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An effort to understand parents' media mediation roles and early childhood children's digital game addiction tendency: A descriptive correlational survey study

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Abstract

This study aims to determine whether parents' media mediation roles are related to their early childhood children's digital game addiction tendencies. In addition, it examines whether these variables are related to the child's and parent's digital device usage habits and whether they differ according to various sociodemographic variables and digital device usage habits. In this context, we collected data from 433 parents (mother = 336, father = 97) with children aged 3–6. We analyzed the data using correlation analysis, one-way ANOVA, and t-test. Active-supportive, restrictive-supportive, active-limiting, restrictive-limiting, and active-interpreter roles of parents were negatively related to children's digital game addiction tendencies. In addition, parents' and children's digital device screen time was negatively associated with parents' media mediation roles and positively with children's digital game addiction tendencies. Mothers found their children more likely to have digital game addiction than fathers. Children of parents who play digital games have higher digital game addiction than those of parents who do not play, male children than female, children who have their own digital devices than those who do not, and children who only watch YouTube videos than those who only watch television channels for kids. Finally, we observed that mothers are more active in media mediation roles than fathers and that parents behave more restrictive toward their daughters.

Keywords Media mediation role · Digital game addiction · Early childhood · Preschool · Parent

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1 Introduction

Today, digital technologies such as smartphones, tablets, and laptops have become a necessity rather than a technological tool for communication. The portability, touch-screen interface, and functionality of digital technologies have gradually transformed how children consume and interact with digital media and the communication habits of society (Madigan et al., 2019; Rodideal, 2020). In particular, smartphones have gradually replaced laptops and personal computers in most homes (Mathias & Singh, 2023). Smartphones, Internet, laptops, tablets, and television (TV) programs that provide entertainment such as movies, games, and music have changed the family's media usage area. While these environments may provide enhanced opportunities for interaction, they can also exacerbate many dilemmas in family life (Clark, 2011). The increasing presence of digital communication tools in daily life has also affected the family and child relationship (Durak & Kaygin, 2020). Negative family relationships increase the likelihood of spending excessive time on the Internet, having difficulty controlling online activities, neglecting responsibilities, and encountering negative consequences (Chemnad et al., 2023). Therefore, as the use of technology increases in children's world, at school, at home, and in daily life, the need to support children's communication with technology healthily emerges. While digital media provides opportunities that make our daily lives more accessible, young children are most likely to be negatively affected (Şen et al., 2020).

Although children's digital content preferences are mainly used for educational purposes, the rate of use for entertainment is increasing day by day. The demand for mobile devices also increases the interest in mobile applications and games (Göksu et al., 2020). It is seen that educational content is preferred, especially in the 2–4 age group, and the age group is gradually decreasing (Eichen et al., 2021). It has been observed that children's behavior of following TV and YouTube channels and watching videos on the Internet has become widespread in recent years, as well as playing digital games in early childhood (Göksu, 2022; Işıkoğlu et al., 2023). Parental awareness is essential so that children can benefit from the learning opportunities offered through digital technologies and, at the same time, be protected from the risks these technologies carry (Konok et al., 2020; Zirakbash et al., 2023). For this reason, in this study, we focused on parents' media mediation roles and digital game addiction. We aimed to reveal the relationship between these two variables and to examine these variables according to various sociodemographic variables and digital device usage habits.

1.1 Children's challenge with digital media and the role of parents

From the moment a child is born, the first people they interact with are his parents. Parents support and guide the child in all aspects throughout the child's development process, starting from pre-birth (Morris et al., 2021). Children's acquaintance with the digital world usually begins at home, through their parents, via TV, tablet, or smartphone. The age of interaction with digital devices decreases to infancy

(Nevski & Siibak, 2016). With digitalization, the scope of responsibilities placed on parents has also expanded. In addition to basic life skills, technology literacy, safe communication, digital citizenship, and financial literacy skills have also been added to the responsibilities of parents (Aşkın Bozkurt, 2023). Parents who adapt to the innovations brought by age, follow the agenda of new technologies, distinguish the benefits and risks, have basic competence regarding digital devices, and instill all this knowledge appropriately in their children are defined as digital parents (Yurdakul et al., 2013).

Watching TV alone for a long time at an early age can negatively affect children's development. Having devices, such as TVs and computers, in the child's room causes children to be exposed to media uncontrolled (Dennison et al., 2002). It is suggested that watching TV for a long time may increase children's tendency for aggressive behavior (Susanu, 2022; Ybarra et al., 2022). According to Tohlu (2023), as mothers' daily TV watching and using social media increases and the time they spend with their children decreases, the conflict mothers experience increases. In addition, according to the relevant research, closeness is formed between mothers and their children, who control the cartoons their children watch and the games they play. Entertaining content can also provide children with emotional relief and relieve tension, as long as it is not watched excessively (American Psychiatric Association, 2013).

Parents direct their children to digital games for reasons such as providing educational content, ensuring that the child has a fun time, rewarding, and controlling and managing negative behavior. The proliferation of applications downloaded to smartphones and tablets affects parents' behavior in taking care of their children and spending time together during the day. Considering the purposes of use of these applications, it is possible to keep children occupied while doing household chores (Eichen et al., 2021; Nevski & Siibak, 2016), motivate, reward, keep the child entertained while the parent is working, keep them quiet in society (e.g., market shopping, doctor's office) and being able to feed is outstanding (Eichen et al., 2021). However, according to Ryan and Deci (2000), digital devices cannot be a reward for the ideal behavior that children should exhibit (e.g., tidying up their room and putting away their toys). Despite this, more than half of the parents use the digital tool as a reward/punishment or source of motivation for their children (Eichen et al., 2021).

On the contrary, when a behavior for which the child is intrinsically motivated is rewarded with extrinsic motivation, the child's interest in that behavior decreases (Ryan & Deci, 2000). Additionally, leaving a child alone with digital content may cause the child to randomly click or switch channels, resulting in exposure to inappropriate, violent, or sexual content. Parents may also overlook how the child reacts to media content. When using digital media, informing children about the content, encouraging the child to ask questions (Livingstone et al., 2011), and providing adequate explanations by the parent (Mendoza, 2009) can contribute to the child's development. Additionally, according to Göksu (2022), parents should take security and safety precautions so their children can play digital games safely.

Different attitudes of parents cause them to adopt various media mediation roles. Valkenburg et al. (1999) first explained the mediation theory with three parental behaviors: instructive, restrictive, and social viewing through TV. Clark (2011) added participatory learning to these. With the widespread use of computers, the Internet, and smartphones, Rodideal (2020) revised parental mediation behaviors as permissive, reverse, modeling, inconsequent, and mixed digital mediation according to changing living conditions. As a theory, parental mediation is any parental intervention or protective behavior used by parents to promote healthy digital media use habits and reduce the adverse effects of digital media (Shin, 2018; Smahelova et al., 2017). Clark (2011) defined it as the behaviors that parents use to protect their children against the potential adverse effects of the media. Mediation roles vary depending on countries' cultures, welfare levels (Livingstone & Byrne, 2018), and parental attitudes (Warren & Aloia, 2019). Parental mediation theory was initially designed to influence children's TV viewing. It has started focusing on computers, digital games, online dangers, Internet addiction, and smartphone addiction (Jiow et al., 2017). The first studies on parental mediation were conducted in the 1950s to explore the impact of TV on children and adolescents (Livingstone, 2009). In the 2000s, with the diversification of digital media tools and the spread of accessible data resources (e.g., Wikipedia, social media tools, YouTube, and subscription-based streaming services), the definition, roles, and scope of parental media mediation were revised (Mathias & Singh, 2023).

Media mediation is one of the critical issues of today's societies because almost all young people growing up in the age of digitalization use media and the Internet in their daily routines (Hassan et al., 2020). Parents often appear to be in constant conflict with their children, trying to balance the educational and social advantages of media use with the adverse effects of some content on the child's development and safety (Nathanson, 2004). Parents attempt to regulate their children's media use, hoping to maximize the advantages of media for their children and minimize its disadvantages (Livingstone & Helsper, 2008). Parents question their intentions in exposing their children to digital media and need clarification about which type of digital tool suits their children (Clark, 2011). Therefore, parents set rules such as limiting content and time, using it only at certain hours, and obtaining parental permission first (Brito et al., 2017; Eichen et al., 2021). Parents' placing time and content restrictions shows they adopt restrictive mediation behavior. According to Chen and Shi (2019), restrictive mediation is more effective than active mediation in reducing the child's screen time. However, active and combined mediation was more effective than restrictive mediation in protecting against media risks. Wu et al. (2014) found that anti-social behavior in cartoons watched by children between the ages of 3–6 increased the tendency for problematic behavior in children.

Approximately one-quarter of the parents cannot control the content, and approximately three-quarters direct their children to digital games themselves (Ateş & Durmuşoğlu Saltalı, 2019). American Academy of Pediatrics (2001) recommends that children over two should not be exposed to media with educational and quality content for more than 1–2 h. He advises parents to be positive role models for their children to use the media wisely, to limit exposure to media for long periods, to use it together, and to explain to children what they see in the media. Parents need to be informed about how their children will use media. Therefore, if parents do not control their children who spend time on digital platforms, the risk of misusing virtual environments will increase (Young, 2009). If parents are conscious media consumers, it will be easier for them to be positive role models for their children. This study aims to determine the media mediation roles of parents and the relationship between children's digital game addiction tendencies. We think investigating children's digital game addiction tendencies will contribute positively to the media usage habits that begin forming at an early age.

1.2 Children's interest in digital games and the dilemma of digital game addiction

Today, social games have been replaced mainly by digital games. Nikiforidou (2018) defines digital games as rule-based systems that involve the struggle to achieve a goal while providing feedback about the player's progress. Digital games can be played online or offline, individually or with more than one person, with devices such as computers, tablets, smartphones, and game consoles appealing to all age groups and offering entertainment experiences (Göksu, 2022). The ease of use of mobile devices such as smartphones and tablets and the easy access to information and digital games cause the time spent in front of the screen to increase and the opportunities for face-to-face communication with peers to decrease (Göksu, 2021; Rosen et al., 2014). According to Uzun et al. (2023), acquiring children between the ages of 0–8 with digital games begins with parents, siblings, or peers becoming role models. Parents consider reasons such as not having as many playgrounds in city life as before, failing to set limits for children, and spending a long time at home during pandemic periods as reasons that push children to play digital games (Aslan & Turgut, 2023). In addition, in the interviews conducted with mothers with children between 0–36 months, it was seen that digital games were mostly preferred to calm the child and feed him/her (Işıkoğlu & Ergenekon, 2021). In the relevant research, although mothers accept that introducing their children to smartphones before age two is harmful, they allow them to spend time with smartphones in their baby care routine.

Globalization, easy accessibility, and peer influence are the factors that make digital games more preferred (Özarslan & Perdahcı, 2023). According to Aydemir (2022), almost four out of every five adults play mobile games. According to the Entertainment Software Association (2022) report, more than 215 million people in America play video games regularly. According to the relevant report, 77% of parents claimed that they regularly play videos with their children and that playing games together strengthens family ties. In addition, players stated that the games were useful, entertaining, and relieved stress. Mobile games with educational features can improve critical thinking skills when chosen according to the development of children in early childhood and used supportively (Çalhan & Göksu, 2024). However, some digital games that do not emphasize educational aspects give the player the feeling of creating and rewriting the fiction, making the game more interesting

(Horzum, 2011). Accordingly, excessive motivation and rewarding success can increase addiction tendencies (Miller, 2013). This situation can cause digital game addiction.

Digital game addiction is expressed in the field of psychiatry as an inability to control time while playing games, not being interested in activities other than digital games, the desire to continue playing despite the negative consequences resulting from the game, and impulse control disorder due to the feeling of psychological deprivation when outside the game (Yalçın Irmak & Erdoğan, 2016). In addition, digital game addiction is accepted as a mental health problem. Both the American Psychiatric Association (2013) and the World Health Organization (2020) define it as an online gaming disorder. Digital game addiction; physical disorders in the fingers, wrists, spine, and posture; cognitive lack of attention and aggressive behavior; from a social-social perspective, it can cause behavioral disorders such as racism, sexism, discriminatory discourse, normalization of violence and antisociality (Johnston, 2021; UNICEF, 2017). The increase in digital game addiction in children between 60–72 months negatively affects their social and emotional development (Şenol et al., 2023). Toran et al. (2016) revealed that children generally decide on digital playtime. However, digital games played excessively and without guidance may cause children to be unable to control their desire to play and disrupt their daily lives (Mustafaoğlu & Yasacı, 2018).

In recent research, digital game addiction was related to family responsibilities (Şenol et al., 2023). Satisfaction with family interaction serves a protective function against digital game addiction (Berenson & Andersen, 2006; Chemnad et al., 2023). Gökçen (2023) shows that 3–6-year-old children are alone in front of the screen for about two hours a day; gender affects digital game preference, but the age at which they start using screens does not affect addiction tendency. Tso et al. (2022) suggested that students with high digital competence can be better protected from the adverse effects of digital environments and the risk of game addiction. It has also been observed that children with digital competence have lower screen time and digital game addiction tendencies (Tso et al., 2022). Since touch screens are exciting and have become widespread, banning these devices for children is not a solution (Göksu, 2022; Prensky, 2005). Therefore, it is essential to research this subject, identify variables that may cause digital game addiction, and try to understand the mediating roles of parents.

1.3 The aim and importance of the study

Early childhood years are the period when learning and development are most rapid. Children are sensitive to learning in these years, with specific critical periods. When a rich environment suitable for their development is created in the family and school environment, a healthy development that responds to this sensitivity is observed. When the child's development is ignored and critical developmental periods are not supported, permanent damage may occur. Parents are responsible for preparing children for social life and meeting their love, care, education, socialization, and health needs. All children, especially children between the ages of 3 and 6, need unconditional support from their parents due to their developmental characteristics (Saracho, 2023; Schunk, 2021). Just as it is a right for children to use technology in a safe environment, it is also the responsibility of parents to create this environment (Göksu, 2022). Therefore, any research contributing to children's safe use of digital media becomes valuable.

In the first two years of life, spending time on digital screens such as TV and smartphones has become a part of daily life for most children (Kucirkova & Zuckermann, 2017). Children interact with these tools throughout the day, even through their parents. In the study examining the opinions of 13 Korean parents with children between the ages of 3–6, they stated that parents mostly use digital devices for rewards, learn English, and keep children busy with relevant tools (Dong, 2018). 198 Estonian parents with children aged 0–3 were allowed to use digital devices with educational or entertaining content (Nevski & Siibak, 2016). The same study revealed that parents use behavior management to keep their children quiet and calm. According to relevant research, children mostly prefer to watch videos or cartoons.

Changing living conditions and the transformation of socialization and communication tools have increased the interaction of children and parents with digital games and caused problematic use (Yalçın Irmak & Erdoğan, 2016). Parents' belief that games are beneficial may cause the child to play excessively (Işıkoğlu et al., 2023). In addition, the fact that the parent is a negative role model, the time spent together is limited, or the game is presented as a reward to the child is a sign that children are pushed to play excessively. The reasons why young children spend a long time on smartphones are that it is easily accessible, the parent uses the smartphone frequently during the day, provides the child with more technological tools than necessary, and does not specify how to use them (Aral & Doğan Keskin, 2018), or the parent does not have digital literacy skills. Considering the critical importance of the parent–child relationship, parents' lack of digital literacy may increase children's risk of digital game addiction. Much research is in the literature on digital citizenship, media literacy perceptions, beliefs, and competencies (Livingstone & Helsper, 2008; Tomczyk & Potyrata, 2021; Vajen et al., 2023). According to relevant research, digital citizenship and digital literacy offer advantages in gathering information, making life more accessible, and saving time.

Parents' ability to make digital devices and the contents offered by these devices safe for their children may also affect their performance in formal preschool education. Digital game addiction and problematic media use can cause children to neglect their responsibilities, and this can make teachers' jobs difficult. Therefore, it is necessary to produce scientific information and make suggestions to guide practitioners. There are many studies on digital games, but research on parents' media mediation roles is limited. On the other hand, there are also studies focusing on general parental mediation behaviors that are related to parental media mediation roles (Aral & Doğan Keskin, 2018; Aslan & Turgut, 2023; Bostancı & Çakır, 2022; Clark, 2011; Eichen et al., 2021; Gözüm & Kandır, 2021; Gürler & Ömeroğlu, 2023; Işıkoğlu Erdoğan, 2019; Işıkoğlu & Ergenekon, 2021; Jiow et al., 2017; Kanak & Özyazıcı, 2018; Livingstone & Helsper, 2008; Nikken & Jansz, 2014; Tso et al., 2022; Valkenburg et al., 1999; Warren & Aloia, 2019; Wu et al., 2014). While relevant studies aim to reveal children's digital device usage habits, parents' views on digital games, and parental mediation roles, it is noteworthy that studies examining early childhood children's digital game addiction tendencies and parents' media mediation roles are limited. Additionally, we have yet to find any research focusing on the relationship between parents' media mediation roles and children's digital game addiction tendencies. In addition, the other unique importance of our research is to present evidence on how these two variables differ according to technology usage habits. In this study, we sought answers to the following questions to contribute to the literature and make suggestions to practitioners in the context of the deficiency stated above:

RQ1. Is there a statistically significant relationship between parents' media mediation roles and children's digital game addiction tendencies?
RQ2. Is there a statistically significant relationship between parents' media mediation roles and the digital device usage habits of parents and children?
RQ3. Is there a statistically significant relationship between children's digital game addiction tendencies and the digital device usage habits of parents and children?
RQ4. Does children's digital game addiction tendency differ according to their digital device usage habits and sociodemographic variables?
RQ5. Do parents' media mediation roles differ according to sociodemographic variables?

The research questions above discuss media mediation roles as active-supportive, restrictive-supportive, active-limiting, restrictive-limiting, restrictive-blocker, and active-interpreter. Variables related to parents' habits of using digital devices: daily smartphone screen time, other digital devices screen time [e.g., tablet, computer, game console], watching TV, using social media, playing digital games, and playtime with children. Variables related to children's digital device habits are smartphone screen time, other digital device screen time, watching TV, playing digital games, and owning a digital device. Finally, sociodemographic variables are gender, parent's education level, and children's age.

2 Method

2.1 Research design

This study, which aims to examine the relationship between early childhood media mediation roles of parents and digital game addiction tendency in children, is quantitative research and was conducted with a relational screening model. The correlational survey method aims to reveal the change between two or more variables or the degree of this change (Büyüköztürk et al., 2019; Fraenkel et al., 2012). In this type of research, the relationship between two or more variables is examined without interfering with these variables in any way. It may give the researcher an idea about the possibility of a cause-effect relationship on the subject, but it should not be expressed as a definite cause-effect relationship.

2.2 Sample

Four hundred thirty-three parents (mother = 336, father = 97) with children aged 3–6 from 55 different provinces in seven regions of Turkey participated in the research. As a sampling method, the convenient sampling method, which eliminates time and accessibility limitations and aims to select from the applicable unit, was preferred (Büyüköztürk et al., 2019). In addition, we used snowball sampling to ensure the diversity of the participant group and to reach a large group of participants. Parents of children aged 3–6 participated in the study voluntarily via an online questionnaire. Parents answered questions about themselves (questions about media mediation roles, sociodemographics, and digital device usage habits) and about their children (male = 215, female = 218; questions about digital game addiction tendency, sociodemographic and digital device usage habits) in the online questionnaire. The sociodemographic characteristics of the participants are in Table 1.

2.3 Data collection tools

2.3.1 Questionnaire

We prepared a questionnaire to collect data on the various sociodemographic and digital device usage habits of the parents and children participating in the research. This questionnaire (See Appendix 1) is about the following variables for parents and children: gender, children's age, parent's education level, parent's use of social media, parent's and child's digital play time, parent and child's digital device

Table 1 Sociodemographic characteristics of the participants

Variables	Frequency	Percentage
Parent's Gender		
Female	336	77,6
Male	97	22,4
Parent's Education Level		
K-12	87	20,1
Undergraduate	257	59,4
Graduate	89	20,6
Children's Gender		
Female	218	50,3
Male	215	49,7
Children's Age		
3–4 years (36–48 months)	229	52,9
4–5 years (49–60 months)	131	30,3
5–6 years (61–72 months)	73	16,9

screen time, whether children own their digital device and children's media content preference.

Sociodemographic characteristics of the participants The Early Childhood Parental Media Mediation Scale aims to detect the attitudes and behaviors of parents who have children in early childhood regarding their children's use of media tools (Şen et al., 2020). The scale, consisting of 43 items and six dimensions (*active-supportive, restrictive-supportive, active-limiting, restrictive-limiting, restrictive-blocker,* and *active-interpreter*), has a five-point Likert structure (See Appendix 2). Items are answered with the options "*never*", "*rarely*", "*sometimes*", "*mostly*", and "*always*" and are scored between 1 and 5. Şen et al. (2020) calculated Cronbach's Alpha values for the scale dimensions as 0.92, 0.86, 0.59, 0.61, 0.83 and 0.84, respectively. In this study, we calculated the Cronbach's Alpha value of the responses to all items as 0.94. We found Cronbach's Alpha values for the scale dimensions to be 0.93, 0.88, 0.70, 0.78, 0.84, and 0.88, respectively.

Active-supportive is the behavior that parents engage in with their children regarding media content. They discuss the content, comment, ask questions, and prepare. The parent expresses the situation to which the child may be exposed. The aim is to ensure that the child's media experience becomes beneficial. In the restrictive-supportive role, parents determine the time their children spend in front of the screen and act restrictively by intermittently turning off media devices. In this sub-dimension, the parent controls the time the child spends using media tools in line with the child's development. In the active-limiting role, parents determine media content by jointly deciding on the time their children spend using media. They take into account smart signs that are relevant to the content. In the restrictive role, it is media mediation behavior that parents can prevent by cutting off the child's access to media without informing the child about inappropriate media content. Restrictive-blocker is a media mediating role in which parents use media tools as rewards or punishments in cases where they expect the child to obey the rules they have set. In the active-interpreter role, the parent explains the media content to his child by comparing it with real life and interpreting it. The parent accompanies the child's content experience.

2.3.2 Digital game addiction tendency scale

The Digital Game Addiction Tendency Scale developed by Budak and Işıkoğlu (2022) aims to detect early childhood children's digital game addiction tendencies. The scale consisting of 20 items is a five-point Likert type. This scale, which has four dimensions (*disconnect from life, conflict, constant playing, reflecting on life*), is answered with the options "*Always* (5)", "*Most of the time* (4)", "*Sometimes* (3)", "*Rarely* (2)", and "*Never* (1)". Budak and Işıkoğlu (2022) calculated Cronbach's Alpha value as 0.93 out of the total score. The subscales were calculated as 0.88, 0.90, 0.82, and 0.70, respectively. In this study, the Cronbach's Alpha value we calculated from the total score is 0.96. We calculated the sub-dimensions as 0.93, 0.91, 0.90, and 0.81, respectively. Disconnect from life refers to the disconnections that occur in the child's social life during the process of playing digital games and consists of seven items. Conflict is the reactive behavior that children show when they are prevented from playing digital games and consists of five items. Constant playing refers to the child playing digital games for a long time and making demands in this direction. It consists of five items. Reflecting on life is the effects of the digital game on the child's life. It consists of three items (See Appendix 3).

2.4 Data analysis

To increase reliability, we added a control item to both scales (e.g., "*If you are reading this item, please select the 'Always' option.*"). In this context, we did not include the data of 29 participants in the analysis. Subsequently, we coded the reverse items and conducted normality analysis. As a result of the normality analysis performed for all data, we saw that the kurtosis and skewness values of the digital game addiction tendency total score were between 0.23 and 0.22, and the skewness value was between 0.92 and 0.11. For parental media mediation roles, the total score was not taken but evaluated as sub-dimensions. Their kurtosis values were between -0.45 and 0.22 for active-supportive, 0.60 and 0.22 for restrictive-supportive, -62 and 0.22 for active-limiting, -1.5 and 0.22 for restrictive-limiting, 1.43 and 0.22 for restrictive-blocker, and 0.33 and 0.22 for active-interpreter. Skewness values were between -0.57 and 0.11, -1.07 and 0.11, -0.30 and 0.11, -1.5 and 0.11, 0.01 and 0.11, and -1.04 and 0.11, respectively. As a result of the normality analysis, the kurtosis and skewness values were -1.5 to + 1.5, so the normality assumption was met (Tabachnick & Fidell, 2013). Therefore, we performed Pearson correlation analysis. To determine whether parents' media mediation roles and digital game addiction tendencies differ according to various sociodemographic variables, we used *t*-test for variables with two groups and within-group normal distribution assumption. We used one-way ANOVA for more than two groups and variables that assumed normal distribution within the group. Since the data were normally distributed and the number of participants in the groups was different, we used the Tukey test, one of the post hoc analysis methods. We used IBM SPSS Statistics version 26 for all analyses.

3 Results

According to the descriptive statistics regarding parental media mediation roles and the children's digital game addiction tendency, which is the focus of the research, the media mediation roles most preferred by parents are active-supportive ($M = 51.85$, $SD = 12.51$) and restrictive-supportive ($M = 40.78$, $SD = 7.72$), respectively. The least preferred mediating roles were restrictive-blocker ($M = 12.36$, $SD = 2.37$) and active-limiting ($M = 13.98$, $SD = 3.85$), respectively. The average children's digital game addiction tendency score was 39.03. The sub-dimension with the highest mean was detachment from life ($M = 13.79$, $SD = 6.87$), and the sub-dimension with the lowest mean was reflection on life ($M = 6.18$, $SD = 2.95$). Descriptive statistics regarding participants' digital device usage habits: parents' smartphone screen time ($M = 2.67$, $SD = 1.43$), parents' other digital devices screen time ($M = 0.80$,

$SD = 1.32$), parents' watching TV ($M = 1.46$, $SD = 1.38$), parents' using social media ($M = 1.92$, $SD = 1.22$), parents' playing digital games ($M = 0.26$, $SD = 0.80$), children's smartphone screen time ($M = 0.93$, $SD = 1.01$), children's screen time on other digital devices ($M = 0.53$, $SD = 0.90$), children's watching TV channels for kids ($M = 1.53$, $SD = 1.17$), children's playing digital games ($M = 0.61$, $SD = 0.90$), and children's playing digital games with their parents ($M = 0.28$, $SD = 0.65$).

3.1 RQ1. The relationship between parents' media mediating roles and child's digital game addiction tendency

We conducted Pearson Correlation analysis to determine whether there was a correlation between parental media mediation roles and their children's digital game addiction tendencies—the relevant data in Table 2.

The total score of digital game addiction tendency and active-supportive ($r = -0.12$, $p = 0.01$), restrictive-supportive ($r = -0.32$, $p = 0.00$), active-limiting ($r = -0.14$, $p = 0.00$), restrictive-limiting ($r = -0.19$, $p = 0.00$), and active-interpreter ($r = -0.11$, $p = 0.01$) were negatively related. There was no statistically significant relationship between digital game addiction tendency and restrictive-blocker role ($r = 0.03$, $p = 0.48$). These results show that as parents adopt active-supportive, restrictive-supportive, active-limiting, restrictive-limiting, and active-interpreter roles, children's digital game addiction tendencies decrease.

3.2 RQ2. The relationship between parents' media mediating roles and digital device usage habits

We conducted Pearson Correlation analysis to examine the relationship between parents' media mediation roles, parents' digital device usage habits (smartphone screen time, other digital devices screen time [computer, tablet, and game console], watching TV, using social media, playing digital games), and the children's digital device usage habits (smartphone screen time, other digital devices screen time [computer, tablet, and game console], watching TV channels for

Table 2 Correlation between parental media mediation roles and children's digital game addiction tendency

	1	2	3	4	5	6	7
1. Digital game addiction tendency	-	-0.12*	-0.32**	-0.14**	-0.19**	0.03	-0.11*
2. Active-supportive		-	0.65**	0.61**	0.40**	-0.03	0.73**
3. Restrictive-supportive			-	0.53**	0.53**	0.02	0.57**
4. Active-limiting				-	0.28**	-0.00	0.51**
5. Restrictive-limiting					-	0.10*	0.51**
6. Restrictive-blocker						-	0.06
7. Active-interpreter							-

** $p < 0.01$, * $p < 0.05$

Table 3 Correlation between parental media mediation roles and digital device usage habits

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Parents' smartphone screen time	-	0.14**	0.16**	0.66**	0.24**	0.19**	0.18**	0.15**	0.26**	0.18**	-0.03	0.02	-0.00	-0.03	0.00	-0.02
2. Parents' screen time on other digital devices		-	-0.00	0.03	0.29**	0.19**	0.04	0.17**	-0.06	0.15**	0.06	-0.04	-0.00	-0.11*	-0.10*	0.00
3. Parents' watching TV			-	0.21**	0.27**	0.18**	0.28**	0.19**	0.40**	0.18**	-0.13**	-0.15**	-0.02	-0.08	0.05	-0.04
4. Parents' using social media				-	0.16**	0.19**	0.25**	0.11**	0.19**	0.19**	-0.06	-0.10*	-0.07	-0.06	-0.01	-0.04
5. Parents' playing digital games					-	0.43**	0.26**	0.29**	0.26**	0.33**	-0.02	-0.08	-0.04	-0.14**	-0.04	-0.08
6. Children's playing digital games with parents						-	0.22**	0.35**	0.15**	0.48**	0.02	-0.06	0.03	-0.07	-0.02	-0.00
7. Children's smartphone screen time							-	0.26**	0.22**	0.54**	-0.14**	-0.29**	-0.04	-0.14**	0.01	-0.10*
8. Children's screen time on other digital devices								-	0.12**	0.44**	0.04	-0.07	0.04	-0.12*	0.02	0.00
9. Children's watching TV channels for kids									-	0.19**	-0.04	-0.08	0.01	-0.00	-0.00	-0.02
10. Children's playing digital games										-	-0.03	-0.22**	-0.01	-0.13**	-0.02	-0.03
11. Active-supportive											-	0.65**	0.61**	0.40**	-0.03	0.73**
12. Restrictive-supportive												-	0.53**	0.53**	0.02	0.57**
13. Active-limiting													-	0.28**	-0.00	0.51**
14. Restrictive-limiting														-	0.10*	0.45**
15. Restrictive-blocker															-	0.06
16. Active-interpreter																-

**$p < 0.01$, *$p < 0.05$

kids, playing digital games, playing digital games with parents)—the relevant results are in Table 3.

According to Table 3, there is a significant negative relationship between the active-supportive role and parents' watching TV (r=-0.13, p=0.00) and children's smartphone screen time (r=-0.14, p=0.00). There is also a negative significant relationship between the restrictive-supportive role and parents' watching TV (r=-0.15, p=0.00), parents' using social media (r=-0.10, p=0.03), and children's smartphone screen time (r=-0.29, p=0.00). There is a negative significant relationship between the restrictive-limiting role and parents' screen time on other digital devices (r=-0.11, p=0.02), parents' playing digital games (r=-0.14, p=0.00), children's smartphone screen time (r=-0.14, p=0.00), children's screen time on other digital devices (r=-0.12, p=0.01) and children's playing digital games (r=-0.13, p=0.00). Finally, there is a negative significant relationship between the restrictive-blocker role and parents' screen time on other digital devices (r=-0.10, p=0.04) and between the active-interpreter role and children's smartphone screen time (r=-0.10, p=0.04).

These results show that as the parent's active-supportive, restrictive-supportive, restrictive-limiting, and active-interpreter role scores increase, the time the parent watches TV and the time the children spend on the smartphone decreases. It is seen that as the parent's restrictive-supportive score increases, using social media also decreases. Additionally, as the parents' restrictive-limiting role score increases, screen time on other digital devices, their own and their children's time playing digital games, and their children's screen time on other digital devices decrease. Finally, it was observed that as the parent's restrictive-blocker score increased, screen time on other digital devices decreased. The above results can also be interpreted the other way around.

3.3 RQ3. The relationship between children's digital game addiction tendency and digital devices usage habits

We conducted Pearson correlation analysis to examine the relationship between children's digital game addiction tendency, parents' digital device usage habits (smartphone screen time, other digital devices screen time [computer, tablet, and game console], watching TV, using social media, playing digital games), and the children's digital device usage habits (smartphone screen time, other digital devices screen time [computer, tablet, and game console], watching TV channels for kids, playing digital games, playing digital games with parents)—the relevant results are in Table 4.

According to the results in Table 4, there is a positive significant correlation between children's digital game addiction tendency and children's smartphone screen time (r=0.35, p=0.00), other digital devices screen time (r=0.21, p=0.00), playing digital games (r=0.39, p=0.00), playing digital games with their parents (r=0.12, p=0.01), parents' watching TV (r=0.10, p=0.03), parents' using social media (r=0.15, p=0.00) and parents' playing digital games (r=0.18, p=0.00).

These correlations show that as the time parents spend watching TV, using social media, playing digital games, and playing digital games with their children increases,

Table 4 Correlation between children's digital game addiction tendency and digital device usage habits

	1	2	3	4	5	6	7	8	9	10	11
1. Parents' smartphone screen time	-	0.14**	0.16**	0.66**	0.24**	0.19**	0.18**	0.15**	0.26**	0.18**	0.08
2. Parents' screen time on other devices		-	-0.00	0.03	0.29**	0.19**	0.04	0.17**	-0.06	0.15**	0.08
3. Parents' watching TV			-	0.21**	0.27**	0.18**	0.28**	0.19**	0.40**	0.18**	0.10*
4. Parents' using social media				-	0.16**	0.19**	0.25**	0.11**	0.19**	0.19**	0.15**
5. Parents' playing digital games					-	0.43**	0.26**	0.29**	0.26**	0.33**	0.18**
6. Children's playing digital games with parent						-	0.22**	0.35**	0.15**	0.48**	0.12*
7. Children's smartphone screen time							-	0.26**	0.22**	0.54**	0.35**
8. Children's screen time on other devices								-	0.12*	0.44**	0.21**
9. Children's watching TV									-	0.19**	0.02
10. Children playing digital games										-	0.39**
11. Children's digital game addiction tendency											-

$^{**}p < 0.01$, $^{*}p < 0.05$

Table 5 Children's digital game addiction tendency in terms of gender, digital game-playing habits, and owning a digital device

Variables	*N*	*M*	*SD*	*t*	*p*	*d*
Female children	218	36.98	17.25	-2.486	0.01*	-0.23
Male children	215	41.11	17.28			
According to mother	336	37.91	16.83	-2.511	0.01*	-0.28
According to father	97	42.91	18.66			
Children own device	127	44.40	19.24	3.930	0.00*	0.42
Children do not own device	306	36.78	16.06			
Parents play games	78	47.63	19.13	-4.492	0.00*	0.58
Parents do not play games	355	37.14	16.39			

*$p < 0.05$, *d: Cohen's d*

Table 6 Children's digital game addiction tendency in terms of age, parent's educational level, and the content children watch

Parents' Education Levels	*N*	*M*	*SD*	*F*	*p*	η^2
K-12	87	39.85	16.20	3.26	0.03*	0.01
Undergraduate	257	40.19	18.26			
Graduate	89	34.87	15.22			
Children's Age	*N*	*M*	*SD*	*F*	*p*	η^2
3–4 years (36–48 months)	229	37.09	16.85	3.10	0.40	0.01
4–5 years (49–60 months)	131	41.47	18.56			
5–6 years (61–72 months)	73	40.73	16.18			
Media Content	*N*	*M*	*SD*	*F*	*p*	η^2
1. Do not watch TV	42	42.50	18.69	4.60	0.00*	0.04
2. TV Channels for Kids	279	36.90	16.48			
3. YouTube	33	49.21	18.49			
4. Both (2 and 3)	74	40.36	17.29			
5. Other	5	42.00	23.70			

*$p < 0.05$

their children's digital game addiction tendency also increases. Additionally, as children's screen time on smartphones or other digital devices and playing digital games increases, their tendency towards digital game addiction also increases.

3.4 RQ4. Examination of children's digital game addiction tendency in terms of various sociodemographic variables and digital devices usage habits

An independent group *t*-test was conducted to determine whether children's digital game addiction tendency differs according to the children's gender, the parents' digital game-playing habits and whether the children own digital devices (See Table 5).

One-way ANOVA analysis was conducted to determine whether children's digital game addiction tendency differs depending on the children's age, parent's education level, and the content (TV or YouTube) the children watch (See Table 6).

3.4.1 Children's digital game addiction tendency according to gender

The *t*-test results (See Table 5) performed to determine whether digital game addiction tendency differs according to the children's gender showed that male children's digital game addiction tendency scores ($N=215$, $M=41.11$, $SD=17.28$) are statistically significantly higher ($t_{(431)}=-2.486$, $p=0.01$, $d=-0.23$) than female children's scores ($N=218$, $M=36.98$, $SD=17.25$). This result shows that male children's digital game addiction tendency is significantly higher than female children's.

Children's digital game addiction tendency scale is not self-reported and was filled in by parents. Therefore, we examined whether children's digital game addiction tendency differs according to the parent's gender. The aim is to determine whether their children's digital game addiction tendency differs according to parents' perceptions. According to the results obtained in this context, fathers ($N=97$, $M=42.91$, $SD=18.66$) find their children more likely ($t_{(431)}=-2.511$, $p=0.01$, $d=-0.28$) to digital game addiction than mothers ($N=336$, $M=37.91$, $SD=16.83$).

3.4.2 Children's digital game addiction tendency according to parents' education level

Results on whether the child's digital game addiction tendency (See Table 6) differs according to the parent's education level have shown that children's digital game addiction tendency differs statistically significantly ($F_{(2,430)}=3.26$; $p=0.03$, $\eta^2=0.01$) according to the parent's education level (K-12: $N=87$, $M=39.85$, $SD=16.20$; Undergraduate: $N=257$, $M=40.19$, $SD=18.26$; Graduate: $N=89$, $M=34.87$, $SD=15.22$). Tukey test results showed that the digital game addiction tendency of children of parents with undergraduate degrees was higher than that of parents with graduate degrees.

3.4.3 Children's digital game addiction tendency by age

Analyzes on whether digital game addiction tendency (See Table 6) differs according to the child's age group show that digital game addiction tendency does not differ ($F(2,430)=3.10$; $p=0.40$, $\eta^2=0.01$) according to 3–4 years (36–48 months; $N=229$, $M=37.09$, $SD=16.85$), 4–5 years (49–60 months; $N=131$, $M=41.47$, $SD=18.56$), and 5–6 years (61–72 months; $N=73$, $M=40.73$, $SD=16.18$).

3.4.4 Children's digital game addiction tendency, according to parents playing digital games

The *t*-test conducted to determine whether the child's digital game addiction tendency differs according to the parent's digital game-playing status (See Table 5) shows that the children of parents who play digital games ($M=47.63$, $SD=19.13$) are statistically significantly higher ($t_{(431)}=-4.492$, $p=0.00$, $d=0.58$) than those who do not ($M=37.14$, $SD=16.39$).

3.4.5 Children's digital game addiction tendency according to the media content they watch

According to Table 6, children's digital game addiction tendency varies (does not watch TV: $N=42$, $M=42.50$, $SD=18.69$; only watch TV channels for kids: $N=279$, $M=36.90$, $SD=16.48$; YouTube videos: $N=33$, $M=49.21$, $SD=18.49$; both channels for kids and YouTube videos: $N=74$, $M=40.36$, $SD=17.29$) depending on the media content they watch ($F_{(4,428)}=4.60$; $p=0.00$, $\eta^2=0.04$). According to the Tukey test, the digital game addiction tendency of children who only watch YouTube videos was statistically higher than those who only watch TV channels for kids.

3.4.6 Children's digital game addiction tendency according to owning a digital device

We used *t*-test to determine whether children's owning digital devices differentiates their digital game addiction tendency. The results showed that the digital game addiction tendency scores of children who own a digital device ($M=44.40$, $SD=19.24$) were significantly higher ($t_{(431)}=3.930$, $p=0.00$, $d=0.42$) than those who do not ($M=36.78$, $SD=16.06$). This result shows that 3–6-year-old children who own a digital device have a higher digital game addiction tendency (See Table 5).

3.5 RQ5. Examination of parental media intermediation roles according to various sociodemographic variables

We conducted independent groups *t*-test and one-way ANOVA analysis to determine whether parental media mediation roles differ according to gender, parents' education level, and children's age.

3.5.1 Parental media mediation roles by gender

Results regarding whether there are differences in media mediation roles according to the gender of parents and children are presented in Table 7.

According to Table 7, mothers' active-supportive ($t_{(431)}=0.53$, $p=0.00$), restrictive-supportive ($t_{(431)}=4.974$, $p=0.00$), restrictive-limiting ($t_{(431)}=2.525$), $p=0.01$) and active-interpreter ($t_{(431)}=3.078$, $p=0.00$) scores were statistically significantly higher than the fathers' scores. According to the gender of the children, a significant difference was observed in favor of female children only in the restrictive-blocker dimension ($t_{(431)}=2.175$, $p=0.03$). This result shows that mothers take a more active role in media mediation roles than fathers. In addition, the results show that parents' media mediation roles do not differ much according to the gender of their children but that parents behave more restrictive-blocker towards their female children.

Table 7 Parental media mediation roles by gender

Media Mediation Roles	Mother ($N=336$)		Father ($N=97$)				
	M	*SD*	*M*	*SD*	*t*	*p*	*Cohen's d*
1. Active-supportive	53.35	11.79	46.68	13.58	4.381	0.00*	0.52
2. Restrictive-supportive	41.74	7.25	37.43	8.36	4.974	0.00*	0.55
3. Active-limiting	14.07	3.90	13.69	3.68	0.871	0.40	0.10
4. Restrictive-limiting	23.01	3.08	22.01	3.52	2.525	0.01*	0.30
5. Restrictive-blocker	12.36	2.36	12.38	2.42	-0.078	0.93	-0.08
6. Active-interpreter	16.87	3.45	15.60	3.96	3.078	0.00*	0.34
Media Mediation Roles	Female Children ($N=218$)		Male Children ($N=215$)				
	M	*SD*	*M*	*SD*	*t*	*p*	*Cohen's d*
1. Active-supportive	51.39	12.52	52.33	12.52	-0.777	0.43	-0.07
2. Restrictive-supportive	40.95	7.65	40.60	7.80	0.464	0.64	0.04
3. Active-limiting	13.95	3.72	14.01	3.98	-0.149	0.88	-0.01
4. Restrictive-limiting	22.80	3.40	22.77	3.01	0.084	0.93	0.00
5. Restrictive-blocker	12.61	2.29	12.12	2.43	2.175	0.03*	0.20
6. Active-interpreter	16.46	3.70	16.70	3.52	0.689	0.49	-0.06

*$p<0.05$

3.5.2 Media mediation roles according to parents' education level

Results on whether media mediation roles differ according to parents' education level are presented in Table 8.

According to Table 8, parents' media mediation roles do not differ according to their education level (active-supportive: $F_{(2,430)}=2.70$, $p>0.05$; restrictive-supportive: $F_{(2,430)}=1.31$, $p>0.05$; active-limiting: $F_{(2,430)}=0.42$, $p>0.05$; restrictive-limiting: $F_{(2,430)}=0.42$, $p>0.05$; restrictive-blocker: $F_{(2,430)}=1.37$, $p>0.05$; active-interpreter: $F_{(2,430)}=0.63$, $p>0.05$).

3.5.3 Parents' media mediation roles according to age

Results on whether media mediation roles differ according to the children's age group are presented in Table 9.

The results in Table 9 show that the scores regarding the active-supportive ($F_{(2,430)}=0.91$; $p>0.05$), restrictive-supportive ($F_{(2,430)}=0.77$; $p>0.05$), restrictive-limiting ($F_{(2,430)}=0.99$; $p>0.05$), and active-interpreter ($F_{(2,430)}=2.96$; $p>0.05$) roles of their parents do not differ statistically significantly according to the children's age. However, the active-limiting ($F_{(2,430)}=3.35$; $p<0.05$) and restrictive-blocker ($F_{(2,430)}=2.96$; $p<0.05$) scores differ statistically depending on the children's age. As a result of the Tukey test conducted to determine which age group the difference originates from, the active-limiting score of the parents of children in the 5–6 age group was higher than that of the parents of children in the 3–4 age group. In addition, the restrictive-blocker score was higher in children in the 4–5 age group

Table 8 Media mediation roles according to parents' education level

Media Mediation Roles	Education Levels	*N*	*M*	*SD*	*F*	*p*	η^2
1. Active-supportive	K-12	87	49.44	14.02	2.70	0.06	0.01
	Undergraduate	257	52.01	12.25			
	Graduate	89	53.76	11.42			
2. Restrictive-supportive	K-12	87	40.57	9.37	1.31	0.15	0.00
	Undergraduate	257	40.44	7.62			
	Graduate	89	41.96	6.02			
3. Active-limiting	K-12	87	14.17	4.13	0.42	0.65	0.00
	Undergraduate	257	13.84	3.83			
	Graduate	89	14.20	3.66			
4. Restrictive-limiting	K-12	87	22.92	3.32	0.42	0.65	0.00
	Undergraduate	257	22.67	3.22			
	Graduate	89	22.99	3.07			
5. Restrictive-blocke	K-12	87	12.72	2.60	1.37	0.25	0.00
	Undergraduate	257	12.31	2.23			
	Graduate	89	12.17	2.49			
6. Active-interpreter	K-12	87	16.29	3.80	0.63	0.53	0.00
	Undergraduate	257	16.57	3.64			
	Graduate	89	16.58	3.30			

$*p < 0.05$

Table 9 Media mediation roles according to children's age

Variables	Age	*N*	*M*	*SD*	F	*p*	η^2
1. Active-supportive	3–4 years (36–48 months)	229	51.28	13.03	0.91	0.40	0.00
	4–5 years (49–60 months)	131	51.92	12.02			
	5–6 years (61–72 months)	73	53.55	11.68			
2. Restrictive-supportive	3–4 years (36–48 months)	229	41.03	7.57	0.77	0.46	0.00
	4–5 years (49–60 months)	131	40.08	8.32			
	5–6 years (61–72 months)	73	41.22	7.07			
3. Active-limiting	3–4 years (36–48 months)	229	13.68	3.84	3.35	0.03*	0.01
	4–5 years (49–60 months)	131	13.93	3.97			
	5–6 years (61–72 months)	73	15.01	3.51			
4. Restrictive-limiting	3–4 years (36–48 months)	229	22.97	2.96	0.99	0.37	0.00
	4–5 years (49–60 months)	131	22.48	3.67			
	5–6 years (61–72 months)	73	22.74	3.06			
5. Restrictive-blocker	3–4 years (36–48 months)	229	12.12	2.40	2.96	0.05*	0.00
	4–5 years (49–60 months)	131	12.75	2.25			
	5–6 years (61–72 months)	73	12.44	2.41			
6. Active-interpreter	3–4 years (36–48 months)	229	16.31	3.71	1.65	0.19	0.00
	4–5 years (49–60 months)	131	16.75	3.65			
	5–6 years (61–72 months)	73	17.14	3.12			

$*p < 0.05$

than in children in the 3–4 age group. These results show that parents of children in the 4–5 age group behave more restrictively and obstructively than those in the 3–4 age group. Finally, the parents of children in the 5–6 age group behave more actively and restrictively than those in the 3–4 age group.

3.5.4 Media mediation roles according to parents' playing digital games or not

Results on whether the media mediation roles of parents who play digital games differ from those who do not are presented in Table 10.

The results in Table 10 show that there is a significant difference in parental media mediation roles only in the restrictive-supportive dimension against those who play digital games ($t_{(431)} = 2.769$, $p = 0.00$). This result shows that parents who play digital games adopt a less restrictive-supportive role.

4 Discussion and conclusion

In this study, we determined whether the media mediation roles of parents with early childhood children are related to their children's digital game addiction tendency and whether these variables are related to the digital device usage habits of the child and the parent. We also revealed whether parental media mediation roles and children's digital game addiction tendencies differ according to various sociodemographic variables (age, gender, and parent's education level) and whether the children own digital devices. In this context, we collected data from 433 parents with children aged 3–6. We analyzed the data using correlation analysis, one-way ANOVA, and *t*-test. We visualized the statistically significant relationships we found between children's digital game addiction tendency and parental media mediation roles and between sociodemographic variables and digital device usage habits of these two variables in Fig. 1.

Table 10 Media mediation roles according to parents' playing digital games or not

Media Mediation Roles	Play ($N = 78$)		Don't Play ($N = 355$)				
	M	*SD*	*M*	*SD*	*t*	*p*	*Cohen's d*
1. Active-supportive	50.73	12.10	52.10	12.60	0.876	0.38	-0.11
2. Restrictive-supportive	38.60	7.96	42.26	7.59	2.769	0.00*	-0.47
3. Active-limiting	13.44	3.80	14.10	3.86	1.382	0.16	-0.17
4. Restrictive-limiting	22.18	3.51	22.92	3.12	1.845	0.06	-0.22
5. Restrictive-blocker	12.19	1.92	12.40	2.46	0.830	0.40	-0.09
6. Active-interpreter	16.17	3.97	16.67	3.52	1.039	0.26	-0.06

*$p < 0.05$

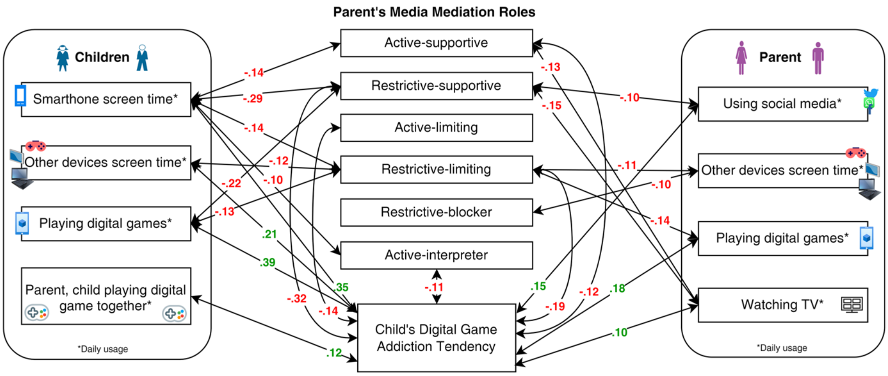

Fig. 1 The correlation diagram

4.1 The Relationship between parents' media mediating roles and children's digital game addiction tendency

We found a statistically significant relationship between the child's digital game addiction tendency and parents' media mediation roles. This result is parallel to the results of previous research (Budak & Işıkoğlu, 2022; Gözüm & Kandır, 2021; Nikken and Jansz, 2014). A negative relationship was detected between the children's digital game addiction tendencies and the parents' active-supportive, restrictive-supportive, active-limiting, restrictive-limiting, and active-interpretive media mediation roles. No relationship was found between digital game addiction tendency and restrictive-blocker role. These results show that children's digital game addiction tendency decreases when parents act active-supportive, restrictive-supportive, active-limiting, restrictive-limiting, and active-interpretive. According to Budak and Işıkoğlu (2022), parents mainly adopt the active mediation strategy, and accordingly, digital game addiction tendency decreases in children. In addition, while active parental guidance strategy prevents children's digital game addiction tendency, free parental guidance strategies increase addiction tendency (Şenol et al., 2023). Nikken and Jansz (2014) define active mediation as parents' supervision of media for their children. According to Konok et al. (2020), parents mainly adopt the permissive style, show their child how to use the digital tool or application, and answer the child's questions about the content. The results of our study also showed that parents mostly adopted the active-supportive role. However, the highest negative relationship was between restrictive-supportive and digital game addiction tendencies. Parents prefer mediation strategies such as limiting time and restricting content (Işıkoğlu et al., 2023). Gözüm and Kandır (2021) revealed that parents mostly adopted active mediation and playing together. This way, parents enable children to use digital games for educational purposes. According to the relevant research, parents said they shorten screen time when appropriate. These results support the relationship between restrictive-supportive and digital game addiction tendencies. Parents who adopt the restrictive-supportive role restrict screen time about content they deem inappropriate for their children (Şen et al., 2020). Therefore, parents not being indifferent to their children's content and determining screen time can reduce children's digital game addiction. In this context, the results indicate that children's digital game addiction tendency will decrease if parents adopt roles other than restrictive-blocker and especially the restrictive-supportive role, in which the strongest correlation is detected. When parents act active-limiting or restrictive-limiting, their children's digital game addiction tendency decreases. While parents who adopt the active-limiting role decide on-screen time with their child, parents who act restrictively limit screen time at regular intervals (Şen et al., 2020). According to Sivrikova et al. (2020), parents with children between the ages of 0 and 8 set screen time and restrict content to protect their children from the harmful effects of the media. It is known that interaction with media tools is limited during routine activities at home (mealtime, homework, sleep). Therefore, while children are using digital devices, parents setting screen time and taking an active role in media content can protect children from the harmful effects of digital media.

The descriptive results of our study show that the mediating roles that parents least adopt are active-limiting and restrictive-blocker. Active-limiting parents decide on the time limit with their children and consider smart signs (e.g., suitable for ages 7+, contains violence, bedtime for children). Living conditions and the difficulties of working life may have been influential in parents not acting in an active-restrictive manner. In their study with parents of different ethnic backgrounds, Blum-Ross and Livingstone (2018) aimed to measure the applicability of screen time recommended for children in real life. They determined that factors such as being an immigrant, being a single parent, working hours, not living in a safe area (neighborhood with a high crime rate), and lack of children's playgrounds affect children's screen time. In addition, parents may be flexible about screen time in order to keep the child under control. Sometimes, parents choose not to interfere with their children's time with a digital device because they think their children will be safer at home. However, the active-limiting mediation role is a role that requires active communication between parents and children. Because in this role, both the parents and the children take an active role in screen time. Therefore, parents may have difficulty adopting the active-limiting role.

Gençtürk (2022) focused on the relationship between screen time, children's problematic behaviors, and parental media mediation roles. They found that as parents' active-supportive, active-interpretive, restrictive-limiting, and restrictive-blocker behaviors increased, children's screen time and problem behaviors decreased. While this result coincides with the result of our study that active-supportive, active-interpretive, and restrictive-limiting roles reduce the addiction tendency in children, it does not coincide with the result that the restrictive-blocker role has no relationship with the digital game addiction tendency. The restrictive-blocker role is when media is presented to the child as a reward or punishment. In this role, the child is expected to behave the way the parents want. Some controlling and authoritarian parents offer a smartphone, tablet, TV, or digital game to the child as a reward, and the parent can take the digital device away from the child at any time without explanation. In this way, the child's screen time decreases, and problematic behaviors that may occur in that environment are eliminated, but this can also increase the child's interest in digital games. When the children find an opportunity, they may want to play more, which may trigger addiction. Therefore, parents may not have preferred the restrictive-obstructive role, which includes authoritarian behavior. In this study, the average score of the parent regarding the restrictive-blocker role was 12.36. In contrast, the average score for the active-supportive role was 51.85, the highest average. In addition, there was no relationship between digital game addiction tendency and the restrictive-blocker role. The fact that most parents participating in our study are mothers may be effective in making protective behaviors less common. According to Philip et al. (2023), authoritarian behaviors in traditional parental attitudes are mainly attributed to fathers.

Additionally, parents may have been subjective about punishing the child. Even if they sometimes exhibited restrictive-obstructive behavior, when considered in terms of parental attitudes, they may not have found the authoritarian attitude appropriate. In addition, the reasons given by the mothers in Toran et al.'s (2016) study may have prevented restrictive-obstructive behavior. Namely, reasons such as the child not having a playmate at home, the parent not knowing what to do in the face of the child's insistence, and the child enjoying playing digital games may have caused mothers not to act obstructively. According to relevant research and the evidence we obtained in our study, parents' media mediation roles significantly impact children's digital game addiction tendencies. Roles other than the restrictive-blocker role can reduce children's play addiction tendencies. However, the restrictive-supportive role has the most substantial potential. Therefore, when parents are active in children's digital game-playing process, decide together on screen time and content, and comment on the content, children's digital game addiction tendency will likely decrease.

4.2 The relationship between parents' media mediating roles and digital device usage habits

Our results show negative significant relationships between media mediation roles and the parent's and child's digital device usage habits (See Fig. 1). As the scores from the active-supportive role increase, the parent's TV-watching time and the children's smartphone screen time decrease. A similar situation is for the restrictive-supportive role. As parents act restrictive-supportive, the parents' watching TV, using social media, the children's smartphone screen time, and children's playing digital games time decrease. Another result of our study is that when parents act restrictively, their time and children's time playing digital games decreases. Based on this, parents are role models for their children. According to Konok et al. (2020), parents think being a positive role model will positively impact their children's smartphone use habits. According to another result, active-supportive, restrictive-supportive, restrictive-limiting, and active-interpretive behaviors reduce children's smartphone screen time. Children quickly acquire new behaviors through social learning, so the parents' habit of using social media and watching TV may affect children easily. Parents who adopt the restrictive-supportive role turn off the media devices at home at regular intervals because they may think that using social media and watching TV for a long time can increase the children's screen time, while parents who adopt the active-supportive role control their TV watching time and take an active role in their children's smartphone usage process. At the same time, as the parent's active-interpretive score increased, the child's smartphone screen time decreased. In this media mediation role, the parent takes an active role and gives real-life examples to the child about the content, enabling the child to associate the content with his experiences by concretizing it (Şen et al., 2020). As a result, the relationships we found support the idea that parents will be better role models for their children as they use the media consciously.

As parents act restrictively, the child's smartphone screen time, playing digital games, and screen time on other digital devices decrease. Although various studies have shown that restrictive parental behavior is ineffective (Livingstone et al., 2015; Wu et al., 2014), it was the only role that reduced playing digital games time in our study. According to Bostancı and Çakır (2022), only the restrictive-supportive and active-interpretive roles reduce children's daily Internet usage time. Contrary to our results, other roles, including the restrictive mediator, increased children's screen time. The fact that the participants of the relevant studies and our study have different individual, cultural, value, and belief characteristics shows that parents may adopt different media mediation roles on children's screen time. Chen and Shi (2019) revealed that restrictive mediation was more effective than active mediation to reduce children's screen time.

The fact that obedience to parents is valued in Eastern culture and autonomy in Western culture may determine the differentiation of media mediation roles preferred by parents. In the restrictive role, the parent can immediately cut off the child's media access to harmful media content, and the child's right to object is often ignored. The result of our study that the restrictive-limiting role may reduce playing digital games time in children may be due to the age range of children and culture. Livingstone and Helsper (2008) found that parents were more restrictive and intervening towards young children in their children's Internet usage habits. Early childhood children may not be as resilient as older children in adapting to their parent's wishes. Women's workforce participation can also affect child-rearing practices (Işıkoğlu et al., 2023). Working hours reduce the time spent with the child, and the parent may push the parent to act restrictive-limiting instead of active-supportive, active-interpretive, or active-limiting to protect the child from media risks.

4.3 The relationship between children's digital game addiction tendency and their using habits of digital devices

Positive relationships emerged between parent and child's digital device usage habits and the child's game addiction tendency (See Fig. 1). As the parent is watching TV, using social media, and playing digital games, time increases, the child's digital game addiction tendency also increases. In addition, the digital game addiction tendency of children of parents who play digital games is higher than that of children who do not. Accordingly, parents who play digital games influence their children, introduce them to digital games, encourage them, or play with them. Research has revealed that children establish bonds with technological devices by observing the adults around them (Akkoyunlu & Tuğrul, 2002; Aral & Doğan Keskin, 2018; Kay, 2022; Toran et al., 2016). While parents spend time with their digital devices, children can turn to other media tools at home. Thus, an environment can be created where children can imitate their parents' media usage habits or take them as role models (Kay, 2022; Manap, 2020). According to Manap's (2020) research, when the time a parent spends on the smartphone increases during the day, the level of the parent being a negative model for the child and digitally neglecting the child increases. As a result, it is possible to say that children's technology usage habits are affected by their parents' habits. Habits at home can direct children's digital media usage behavior.

In this study, a positive significant relationship emerged between parents and children playing digital games together and digital game addiction tendencies. Since the activities that parents and children do together outside are limited in the face of changing living conditions, parents and children playing digital games together at home can give pleasure to the child. Moreover, it may have increased the children's time playing digital games. According to similar research, parents and children playing digital games together reduces addiction tendency. For example, Gökçen (2023) found that children exposed to the screen alone had higher digital game addiction tendencies. Emiroğlu İlvan (2022) also found that children who play digital games alone have a higher addiction tendency than children who play with their mothers. Having more than one technological device at home or parents owning a device may influence the child's tendency to play digital games alone. In addition to increasing screen time, playing games alone can negatively affect the child's development due to the content they encounter. Since digital games may contain many risks, parents should examine the age appropriateness of the content (Göksu et al., 2020). In addition, since the cognitive skills of preschool children are still in the developmental stage, parents play a critical role in encouraging appropriate and safe technology use (Wu et al., 2014). The result of our study is that the duration of parent and child playing together increases digital game addiction, possibly due to the low number of parents who declare that they play games with their children. Therefore, more evidence is needed on this issue.

4.4 Do parental media mediating roles and children's digital game addiction change according to tendency digital devices usage habits?

According to the results, parents who play digital games adopt a less restrictive-supportive role than those who do not play. In addition, the digital game addiction tendencies of children of parents who play digital games are higher than those who do not. Also, as parents act restrictive-supportive, their TV watching time, using social media, and their children's smartphone screen time, playing digital games, and digital game addiction tendency decrease. These results indicate that parents' playing of digital games may increase children's digital game addiction. Bilge (2021) found that parents of children owning digital devices behave less restrictively-supportive. This result coincides with our results. We found that children who own digital devices have a higher digital game addiction tendency than those who do not. Studies show that almost one in two children own a digital device (Aral & Doğan Keskin, 2018; Gökçen, 2023; Kanak & Özyazıcı, 2018). In Kay's (2022) research, children who own tablets experience more conflicts with their parents. According to relevant research, when parents act restrictively and do not allow tablet playing, their children become more angry. Children who own digital devices can install digital games without help from adults and play them whenever they want when there is no parental control. As a result, the child's tendency towards digital game addiction may increase. Therefore, parents should adopt the restrictive-supportive role, which has a strongly negative relationship with digital game addiction, and take the digital safety and security measures emphasized by Göksu (2022).

Figure 2 shows the variables in which parents' media mediation roles differ significantly.

According to another result, children who prefer to watch YouTube videos have a higher digital game addiction tendency than those who watch TV channels for Kids (See Fig. 3). The fact that children have more control and watch game

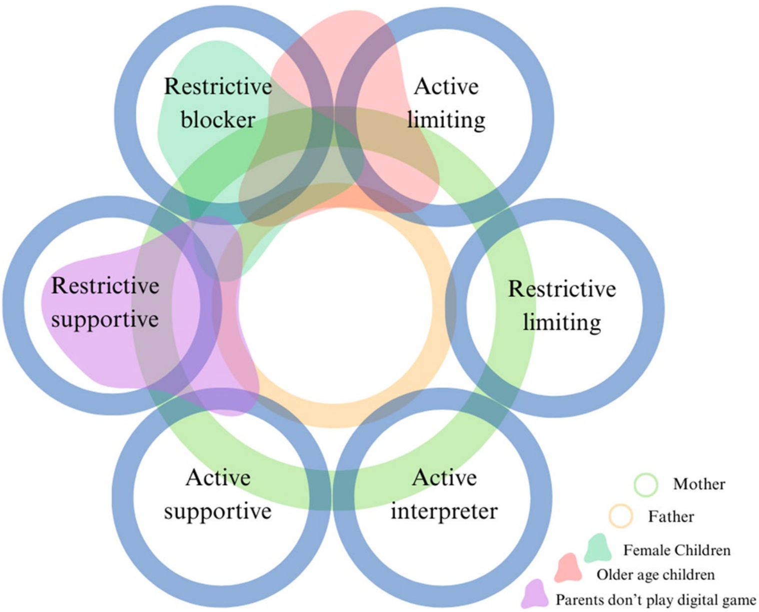

Fig. 2 Difference tests results regarding media mediation roles

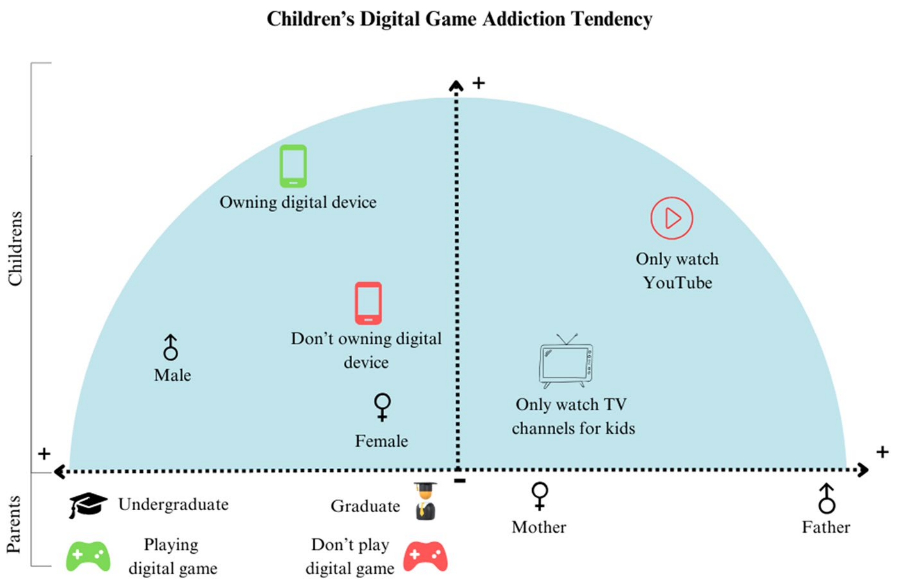

Fig. 3 Difference tests results regarding digital game addiction tendency

videos on YouTube compared to TV channels may have increased their tendency to digital game addiction. Children can manipulate YouTube videos more quickly than content on TV channels. For example, while there are a certain number of kids' channels on TV, one encounters unlimited videos on YouTube. In addition, children can access content that interests them more quickly. The touch screen may also be more attractive to the children than the TV. Göksu (2022) state that in recent years, children have tended to both watch digital game videos and play digital games.

Our results coincide with Sivrikova et al.'s (2020) results that the digital content most preferred by children aged 0–8 is video games that children can interact with rather than TV channels. Additionally, Işıkoğlu et al. (2023) argue that children frequently watch YouTube videos. As a result, children's digital device habits are affected by parental behavior, and owning a digital device and watching YouTube videos has a higher potential to increase digital game addiction than TV channels for kids. The results regarding which variables significantly differentiate children's game addiction tendencies are visualized in Fig. 3.

4.5 Do parental media mediating roles and children's digital game addiction tendency change according to sociodemographic variables?

Our results show that parents behave more restrictively and obstructively towards their daughters. No significant differences emerged in other media mediation roles according to the children's gender. Digital game addiction tendencies of children aged 3–6 do not differ. However, in this age range, parents become more restrictive-blocker and active-limiting towards their children as the age progresses. Additionally, fathers find their children more addicted to digital games than mothers. On the other hand, mothers are more conscious than fathers in adopting media mediation roles. This result may be because mothers' digital parenting self-efficacy perceptions are higher than fathers' (Yaman et al., 2022). Erdoğan (2022) found that parents actively restrictively towards their female children; that is, they decide to limit media content together. Bilge (2021) revealed that parents behave more restrictively towards their female children when they encounter media content they deem inappropriate.

Similarly, Nevski and Siibak (2016) found that parents mainly apply time and content restrictions to their female children. On the other hand, there is evidence that parents equally mediate the Internet usage habits of female and male children (Durak & Kaygin, 2020; Livingstone & Helsper, 2008). In related studies, different results regarding parents' media mediation roles according to gender may be due to cultural differences. Another result obtained in terms of gender is that male children's digital game addiction tendency is higher than that of female children. Both results support each other. Therefore, parents' less restrictive behavior towards their children may have increased their digital game addiction tendency. In related studies, the game addiction tendencies of male children were found to be higher than female children (Emiroğlu İlvan, 2022; Gökçen, 2023).

Parents' media mediation roles did not differ according to education level, but children's digital game addiction tendencies did. Kırmusaoğlu (2021) found that parents with K-12 education levels mostly adopted active-supportive, active-limiting, and restrictive-blocker roles. Bilge (2021) suggested that parents with higher education levels behave more actively supportive and active-interpretive. According to Bastırmacı (2022), as the level of education and media literacy increases, there is a positive increase in mediation roles. In this study, while we expected positive media mediation roles to be adopted as the level of education increased, the fact that we did not find any difference shows that we need more evidence on this issue. Another result we reached in our study is that the digital game addiction tendencies of children of parents with undergraduate degrees are higher than those of parents with graduate degrees. Therefore, we can say that graduate parents have a higher awareness of the risks of digital game addiction. According to Işıkoğlu Erdoğan (2019), parents with a high level of education do not want their children to play digital games, and they put forward the possibility that digital games may contain cyber risks as a reason. In another study, as the parent's education level increases, the time the child spends with the smartphone decreases (Konok et al., 2020). However, it is also noteworthy that the digital game addiction tendency of children of parents with K-12 education levels is lower than that of undergraduate parents. Although this result does not differ statistically according to undergraduate and graduate, it is worth discussing. This result may be because parents with K-12 education levels have lower socio-economic levels. Parents with low socioeconomic levels are expected to have lower rates of accessing and owning the internet and digital devices. The fact that parents with low socioeconomic status generally adopt a more traditional, conservative, and strict attitude and understanding may also have affected this result.

As a result, parents' media mediation roles vary depending on the children's gender. That is, parents behave more restrictively and obstructively towards their female children. Male children's digital game addiction tendencies were higher than those of female children. This result coincides with parents behaving less restrictively and obstructively towards their male children. Parents' more restrictive-blocker behavior towards female children limits children's interaction with digital games and may reduce addiction tendencies. Finally, media mediation roles do not vary according to parents' education level. However, the digital game addiction tendency of children of parents with graduate degrees was lower than those with undergraduate degrees.

To summarize the results of this study, firstly, there is a negative relationship between the child's digital game addiction tendency and all other media mediation roles of parents except restrictive-blocker. The strongest of these relationships belongs to the restrictive-supportive role. Parents adopt active-supportive role the most, active-limiting and restrictive-blocker roles the least. Therefore, roles other than the restrictive-blocker role have the potential to reduce children's digital game addiction tendency, and the highest possibility is in the restrictive-supportive role. Second, as parents adopt active-supportive or restrictive-supportive roles, the parent's TV watching time and the child's smartphone screen time decrease. As parents act restrictive-supportive, their social media usage time and the child's digital game time decrease, too. When parents act restrictively, their digital game time and their children's smartphone screen time decrease. These results support that as parents use media consciously, they become better role models for their children. Thirdly, as the parent's TV watching time, using social media, and digital game time increases, the child's digital game addiction tendency also increases. In addition, even if parents who play digital games play with their children, their children's digital game addiction tendency is higher than those who do not. As a result, children's technology usage habits are significantly affected by their parents' habits at home. Fourth, parents who play digital games adopt a less restrictive-supportive role than those who do not play. As parents act restrictive-supportive, their children's TV watching time, using social media, smartphone screen time, digital game playing time, and digital game addiction tendency decrease. Children with digital devices tend more toward digital game addiction than those without. Children who prefer to watch YouTube videos have a higher digital game addiction tendency than those who watch TV channels for kids. Fifth, parents treat their daughters more restrictively. But male children's digital game addiction tendency is higher than female children. During the 3–6 age period, parents behave more restrictive-blocker and active-limiting as children age. Fathers find their children more addicted to digital games than mothers. Mothers are more conscious than fathers in adopting media mediation roles. Parents' media mediation roles do not differ in terms of education level. Conversely, the digital game addiction tendencies of children of parents with graduate degrees are lower than those of parents with undergraduate and K-12.

We recognize that our results are correlational and descriptive and do not provide strong enough evidence to make causal inferences. Still, our results will contribute to parents, guidance counselors, and even preschool teachers in delivering a safe technology-use environment for children. In addition, it will guide parents in displaying the right attitude toward children, adopting suitable media mediation roles, and using technology in the right way to make the most of the opportunities offered by digital devices and environments. Finally, the results provide suggestions to adults to prevent children from becoming addicted to digital games.

5 Limitations and recommendations

In this study, we collected data about children through parents' responses. In this context, we are concerned that parents may have been emotional and biased when evaluating their children. Therefore, collecting self-report data directly from children or family members other than parents (e.g., older sister, older brother) using self-report measurement tools can provide more reliable and objective evidence. Additionally, our sample is limited to 433 parents. Although this is an acceptable number for correlational survey research, the fact that the participant group mainly consisted of mothers and the subgroups (parents' educational level and their children's age group) are not equal enough can be considered a limitation. We recommend that researchers take this limitation into account. In addition, qualitative research can reveal behaviors and reasons indicating digital game addiction based on teachers' observations in the classroom environment. Interventional experimental research can be conducted by creating parent groups that adopt different media mediation roles. It can also be determined how parents' media mediation roles affect children's psychological factors such as well-being, stress, and anxiety. Lastly, it can be investigated why male children are more prone to digital game addiction than female children.

This study observed that children of parents who received graduate education had less digital game addiction tendencies. However, since only some parents have the desire or opportunity to receive graduate education, the preschool education program can include educational activities with family participation regarding parental media mediation roles and digital games. Schools may organize workshops for parents about digital game addiction and media mediation roles. We strongly recommend that parents treat their female and male children equally in adopting a media mediation role. Additionally, children owning digital devices may increase their addiction tendencies. Therefore, parents should not buy digital devices for their 3–6-year-old children if possible; if not, they should be aware of how their children spend their time in front of the screen. We also recommend that parents consider their children's differences and embrace media mediation roles, such as restrictive-supportive or active ones, instead of limiting or blocking roles. In other words, we recommend that parents accompany their children while they are using the media, chat about the content, compare and interpret the media content with real life, do not leave the child completely free regarding screen time and turn off media tools intermittently. They should decide on screen time and content and comment on the content by taking digital safety and security precautions. We do not recommend that parents play digital games in front of children aged 3–6. We recommend that children watch TV channels instead of YouTube videos to reduce the digital game addiction tendency. Finally, our research may have provided valuable evidence regarding parents' media mediation roles, children's digital game addiction tendencies, and how these variables differ according to sociodemographic variables and digital device usage habits. However, because our results are correlational and differential evidence, it is impossible to make strong causal inferences.

Appendix 1

Questionnaire: Digital device usage habits of the parents and children.

1. Cinsiyetiniz?
   [What is your gender?]
2. Hangi ilde ikamet ediyorsunuz?
   [Which city do you live in?]
3. Eğitim durumunuz? (İlkokul, Ortaokul, Lise, Ön Lisans/Lisans, Lisansüstü).
   [What is your education level? (K12: primary, K12: secondary, K12: high school, Undergraduate, Graduate)]
4. Evde günde ortalama kaç saat akıllı telefonda vakit geçirirsiniz?
   [How many hours a day do you use your smartphone at home?]
5. Evde günde ortalama kaç saat bilgisayar (tablet/masaüstü/dizüstü bilgisayar) kullanırsınız?
   [How many hours do you use a computer (tablet/desktop/laptop) daily at home?]
6. Günde ortalama kaç saat televizyon izlersiniz?
   [How many hours do you watch TV daily?]
7. Evde günde ortalama kaç saat sosyal medyada vakit geçirirsiniz?
   [How many hours a day do you use social media at home?]
8. Evde günde ortalama kaç saat dijital oyun (mobil oyun, bilgisayar oyunu, oyun konsolu) oynarsınız?
   [How many hours a day do you play digital games (mobile games, computer games, game consoles) at home?]
9. Evde günde ortalama kaç saat çocuğunuzla birlikte dijital oyun oynarsınız?
   [How many hours a day do you play digital games with your child at home?]
10. 3–6 yaş dönemindeki çocuğunuz kaç yaşında (Birden fazla çocuğunuz varsa, bundan sonraki soruları herhangi birini dikkate alarak yanıtlayınız)?
    [How old is your child between the ages of 3-6 (If you have more than one child, answer the following questions considering any of them)?]
11. 3–6 yaş dönemindeki çocuğunuzun cinsiyeti nedir.
    [What is the gender of your child between the ages of 3-6?]
12. Çocuğunuzun kendine ait hangi dijital araçları vardır? (Birden fazla seçenek işaretleyebilirsiniz: Akıllı telefon, Bilgisayar, Tablet, TV, Oyun konsolu, Çocuğumun kendine ait dijital aracı YOK).
    [Which digital tools does your child own? (You can tick more than one option: Smartphone, Computer, Game console, My child does not own a device)]
13. Çocuğunuz akıllı telefonda günde ortalama kaç saat vakit geçirir?
    [How many hours a day does your child use a smartphone?]

14. Çocuğunuz bilgisayarda (tablet, masaüstü/dizüstü (laptop) veya oyun konsolu) günde ortalama kaç saat vakit geçirir?
    [How many hours a day does your child use a computer (tablet, desktop/laptop, or game console)?]
15. Çocuğunuz günde ortalama kaç saat televizyon izler?
    [How many hours does your child watch TV daily?]
16. Çocuğunuz televizyonu ne amaçla izler? (Birden fazla seçenek işaretleyebilirsiniz: Çocuk Kanalları, Youtube Videoları, Çocuğum televizyon izlemiyor.)
    [For what purpose does your child watch television? (You can tick more than one option: TV Channels for Kids, Youtube Videos, Does not watch TV.)]
17. Çocuğunuz günde ortalama kaç saat dijital oyun oynar?
    [How many hours a day does your child play digital games?]

Note. This questionnaire was developed by the authors.

Appendix 2

Early Childhood Parental Media Mediation Scale.

(5: Always, 4: Frequently, 3: Sometimes, 2: Rarely, 1: Never).

1) I talk to my child about the games he plays on the computer/tablet/smartphone.
2) While watching a program on television with my child, I talk about the program.
3) I use screen warnings (smart signs) to remind my child to stop watching television/sleep time.
4) I determine my child's computer/tablet/smartphone screen time.
5) I determine the screen time of the computer/tablet/smartphone by talking to my child in advance.
6) I do not allow other members of the family to watch a program that is not suitable for my child.
7) I determine when my child watches television.
8) When sexual content appears on the TV my child watches, I change the channel.
9) I ask them about the content while watching TV with my child.
10) We determine my child's TV-watching time with my child.
11) I explain to my child that some things he sees on the TV are unreal.
12) While watching TV with my child, I share information about whether the content reflects the real world.
13) I share whether the content reflects the real world while playing games with my child on the computer/tablet/smartphone.
14) I ask them about the content while playing games with my child on the computer/tablet/smartphone.
15) I turn off the computer/tablet/smartphone at mealtime.
16) I consider smart signs when determining the TV content my child will watch.

17) I explain to my child that some things in computer/tablet/smartphone games are unreal.
18) I determine my child's TV-watching time.
19) I talk to my children about the programs they watch on TV.
20) I determine when my child will use the computer/tablet/smartphone in a way that does not affect their essential needs (e.g., sleep, nutrition).
21) I research the suitability of the TV programs my child will watch.
22) I limit my child's TV-watching time.
23) I talk to my child about the content before watching it on TV.
24) I give additional information about the content while watching TV with my child.
25) When violent content appears on the TV my child watches, I change the channel.
26) I talk to my child about the content after watching it on TV.
27) When there are scenes such as drug use in the TV content my child watches, I change the channel.
28) I give additional information about the content while playing games with my child on the computer/tablet/smartphone.
29) I talk to my child about the game after playing on the computer/tablet/smartphone.
30) I talk to my child about the game before playing on the computer/tablet/smartphone.
31) I determine the hours my child plays with the computer/tablet/smartphone.
32) We determine my child's computer/tablet/smartphone screen time with my child.
33) I talk to my child about the suitability of the game's content on the computer/tablet/smartphone.
34) I determine when my child will watch TV in a way that does not affect their essential needs (e.g., sleep, nutrition).
35) I choose the TV program I will watch with my child.
36) I research in advance the suitability of the games my child plays on the computer/tablet/smartphone.
37) I change the channel when swearing content appears on the TV while my child watches.
38) I do not allow other family members to play a game unsuitable for my child on the computer/tablet/smartphone.
39) I limit my child's computer/tablet/smartphone screen time.
40) I do not use stopping my child from playing with the computer/tablet/smartphone as a method of punishment.
41) I do not allow my child to act like the characters of the games he plays on the computer/tablet/smartphone.
42) I do not use preventing my child from watching TV as a method of punishment.
43) I do not allow my child to act like the characters on TV he watches.

Note. This scale was developed in Turkish by Şen et al. (2020). Cultural and language adaptations should be made if it is to be used in English.

Appendix 3

Digital Game Addiction Tendency Scale.

(5: Always, 4: Frequently, 3: Sometimes, 2: Rarely, 1: Never).

1) They do not even realize they are hungry while playing digital games.
2) While playing digital games, communication with peers and family decreases.
3) They are insensitive to what is happening around them while playing digital games.
4) They forget their needs (e.g., eating) while playing digital games.
5) They postpone their needs (e.g., toilet) to play more digital games.
6) They do not hear what is said while playing digital games.
7) They do not want to sleep when it is time to sleep while playing digital games.
8) They get angry when they cannot play digital games.
9) They become irritable when they are prevented from playing digital games.
10) They become reactive when not allowed to play digital games.
11) They insist on playing digital games when they are not allowed.
12) Scream when their digital devices are taken away from them.
13) They play digital games in most of their free time.
14) They immediately start playing digital games when they come home from school.
15) They use digital tools a lot during the day.
16) They are addicted to digital games.
17) They play digital games for a long time without taking a break (for example, playing for 2–3 h).
18) Their speeches discuss the characters in digital games or their actions.
19) They reflect what they learn in the digital game to their real-life behavior (for example, imitating digital game characters).
20) They want to buy products related to digital games (toys of characters, clothes).

Note. This scale was developed in Turkish by Budak and Işıkoğlu (2022). Cultural and language adaptations should be made if it is to be used in English.

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Declarations

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Conflict of interest The authors declare that they have no conflict of interest.

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