to include compulsive use characteristics as well as tolerance and withdrawal-like symptoms (3). Throughout this manuscript, the term PSU is used as the overarching construct to refer to maladaptive, compulsive, and functionally impairing screen-related behaviors. The term digital addiction is retained only when referring to the name or original conceptual framework of the Child–Adolescent Digital Addiction Scale (CADAS). Systematic reviews further indicate that PSU is significantly associated with adolescent mental health difficulties, sleep disturbances, and poorer psychosocial adjustment (4,5).

The family context is considered one of the most important environmental domains in the development and maintenance

of PSU (6). Positive parent-adolescent relationships (PAR), a supportive family climate, and warm and consistent parenting practices have been associated with lower levels of problematic social media and screen use (4,6). In contrast, a conflictual family environment, insufficient parental monitoring, and parents' own excessive screen use have been linked to greater risk (7,8). Large-sample studies have demonstrated that parental monitoring and appropriate limit-setting are associated with lower levels of PSU, whereas parental screen habits, screen exposure during mealtimes, and high family conflict may contribute to both increased screen use and more problematic usage patterns among adolescents (7,8). In addition, adolescents' involvement in establishing screen-related rules has been associated with better prosocial functioning (9). Taken together, these findings suggest that family processes should be viewed not only as risk or protective factors, but also as dynamic relational mechanisms that shape the broader context in which PSU emerges and persists.

PSU is not only influenced by family processes, but may also, in turn, affect the quality of family relationships (10,11). Longitudinal evidence suggests that problematic smartphone use may increase parent–adolescent conflict and weaken family communication (10). Similarly, parent–adolescent conflict has been shown to predict problematic internet use over time, with depressive symptoms acting as a mediator in this association (11). Parents' own problematic internet use and poor-quality communication with their adolescents regarding internet use have likewise been associated with higher levels of problematic use in adolescents (12). Furthermore, bidirectional associations have been reported between parental technoference and adolescents' problematic mobile phone use, indicating that digital habits within the family may operate in a mutually reinforcing manner (13).

Although the literature on PSU has grown substantially in recent years, existing research has focused predominantly on individual symptoms, mental health outcomes, and platform-specific usage patterns (1). In contrast, studies comprehensively examining the impact of PSU on PARs through the broader lenses of communication, conflict, relationship quality, and family functioning remain relatively limited (10,12,13). This gap highlights the need for a more detailed understanding of how PSU operates within the family system, both as an outcome of relational processes and as a factor that may further sustain relational difficulties (12,13). Therefore, the present study aimed to examine the associations between PSU and PARs, with particular emphasis on communication, conflict, relationship quality, and family functioning.

Materials and Methods

Study design and participants

This cross-sectional study was conducted during January and February 2026 among adolescents aged 11–18 years who presented to the general pediatric outpatient clinic of Kartal Dr. Lütfi Kırdar City Hospital for routine follow-up visits and were consecutively recruited.. Eligibility criteria included the ability to read and understand Turkish and voluntary agreement to participate in the study. Written informed consent was obtained from the parents, and assent was obtained from the adolescents before study participation. Exclusion criteria were the presence of a neurodevelopmental disorder, major neurological disease, psychotic disorder, cognitive impairment severe enough to interfere with the assessment process, and any acute clinical condition.

All procedures were carried out in accordance with the Declaration of Helsinki. Data were collected face to face during outpatient visits under appropriate conditions. Participants completed the study instruments under the supervision of the researcher. The administration process took approximately 5–10 minutes.

A priori power analysis was conducted using G*Power. For a four-group comparison, assuming a Type I error rate (α) of 0.05, a statistical power (1−β) of 0.80, and a medium effect size (f = 0.25), the minimum required sample size was estimated to be 180 participants. To account for potential exclusions or incomplete data, recruitment above the minimum sample size was planned. A total of 197 adolescents were recruited, and one participant was excluded, resulting in a final sample of 196 participants.

Data collection instruments

Data were collected using a Sociodemographic Information Form developed by the researcher, the CADAS to assess PSU, and the Parent-Adolescent Relationship Quality Scale (PARQS) to evaluate the quality of PAR.

Sociodemographic information form

This form was developed by the researcher and included questions on participants' sociodemographic characteristics, including age, gender, parental educational level, perceived socioeconomic status, family structure, and number of siblings.

Child-adolescent digital addiction scale

CADAS is a 10-item self-report instrument developed to assess addictive tendencies related to digital device use among individuals aged 11-19 years. In the original scale development study, k-means cluster analysis was used to examine external validity, and four user profiles with mean digital addiction scores clustering around approximately 20, 30, 40, and 50 were identified. These profiles were defined as healthy users, users at risk, excessive users, and digitally addicted users. This classification was based on the profile approach reported in the original development study and does not represent a clinical or diagnostic cut-off (3). The Turkish validity and reliability study of the scale was conducted by Türk et al. (14). Items are rated on a 7-point Likert scale ranging from 1 (never) to 7 (always). Total scores range from 10 to 70, with higher scores indicating higher levels of digital addiction. The Turkish adaptation study reported high internal consistency for CADAS (Cronbach's α = 0.875) (14).

Parent-adolescent relationship quality scale

PARQS is an 18-item, 5-point Likert-type instrument developed to assess the quality of the PAR (15). Each item is answered separately for the mother and the father, yielding

distinct scores for each parent. The scale comprises three subdimensions: positive PAR, negative PAR, and disclosure/openness (15). The Turkish adaptation of the PARQS was conducted among middle- and high-school students in Ankara and supported a three-factor structure broadly consistent with the original scale. The internal consistency coefficients were high, ranging from 0.89 to 0.93 in middle-school students and from 0.82 to 0.92 in high-school students (16).

Statistical analysis

Continuous variables were summarized as mean and standard deviation (SD) or median and interquartile range (IQR), according to distributional characteristics, while categorical variables were presented as frequencies and percentages. Normality was evaluated using the Shapiro–Wilk test together with visual inspection of histograms and Q–Q plots. Because PAR subscale scores were not normally distributed, comparisons across CADAS-defined PSU groups (healthy use, at-risk use, excessive use, and digital addiction) were conducted using the Kruskal–Wallis test. When the overall group comparison was significant, post hoc pairwise comparisons were performed using the Dwass–Steel–Critchlow–Fligner test. All statistical tests were two-sided, and $p<0.050$ was considered statistically significant. Pairwise comparisons with $p<0.050$ were considered statistically significant; comparisons with p values between 0.050 and 0.100 were reported as trend-level findings for descriptive completeness. Statistical analyses were performed using JAMOVI software, version 2.6.44.

Results

A total of 196 adolescents were included in the study, with a mean age of 14.29±2.21 years; 59.7% of the participants were female. According to the CADAS-defined categories, 74 adolescents were classified as healthy digital device users (37.8%), 56 as being at risk of digital addiction (28.6%), 33 as excessive digital device users (16.8%), and 33 as digitally addicted users (16.8%). In 84.2% of cases, the parents were reported to be living together. Perceived socioeconomic status was most reported as moderate (37.8%) or high (40.8%) (Table I).

Table I: Sociodemographic characteristics of the participants

Variable	Values
Age (years)*	14.29±2.21
Gender†	
Female	117 (59.7)
Male	79 (40.3)
Maternal education level†	
Illiterate	3 (1.5)
Primary school	35 (17.8)
Middle school	32 (16.3)
High school	73 (37.2)
University	44 (22.4)
Postgraduate	9 (4.6)
Perceived socioeconomic status†	
Low	42 (21.4)
Middle	74 (37.8)
High	80 (40.8)
Family structure†	
Parents living together	165 (84.2)
Parents separated	14 (7.1)
Single-parent family (parental death)	2 (1.0)
Other	15 (7.7)
Number of siblings,‡	2 (2–3)

**: mean ± SD, †: n(%), ‡: median (IQR)*

Table II: Descriptive statistics of the PARQS subdimensions

Subdimension	Values*
Maternal openness	22.48±5.84
Positive relationship with mother	22.84±6.14
Negative relationship with mother	13.72±6.77
Paternal openness	18.43±6.61
Positive relationship with father	18.61±6.48
Negative relationship with father	12.58 ± 6.07

**: mean±SD*

Descriptive statistics for the PARQS are presented in Table II. For mother-related subdimensions, the mean scores were 22.48±5.84 for maternal disclosure/openness, 22.84± 6.14 for positive relationship with mother, and 13.72±6.77 for negative relationship with mother. For father-related subdimensions, the mean scores were 18.43±6.61 for paternal disclosure/openness, 18.61±6.48 for positive relationship with father, and 12.58±6.07 for negative relationship with father (Table II).

Comparisons of PAR subscale scores across CADAS-defined PSU groups showed no statistically significant overall group difference in maternal openness, although the result approached significance ($p=0.055$). In contrast, positive relationship with mother scores differed significantly across the groups ($p=0.029$). Post hoc analyses indicated that this difference was mainly driven by the comparison between healthy users and adolescents in the digital addiction group ($p=0.044$). Negative relationship with mother scores also differed significantly among the groups ($p<0.001$), with healthy users showing lower scores than adolescents in both the excessive use and digital addiction groups ($p=0.039$ and $p<0.001$, respectively). For father-related dimensions, paternal disclosure/openness scores differed significantly across the CADAS-defined groups ($p= 0.007$), and this difference was particularly evident between healthy users and adolescents in the at-risk group ($p=0.004$). Positive relationship with father scores also showed a statistically significant overall group difference ($p=0.038$), although pairwise comparisons suggested that these differences were limited. Similarly, negative relationship with father scores varied significantly across the groups ($p=0.012$), with the healthy user group showing lower negative relationship scores than the other groups ($p=0.073$, $p=0.054$, and $p= 0.063$, respectively) (Table III).

Discussion

The main finding of this study is that higher levels of PSU were associated with significant differences in PAR quality, particularly in the positive and negative relationship dimensions. The finding that adolescents with a healthy pattern of use reported higher positive relationship scores and lower negative relationship scores with both their mothers and fathers suggests that PSU should be considered not only as an individual media-related behavior, but also as a process closely linked to patterns of family relationships. This finding

Table III: Comparison of PARQS subscale scores according to CADAS total score groups

Subscale	Healthy users*	At-risk users*	Excessive users*	Digital addiction*	p
Total number of patients	74	56	33	33	-
Maternal openness	25.0 (20.0–28.5)	22.0 (17.8–25.0)	25.0 (17.0–28.0)	23.0 (16.0–25.0)	0.055
Positive relationship with mother	26.0 (21.5–29.0)[a]	22.0 (17.8–27.0)	25.0 (18.0–29.0)	20.0 (16.0–25.0)[a]	0.029
Negative relationship with mother	10.0 (7.0–13.5)[a,b]	11.5 (8.8–19.0)	13.0 (10.0–17.0)[a]	19.0 (10.0–23.0)[b]	<0.001
Paternal openness	21.0 (15.0–25.0)[a]	16.0 (12.8–19.3)[a]	16.0 (13.0–21.0)	17.0 (11.0–23.0)	0.007
Positive relationship with father	22.0 (16.0–25.0)	18.5 (14.0–22.0)	18.0 (14.0–21.0)	17.0 (12.0–23.0)	0.038
Negative relationship with father	9.0 (7.0–12.0)	12.0 (8.0–18.0)	12.0 (9.0–18.0)	13.0 (8.0–19.0)	0.012

**: median (IQR) (Kruskal–Wallis test), [a,b]: Matching superscript letters indicate significant pairwise differences between the corresponding groups (Dwass–Steel–Critchlow–Fligner test)*

is consistent with current approaches emphasizing that PSU should be understood not only in terms of screen time, but also in relation to impaired control, functional disruption, and interpersonal consequences (1).

The findings regarding the mother–adolescent relationship are particularly noteworthy. The significant difference in positive relationship with mother scores between healthy users and adolescents in the digital addiction group, together with the increase in negative relationship with mother scores as the level of problematic use increased, suggests that family climate may be associated with adolescents' digital use patterns. Recent systematic reviews have shown that a supportive family environment, warm parenting attitudes, and a positive parent–child relationship are associated with lower levels of problematic social media and screen use (4,6). In contrast, a conflictual family environment, low parental monitoring, and intensive parental media use have been reported to be associated with greater risk (7,8). Within this framework, the findings of the present study suggest that PSU may be associated with reduced emotional closeness, lower relationship satisfaction, and greater conflict in the mother–adolescent relationship.

The findings related to the openness subdimension are also important. In the PAR, openness reflects the adolescent's willingness to share experiences, emotions, and everyday events voluntarily with the parent, and is considered an important dimension of relationship quality (15,17). In our study, the borderline difference in maternal openness suggests that this dimension may show a weaker or less consistent association with PSU than the positive and negative relationship dimensions. In contrast, the significant difference observed in paternal openness scores may suggest a possible association between PSU and father–adolescent patterns of voluntary sharing; however, the direction of this association cannot be determined in this cross-sectional study. Indeed, previous studies showing that parental modelling, open communication, and media mediation strategies are associated with adolescents' digital use patterns support the relevance of the openness dimension in this context (7,18). The finding that low-quality parent–adolescent communication is associated with problematic internet use further strengthens this interpretation.

The findings related to father–adolescent relationship dimensions suggest that maternal and paternal relational patterns may not be entirely homogeneous; however, these associations should be interpreted cautiously given the cross-sectional design. The significant differences observed in paternal openness and negative relationship with father scores suggest that the father–adolescent relationship should be considered a distinct and clinically important dimension in the context of PSU (13,19). Recent longitudinal studies have shown that parental technoference and adolescents' problematic mobile phone use are bidirectionally related, and that attachment to both mother and father may mediate this relationship (13). In addition, meta-analytic findings demonstrating a positive association between parental technoference and problematic media use in children and adolescents support the influence of parents' own digital behaviours on the relational context within the family (20). Therefore, the father-related findings of our study may warrant further attention in clinical assessment, particularly with respect to trust-based sharing, communication, and conflict; however, longitudinal studies are needed before drawing stronger conclusions.

Another important finding of the present study was that CADAS-defined PSU groups showed more pronounced differences particularly in the negative relationship dimension. This suggests that PSU may be associated with greater tension, criticism, mutual dissatisfaction, and conflict within the family. Longitudinal studies have similarly shown that problematic smartphone use may increase parent–adolescent conflict and weaken family communication (10). Likewise, parent–adolescent conflict has been reported to predict problematic internet use over time, with depressive symptoms potentially mediating this association (11). Findings showing that family conflict and low parental monitoring are associated with higher levels of screen use further support this interpretation (7,8). In this context, although the cross-sectional design of the present study does not allow causal inferences, the co-occurrence of PSU and more negative PAR scores suggest the possibility of a mutually reinforcing relational pattern between these two domains.

Limitations

This study has several limitations that should be acknowledged. The cross-sectional design limits causal and directional interpretations of the association between PSU and PAR quality; therefore, the findings should be interpreted as associations rather than evidence of causal effects. In addition, the use of self-report measures may have introduced common method bias, and the single-centre clinical outpatient sample may restrict the generalisability of the findings. Adolescents presenting to a pediatric outpatient clinic may differ from community-based adolescent populations in terms of health-related concerns, family characteristics, psychological

distress, and patterns of healthcare-seeking behavior, which should be considered when interpreting the findings. Furthermore, the CADAS-defined groups reflect analytical rather than clinical diagnostic classifications and should therefore be interpreted as indicators of relational risk patterns. Nevertheless, the separate examination of mother- and father-related dimensions, together with the inclusion of the openness subdimension, represents a notable strength by providing a more nuanced understanding of the familial relational correlates of PSU.

Conclusion

In conclusion, the present study suggests that PSU in adolescents is associated with the quality of the PAR, particularly in the dimensions of positive relationship, negative relationship, and, to some extent, openness. The finding that adolescents with healthier digital use patterns reported more positive and less conflictual relationships with their parents suggests that relational vulnerabilities become more apparent as the level of PSU increases. Therefore, assessment of PSU in adolescents should consider the quality of family relationships, particularly indicators of trust-based communication.

Ethics committee approval

This study was conducted in accordance with the Helsinki Declaration Principles. The study was approved by Kartal Dr. Lütfi Kırdar City Hospital (27.01.2026, reference number: 2026/010.99/24/22).

Contribution of the authors

Study conceptualization and design: BY, EK; data collection: BY, EK; analysis and interpretation of results: BY, EK; manuscript preparation: BY, EK. All authors reviewed the results and approved the final version of the manuscript.

Presented

This study was previously presented as an oral presentation at the ADSAD 3rd National Adolescent Health Congress.

Source of funding

The authors declare the study received no funding.

Conflict of interest

The authors declare that there is no conflict of interest.

References

1. Xu LX, Song KR, Deng HY, et al. Beyond screen time: The core influences of problematic screen use on adolescent development networks. J Behav Addict 2025;14(2):724-37. https://doi.org/10.1556/2006.2025.00035
2. Grund BA, Luciana M. Prospective Predictors of Adolescent Screen Time and Problematic Screen Use. JAACAP Open 2025;3(4):1259-69. https://doi.org/10.1016/j.jaacop.2025.06.007
3. Seema R, Heidmets M, Konstabel K, Varik-Maasik E. Development and validation of the digital addiction scale for teenagers (DAST). J Psychoeducational Assess 2022;40(2):293-304. https://doi.org/10.1177/07342829211056394
4. Liu X, Liu J, Flores DD, McDonald CC. Family factors related to adolescent screen media use and mental health outcomes: A systematic review and recommendation for practices. J Adolesc 2024;96(7):1401-27. https://doi.org/10.1002/jad.12367
5. Fiore M, Arena D, Crisafi V, et al. Digital Devices Use and Sleep in Adolescents: An Umbrella Review. Int J Environ Res Public Health 2025;22(10):1517. https://doi.org/10.3390/ijerph22101517
6. Vossen HGM, van den Eijnden RJJM, Visser I, Koning IM. Parenting and problematic social media use: a systematic review. Curr Addict Rep 2024;11(3):511-27. https://doi.org/10.1007/s40429-024-00559-x
7. Nagata JM, Paul A, Yen F, et al. Associations between media parenting practices and early adolescent screen use. Pediatr Res 2025;97(1):403-10. https://doi.org/10.1038/s41390-024-03243-y
8. Al-Shoaibi AAA, Zamora G, Chu J, et al. Family conflict and less parental monitoring were associated with greater screen time in early adolescence. Acta Paediatr 2024;113(11):2452-28. https://doi.org/10.1111/apa.17349
9. Kroshus-Havril E, Steiner MK, Christakis D. Family and developmental correlates of adolescent involvement in decision making about screen use. Prev Med Rep 2024;41:102717. https://doi.org/10.1016/j.pmedr.2024.102717
10. Merkaš M, Bodrožić Selak M, Žulec Ivanković A. Problematic smartphone use and communication in families with adolescents. Adolescents 2024;4(1):107-19. https://doi.org/10.3390/adolescents4010008
11. Chen J, Li S, Nie Y. Parent-adolescent conflict and problematic internet use among Chinese adolescents: the mediating role of depression and the moderating role of school climate. BMC Psychol 2024;12(1):285. https://doi.org/10.1186/s40359-024-01781-y
12. Milkovich LM, Randell KA, Sherman AK, Moreno MA. Associations Among Problematic Internet Usage in Adolescents, Parental Internet Factors, and Parent-Adolescent Communication. J Dev Behav Pediatr 2025;46(1):e40-e44. https://doi.org/10.1097/DBP.0000000000001328
13. Xie Z, Xu C, Feng N, Cui L. Reciprocal Relationship Between Parental Technoference and Adolescent Problematic Mobile Phone Use: The Longitudinal Mediating Roles of Paternal and Maternal Attachment. Fam Process 2025;64(3):e70058. https://doi.org/10.1111/famp.70058
14. Türk N, Batmaz H, Keleş O. Adaptation of the Child-Adolescent digital addiction scale (CADAS) to the Turkish culture: A validity and reliability study. İnönü Üniversitesi Eğitim Bilimleri Enstitüsü Dergisi 2024;11(21):139-50. https://doi.org/10.29129/inujgse.1436111
15. Wissink IB, Deković M, Meijer AM. Parenting behavior, quality of the parent-adolescent relationship, and adolescent functioning in four ethnic groups. Journal of Early Adolescence 2006; 26:133-59. https://doi.org/10.1177/0272431605285718
16. Güre A, Tazeoğlu S, Angın E. Ebeveyn-davranış ölçeği ile ebeveyn-ergen ilişki niteliği ölçeğinin geçerlik ve güvenirlik çalışması [Validity and reliability study of the Parenting Behavior Scale and Parent-Adolescent Relationship Quality Scale] [Poster presentation]. XVI Ulusal Psikoloji Kongresi; 2010; Mersin, Türkiye.
17. Stattin H, Kerr M. Parental monitoring: a reinterpretation. Child Dev 2000;71(4):1072-85. https://doi.org/10.1111/1467-8624.00210
18. Morawska A, Adina J, Khan A, Turner KMT. Parental Factors Associated with Social Media Use in Adolescence: A Systematic Review. J Adolesc 2026;98(1):51-68. https://doi.org/10.1002/jad.70062
19. Qi H, Kang Q, Bi C. How Does the Parent-Adolescent Relationship Affect Adolescent Internet Addiction? Parents' Distinctive Influences. Front Psychol. 2022;13:886168. https://doi.org/10.3389/fpsyg.2022.886168
20. Zhang J, Zhang Q, Xiao B, Cao Y, Chen Y, Li Y. Parental Technoference and Child Problematic Media Use: Meta-Analysis. J Med Internet Res 2025;27:e57636. https://doi.org/10.2196/57636