Current Psychology (2024) 43:3821–3829
https://doi.org/10.1007/s12144-023-04557-6

Conditional role of parental controlling mediation on the relationship between escape, daily game time, and gaming disorder

Zeynep Görgülü[1] · Arif Özer[2]

Accepted: 14 March 2023 / Published online: 12 April 2023

Abstract

Parental mediation to protect children from gaming disorders may have unintended consequences. According to the self-determination theory, parental mediation with psychological control may exacerbate problem behavior. Therefore, investigating the indirect effects of parental controlling mediation on gaming disorders is worthwhile. This study aimed to examine the conditional effect of parental controlling mediation on the relationship between escape motivation and gaming disorder, mediated by daily game time. The following research questions were investigated: whether escape motivation has an indirect effect on gaming disorder through daily game time, and whether parental controlling mediation moderates the relationship between gaming disorder and daily gaming time. The convenience sample included 501 mid-school students (251 male and 250 female) in grades 5–7. The conditional indirect effects model was developed using Hayes's model 14 and Process Macro. The results showed that escape motivation was positively related to gaming disorder through daily game time, and parental controlling mediation had a moderating effect on the relationship between daily game time and gaming disorder. These findings suggest that parental mediation to protect children from excessive gaming may be related to gaming disorder when implemented with psychological control. Higher parental controlling mediation may be a risk factor for gaming disorder even when their children play games less frequently. These findings are discussed in light of the literature.

Keywords Gaming disorder · Parental mediation · Parental controlling mediation · Escape · Daily game time

Introduction

Gaming is a favorite leisure tool played by almost one in three children in the organisation of economic cooperation and development (OECD) countries (OECD, 2017). However, gaming can be problematic when done excessively and may interfere with daily life. The American Psychiatric Association (APA, 2013) and World Health Organization (2019) identified gaming disorder as a public health problem, with real-life problems arising from excessive gaming. These problems include getting preoccupied with the games even when not playing, unsuccessful attempts to stop playing, losing interest in other activities, continuing to play despite awareness of the problem and jeopardization to a relationship or job due to gaming (APA, 2013). The rate of children and youth gaming disorder worldwide range from 1 to 10% (Müller et al., 2015; Yang et al., 2020; Yu & Cho, 2016). This shows that one in every 10 children is at risk in some countries, such as China and South Korea. Moreover, during the coronavirus disease of 2019 (COVID-19) pandemic, an increase in gaming disorder rates has been observed (Donati et al., 2021). Being primarily responsible for the care of children, parents are required to regulate children's gaming to protect them from unhealthy behaviors, such as excessive playing and exposure to inappropriate content. Therefore, including the impact of parental mediation may contribute to our understanding of gaming disorders among children.

✉ Zeynep Görgülü
zgorgulu@ankara.edu.tr

[1] Department of Educational Sciences, Ankara University, Cebeci Campus, Çankaya, Ankara 06590, Türkiye

[2] Department of Education, Hacettepe University, Ankara, Türkiye

Escape motivation and gaming disorder

When children play games to avoid negative and annoying feelings, they are motivated by escape motivation, which involves playing games to escape from the problems that cause these negative emotions (Demetrovics et al., 2011). Escape motivation refers to a nonfunctional way of dealing with real-life problems (Demetrovics et al., 2011; Yee, 2006). People with escape motivation prefer to forget or suppress their problems through gaming and try to fulfill unsatisfied needs (Melodia et al., 2020). Psychological needs may make playing games more appealing. According to the Self-Determination Theory (SDT), gamers can fulfill their needs such as relatedness or autonomy through their gaming experiences (Ryan & Deci, 2017). However, it is problematic that playing games replaces real-life experiences to satisfy psychological needs. It may become a symptom of gaming disorder with neglect of real-life tasks. Accordingly, escape motivation, among many other motivations (recreation, fantasy, skill development, etc.), predicted gaming disorder in a large body of research (Ballabio et al., 2017; Demetrovics et al., 2011; Király et al., 2015; Laconi et al., 2017). Consequently, a link between escape motivation and gaming disorder may exist.

Daily game time, escape motivation, and gaming disorder

Escape motivation may be a reinforcer that leads the behavior of more gaming. Children may increase their game time to avoid negative feelings and to sustain relief. A positive relationship between escape motivation and game time has been consistently reported in some studies (i.e., Király et al., 2015; Melodia et al., 2020; Xu et al., 2012). However, increased daily game time is also a risk factor for gaming disorder. According to previous research, there is a link between game time and gaming disorder (Ballabio et al., 2017; Buono et al., 2020; Xu et al., 2012). Spending excessive time on games rather than experiencing real life situations may explain the relationship between game time and gaming disorder. Daily game time can be an important indicator of problems, especially in children with limited self-regulation. However, increased daily game time is not necessarily harmful (Buono et al., 2020). Recent studies have divided gamers into different subgroups based on their motivations, distress, or problems (Colder Carras et al., 2017; Colder Carras & Kardefelt-Winther, 2018; Larrieu et al., 2022). These studies imply that time factors in gaming may not necessarily lead to symptoms of gaming disorder. Thus, the direct relationships between escape and daily game time and between daily game time and gaming disorder in previous research may not be sufficient to explain the mechanism of gaming disorder.

Daily game time as a mediator

Although there is evidence linking escape motivation to gaming disorder, further research is needed to provide information on how escape motivation works. Accordingly, escape motivation may contribute to problems by reducing control over game time. One study reported that escape motivation predicted gaming disorder by increasing game time (Xu et al., 2012). Thereby, game time can be claimed to play a mediating role between escape motivation and gaming disorder. As individuals play games to escape from real life, game time can be increased, which may eventually increase the risk of gaming disorder. However, further studies are required to investigate this relationship.

Parental controlling mediation and gaming disorder

Parental mediation is done by parents to protect their children from risks brought by the media, including games. In this regard, parental mediation is defined as parents' regulation of relationships between children and the media (Nathanson, 2001; Valkenburg et al., 2013). SDT claims that parental intervention will only be beneficial if its application considers children's needs (Joussemet et al., 2008). Accordingly, Valkenburg et al. (2013) divided parental mediation into two types, that is, autonomy-supportive and controlling. Parental autonomy-supportive mediation employs media intervention by agreeing with the child and explaining why things should be in a certain way. Parental controlling mediation uses the parent's authority and pressure on children to avoid media-related risks. While autonomy-supporting mediation is assumed to protect the child against the possible risks of the media, parental controlling mediation is thought to have negative consequences, such as increased undesired behaviors. Focusing on parental controlling mediation rather than parental autonomy-supportive mediation may provide more useful information for parental interventions. Consistent with this claim, Demirtaş-Zorbaz et al. (2015) reported that supportive family relationships were not associated with game disorder; however, negative family relations impact game disorder. Moreover, research suggests that parental controlling mediation is associated with undesirable reactions, such as psychological reactivity (Van petegem et al., 2015), antisocial behavior (Fikkers et al., 2017; Meeus et al., 2018), and excessive gaming (Van petegem et al., 2019).

Parental controlling mediation as a moderator

Parental controlling mediation can be considered a risk factor for gaming disorder. However, research on this topic is scant. The direct effects of parental mediation on negative outputs, such as excessive gaming, are small (Chen & Shi, 2019). According to the SDT theory, every child is innately directed toward development (Ryan & Deci, 2000; Joussemet et al., 2008). Parents can either provide an enabling or hindering environment for their children, and parental interventions can facilitate or inhibit the emergence of children's behaviors. Considering the strong relationship between gaming disorder and gaming motivations and personal needs (Ballabio et al., 2017; Demetrovics et al., 2011; Király et al., 2015; Laconi et al., 2017; Xu et al., 2012), it may not be meaningful that parents' regulatory behaviors, such as parental mediation, are directly related to gaming disorder. However, the regulatory role of parental mediation on gaming disorder, which inhibits or reinforces it, may be meaningful according to SDT. Previous studies have confirmed the indirect effects of parental controlling mediation on gaming disorder (e.g., Fikkers et al., 2017; Van petegem et al., 2019). Therefore, in this study, we investigated the conditional role of parental controlling mediation in gaming disorder. Considering that not all excessive gamers have gaming disorder (Colder Carras & Kardefelt-Winther, 2018), we suggest that there may be a conditional effect between daily game time and gaming disorder.

The present study

We conducted this study to help fill in the gap in the gaming literature regarding the effects of parenting. Therefore, this study aimed to examine the conditional effect of parental controlling mediation on the mediation relationships between escape motivation, gaming disorder, and game time. Accordingly, this study sought to answer the following research questions: (1) Does escape motivation indirectly affect gaming disorder through daily game time? 2) Does parental controlling mediation moderate the relationship between gaming disorder and daily game time? A conditional indirect effects model was established using Hayes's (2020) model 14. Figure 1 illustrates the conceptual framework of the study.

Methods

Participants

The participants of the cross-sectional study comprised 501 Turkish-speaking mid-school students from grades 5 to 7 (251 males) in the western cities of Turkey. Of the participants, 26.35% were in fifth grade, 39.92% in sixth grade, and 33.73% in seventh grade. Although mid-schools in Turkey are between the 5th and 8th grades, we excluded 8th-graders from the sample because they were preparing for national high school entrance exams, which may diminish the gaming behavior of Turkish students. Their parents or guardians consented to their participation in this study. To determine the adequacy of the sample size for conditional indirect effects model, we conducted a post-hoc power analysis ($n = 501$, power > 0.80, $\alpha = 0.05$), and the results revealed sufficient statistical power (Cohen, 1988).

Measures

Demographics and game context

We formed a questionnaire to obtain demographic (e.g., sex and grade) and game-related information of participants (e.g., parents' attitudes regarding games, game tools used by participants, and daily game time on weekdays and weekends).

Escape motivation

The escape subscale, drawn from the Motives for Online Gaming Questionnaire developed by Demetrovics et al. (2011), was administered to participants by adapting it to Turkish in this study. The escape subscale assesses escape motivation for playing games (e.g., *to forget about unpleasant things or offenses*). The scale consists of four items scored from "1 = never" to "5 = always." Higher scores indicated a greater level of escape motivation. In the current study, the Cronbach's α coefficient was 0.82. Moreover, confirmatory factor analysis (CFA) revealed that standardized

Fig. 1 The conceptual framework of the present study

loadings were higher than 0.65, and goodness of fit indices were acceptable: chi-square = 18.68, degrees of freedom (DF) = 2, p < .05; comparative fit index (CFI) = 0.95; standardized root mean square residual (SRMR) = 0.04; root mean square error of approximation (RMSEA) = 0.13.

Daily game time

The participants responded to the two items in the questionnaire by recording their daily game time on weekdays (How many minutes per day on weekdays do you play digital games?), and weekends (How many minutes per day do you play digital games on weekends?) in minutes. We then calculated the composite score of daily game time using the following equation: daily game time = (weekday × 5 + weekend × 2)/7.

Parental controlling mediation

The parental controlling mediation subscale drawn from the Perceived Parental Media Mediation Scale (PPMMS) developed by Valkenburg et al. (2013) was adapted to Turkish in this study. Parental controlling mediation assesses parental mediation strategies using psychological control over the children. The scale consists of 11 items (e.g., *get angry if I still want to play those games*) scored from "1 = not true at all" to "5 = completely true," and higher scores indicate a greater level of control. In the present sample, the Cronbach's α coefficient for parental controlling mediation was 0.79. In addition, the CFA demonstrated that standardized loadings were higher than 0.50, and goodness-of-fit indices were acceptable (chi-square = 176.14, DF = 41, p < .05, CFI = 0.93, SRMR = 0.09, RMSEA = 0.08).

Gaming disorder

The Internet Gaming Disorder Scale short-form (IGDS9-SF), developed by Pontes and Griffiths (2015) and adapted to Turkish by Arıcak et al. (2018), was used to measure gaming disorder. The scale comprises nine items scored from "1 = Strongly disagree" to "5 = Strongly agree" (e.g., *Do you systematically fail when trying to control or cease your gaming activity?)*. A higher score indicates a greater risk of gaming disorder. In the present sample, Cronbach's α coefficient was 0.88. In addition, the CFA indicated that standardized loadings were higher than 0.60, and goodness-of-fit indices were acceptable (chi-square = 110.05; DF = 27; p < .05; CFI = 0.95; SRMR = 0.06; RMSEA = 0.08).

Procedure

Data collection began in March 2020 in classrooms and continued until December 2021 with Google Forms owing to the COVID-19 pandemic. The first researcher informed the participants about the study face-to-face before and via text during the pandemic. The participants responded to the scales for approximately 30 min.

Statistical analyses

Data analysis was conducted using SPSS Software 26 using Model 14 with a 95% bootstrap interval for the coefficient in Hayes' (2020) PROCESS (3.5.3). As there was no significant difference between the face-to-face and online groups regarding gaming disorder ($t_{255} = 0.80$, p = .43), the data were combined and analyzed. Assumptions of normality, homoscedasticity, linearity, and multicollinearity were also assessed. Accordingly, the data were not normally distributed and lacked homoscedasticity. Therefore, heteroscedastic standard errors and bootstrap confidence intervals are preferred for the significance tests (Hayes, 2020). In addition, because the amount of missing data for each variable did not exceed 5% and the missing values were MCAR (Chi-square = 10.3; p = .11), the missing data were imputed using the EM algorithm (Tabachnick & Fidell, 2012). Square root transformations were applied to deal with outliers in two variables (gaming disorder and daily game time), and one case of parental controlling mediation was excluded from the analysis. Daily game time was divided into two groups to reduce the effect of the relative variance. In addition, continuous variables that produced interaction terms were centered to avoid multicollinearity.

Results

Table 1 presents the descriptive statistics.

Table 1 *Descriptive Statistics and Correlations*

Variables	*M*	*SD*	Pearson Correlations			
			1	2	3	4
1. Gaming Disorder	1.39	0.30	1			
2. Escape Motivation	2.14	1.08	0.61	1		
3. Daily Game Time	1.77	0.97	0.46	0.29	1	
4. Parental controlling mediation	2.22	0.85	0.31	0.24	0.22	1

Note. All Pearson's correlations in the table are significant at the 0.01 level (two-tailed)

Table 2 *Coefficients of the Model Predicting Gaming Disorder*

			95% CI			
Predictor variables	**coeff**	**SE**	**lower**	**upper**	**R^2**	**F**
Daily Game Time (Mediator)					0.08	39.58*
Escape Motivation	0.26*	0.04	0.18	0.34		
Gaming Disorder (Outcome)					0.48	140.30*
Escape Motivation	0.14*	0.01	0.12	0.15		
Daily Game Time	0.09*	0.01	0.07	0.12		
Parental controlling mediation	0.05*	0.01	0.02	0.07		
Parental controlling mediation * Daily Game Time	−0.02*	0.01	−0.05	0.00		
Conditional effects of daily game time on gaming disorder at level of parental controlling mediation						
					95% CI	
	effect	**SE**			**lower**	**upper**
Low parental controlling mediation	0.11*	0.02			0.08	0.15
Medium parental controlling mediation	0.09*	0.01			0.07	0.12
High parental controlling mediation	0.07*	0.02			0.04	0.10
Conditional indirect effects of escape on gaming disorder at level of parental controlling mediation						
					95% BOOT CI	
	BOOT effect	**BOOT SE**			**lower**	**upper**
Low parental controlling mediation	0.03*	0.01			0.02	0.04
Medium parental controlling mediation	0.02*	0.01			0.01	0.03
High parental controlling mediation	0.02*	0.01			0.01	0.03

Note. 1. parental controlling mediation * daily game time: interaction; coeff: unstandardized regression coefficient; SE: standard error; BOOT: Bootstrapped coefficients

2. *$p < .05$

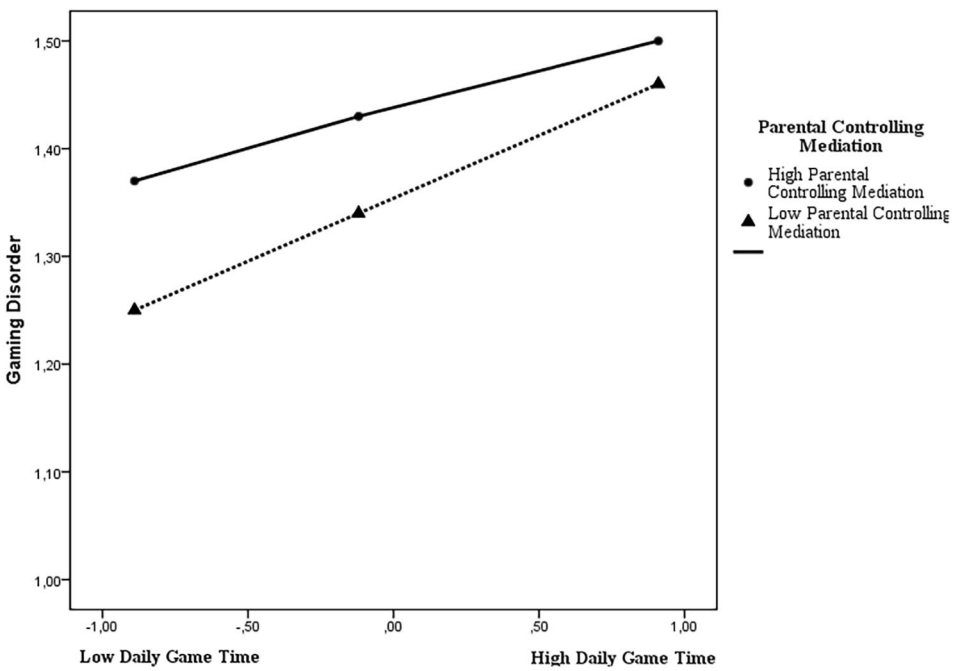

Fig. 2 The Relationship between daily game time and gaming disorder moderated by controlling mediation

Table 2 shows the coefficients of the model. All direct effects were statistically significant. Positive coefficients indicated that escape motivation (0.14, LL = 0.12, UL = 0.15), daily game time (0.09, LL = 0.07, UL = 0.12), and parental controlling mediation (0.05, LL = 0.02, UL = 0.07) increased the gaming disorder level.

The conditional indirect effects of escape motivation on gaming disorder were also statistically significant. In this regard, escape motivation significantly predicted gaming disorder through the interaction of daily game time and parental controlling mediation. Specifically, the indirect effect of escape motivation on gaming disorder was 0.03

(LL = 0.02, UL = 0.04) at the lowest level of parental controlling mediation, 0.02 (LL = 0.01, UL = 0.03) at the moderate level of it, and 0.02 (LL = 0.01, UL = 0.03) at the highest level of it.

The interaction effect of parental controlling mediation and daily game time was also significant. At the 16th, 50th, and 84th percentiles of the interaction of parental controlling mediation and daily game time on the gaming disorder were 0.11 (LL = 0.08, UL = 0.15), 0.09 (LL = 0.07, UL = 0.12), and 0.07 (LL = 0.04, UL = 0.10), respectively. Figure 2 shows the interactive effect of parental controlling mediation and daily game time on game disorder. It is noteworthy that the difference in gaming disorder scores was greatest for low daily game time, depending on parental controlling mediation. In other words, the negative effect of parental controlling mediation was greatest at low daily game time. As daily game time increased, the amount of parental controlling mediation became less important.

Discussion

Gaming disorder result from the wrong way individuals deal with real-life problems and unsatisfied needs; escape is considered one of the dysfunctional coping methods (Colder Carras et al., 2017; Kardefelt-Winther, 2014). Escape motivation increases the desire to play games, which can lead to problems (Melodia et al., 2020). According to SDT, such an increase in gaming might be a defense mechanism for children deprived of autonomy in making their own decisions (Valkenburg et al., 2013; van Petegem et al., 2019; Vansteenkiste et al., 2014). Hence, parental mediation employed with control may exacerbate gaming disorder, especially for children playing games with escape motivation. Previous studies have not dealt with such a conditional effect of parental controlling mediation on gaming disorder. Therefore, we constructed a model to examine the effect of parental controlling mediation on children's problematic gaming based on SDT. These results support our prediction model.

This study showed that escape motivation is directly related to daily game time and gaming disorder. These results are consistent with those of previous studies (Ballabio et al., 2017; Király et al., 2015; Laconi et al., 2017). Moreover, in line with previous studies (Ballabio et al., 2017; Buono et al., 2020; Xu et al., 2012), the results showed a significant relationship between daily game time and gaming disorder. Consequently, this study confirms the direct relationships in the literature.

This study also demonstrated that escape motivation had a partial indirect effect on gaming disorder through daily game time. The SDT asserts that gaming behavior can become problematic when unsatisfied needs are regularly met in-game (Mills & Allen, 2020; Przybylski & Weinstein, 2019; Ryan & Deci, 2017). Furthermore, Demetrovics et al. (2011) indicated that some children play games to escape real-world problems or emotions such as stress and aggression. In this regard, they may spend more time with games to escape tension, as stress and aggression arise from the frustration of needs, which might increase the risk of gaming disorder. Our findings verify this inference, and those related to indirect effects were in line with previous studies (Xu et al., 2012).

Furthermore, our study revealed that parental controlling mediation regulates the effect of daily game time on gaming disorder. When parental controlling mediation was high, the effect of daily game time on game disorder was the greatest, and this conditional effect gradually decreased at moderate and high levels of daily game time. While many researchers have highlighted the undesired effect of parental mediation strategies (Benrazavi et al., 2015; Cote et al., 2020; Liu, 2020; Xu et al., 2012), the negative effect of parental controlling mediation has rarely been reported (van Petegem et al., 2019), and to the best of our knowledge no study has investigated its conditional effect on gaming disorder.

Previous studies have revealed that the application of parental controlling mediation depends on parental characteristics or conditions. Slavin (2018) stated that parents of middle and high socioeconomic status have high demands for their children. As a result of these high expectations, parents may worry that the time spent on gaming hinders their children's education. Aierbe et al. (2019) reported that parents who believe that games harm their children can apply control strategies to restrict their children. Moreover, parents who are maladaptive perfectionists (Soenens et al., 2006), have difficulty regulating their own emotions and perceive the situation as challenging (Brenning et al., 2020), and who experience daily distress (Aunola et al., 2016), tend to apply parental controlling mediation. Parents may assume that they can protect their children from games through parental controlling mediation. However, this striking finding suggests that parents' assumptions could not only be invalid, but also lead to undesirable consequences. By behaving in this way, parents may also provide another reason for their children's gaming. Although the adverse effects of psychological control on children's well-being are known (Aunola et al., 2016; Brenning et al., 2020; Soenens et al., 2006), this finding shows that parents are encouraging the problem of trying to protect their children.

Another interesting finding was that the negative effect of parental controlling mediation was highest in children who spent less time gaming. This finding can be explained through psychological reactance theory, which claims that children react by boosting problematic gaming when

parents employ psychological control, since they perceive this as a threat to their autonomy (van Petegem et al., 2015; Liu, 2020) interpreted that parental interventions that do not consider children's needs may be an invasion by children. Based on these interpretations, our findings may be a step towards a more profound understanding of why parental mediation does not have the desired effect on games by linking the general parenting literature on gaming disorder.

Implications

Based on these findings, we have developed several important implications. First, this study showed that escape motivation and parental controlling mediation are two reinforcers of gaming disorder. Regulating gaming behavior, regardless of children's thoughts, emotions, and needs, can be a useless and detrimental way to protect them. Second, contrary to popular beliefs, harmful interventions for gaming in the early stages further deteriorate the situation. Furthermore, mental health professionals should focus on the relationship between parents and children in counseling because of our finding that the negative effect of parental controlling mediation evokes gaming disorders.

Limitations and future research

This study has several limitations. First, data obtained from two different environments, in class and online, may lead to location-based internal validity threats. Gamers may be more motivated to participate in online data gathering, and thus, their game disorder scores are expected to be high. An independent t-test inspecting this threat showed no significant difference between the online and class data.

Second, the COVID-19 pandemic can threaten date-based internal validity. Owing to the pandemic, school closures and children staying at home may have increased their interest in digital games. Children might also have experienced more parental mediation because they spent a lot of time at home with their parents. In the Methods section, detailed information about the game-playing habits of the participants was provided to handle the history effect, consistent with the recommendations of Fraenkel et al. (2018). Third, this study had a cross-sectional design. Thus, this study does not imply a causal relationship, and all interpretations of the results are based on probabilistic relationships. Moreover, self-report measurements may be affected by participants' response styles.

Future studies may be conducted to improve our findings. The COVID-19 pandemic has increased the rate of children's gaming (Donati et al., 2021). Since this study was conducted at the beginning of the pandemic, future research should focus on parental interventions and attitudes towards games during and after the pandemic. Moreover, our interesting finding that children with less gaming showed more gaming disorder when parents employed parental controlling mediation can be examined in depth through a qualitative study.

Conclusions

To our knowledge, among the existing studies, no study has examined the conditional effect of controlled mediation on gaming disorder. This study presented some insights that the indirect effect of escape motivation on gaming disorder was moderated by parental controlling mediation. Furthermore, it was shown that inappropriate parental interventions can be more harmful in the preliminary stages of gaming than in later stages. This study, conducted at the onset of the pandemic, can provide a starting point for comparing parental controlling mediation in later stages. In addition, future studies should focus on the adverse effects of parental controlling mediation on the progress of game disorders in children who play less often.

Acknowledgements We have no known conflict of interest to disclose and no acknowledge or credit.

Funding The author(s) received no financial support for the research, authorship, and/or publication of this article.

Data availability The datasets generated during this study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate This study adhered to the Declaration of Helsinki (59th Amendment) and was approved by the Institutional Review Board regarding ethical standards (519442-18-300/00000817420). All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5). All participants and their caregivers signed an informed consent form and voluntarily participated in this study.

Competing interests The authors(s) have no relevant financial or non-financial interests to disclose.

References

Aierbe, A., Oregui, E., & Bartau, I. (2019). Video games, parental mediation and gender socialization. *Digital Education Review*, *36*, 100–116. https://doi.org/10.1344/der.2019.36.100-116

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/brfw

Arıcak, O. T., Dinç, M., Yay, M., & Griffiths, M. D. (2018). İnternet Oyun Oynama Bozukluğu Ölçeği Kısa Formu'nun (İOOBÖ9-KF)

Türkçeye Uyarlanması: Geçerlik ve Güvenirlik Çalışması. *Addicta: The Turkish Journal on Addictions*, *5*(4), https://doi.org/10.15805/addicta.2018.5.4.0027

Aunola, K., Viljaranta, J., & Tolvanen, A. (2016). Does daily distress make parents prone to using psychologically controlling parenting?: *Http://Dx.Doi.Org/10.1177/0165025416658555*, *41*(3), 405–414. https://doi.org/10.1177/0165025416658555

Ballabio, M., Griffiths, M. D., Urbán, R., Quartiroli, A., Demetrovics, Z., & Király, O. (2017). Do gaming motives mediate between psychiatric symptoms and problematic gaming? An empirical survey study. *Addiction Research and Theory*, *25*(5), 397–408. https://doi.org/10.1080/16066359.2017.1305360

Benrazavi, R., Teimouri, M., & Griffiths, M. D. (2015). Utility of parental mediation model on Youth's problematic online gaming. *International Journal of Mental Health and Addiction*, *13*(6), 712–727. https://doi.org/10.1007/s11469-015-9561-2

Brenning, K., Robichaud, J. M., Nele, F., Coorevits, M. V., De Clercq, N., B., & Soenens (2020). · Bart. *The role of maternal emotion regulation in controlling parenting during toddlerhood: an observational study*. *44*, 897–910. https://doi.org/10.1007/s11031-020-09857-z

Buono, F. D., Paul, E., Sprong, M. E., Smith, E. C., Garakani, A., & Griffiths, M. D. (2020). Gaming and Gaming Disorder: A Mediation Model Gender, Salience, Age of Gaming Onset, and Time Spent Gaming. *Cyberpsychology, Behavior, and Social Networking*. https://doi.org/10.1089/cyber.2019.0445

Chen, L., & Shi, J. (2019). Reducing harm from media: A Meta-analysis of parental mediation. *Journalism and Mass Communication Quarterly*, *96*(1), 173–193. https://doi.org/10.1177/1077699018754908

Cohen, J. (1988). Statistical power analysis for the behavioral Sciences. *Statistical power analysis for the behavioral Sciences*. Routledge. https://doi.org/10.4324/9780203771587

Colder Carras, M., & Kardefelt-Winther, D. (2018). When addiction symptoms and life problems diverge: A latent class analysis of problematic gaming in a representative multinational sample of european adolescents. *European child & adolescent psychiatry*, *27*(4), 513–525. https://doi.org/10.1007/s00787-018-1108-1

Colder Carras, M., Van Rooij, A. J., Van de Mheen, D., Musci, R., Xue, Q. L., & Mendelson, T. (2017). Video gaming in a hyperconnected world: A cross-sectional study of heavy gaming, problematic gaming symptoms, and online socializing in adolescents. *Computers in Human Behavior*, *68*, 472–479. https://doi.org/10.1016/j.chb.2016.11.060

Cote, A. C., Coles, S. M., & Dal Cin, S. (2020). *The interplay of parenting style and family rules about video games on subsequent fighting behavior*. https://doi.org/10.1002/ab.21931

Demetrovics, Z., Urbán, R., Nagygyörgy, K., Farkas, J., Zilahy, D., Mervó, B., Reindl, A., Ágoston, C., Kertész, A., & Harmath, E. (2011). Why do you play? The development of the motives for online gaming questionnaire (MOGQ). *Behavior Research Methods*, *43*(3), 814–825. https://doi.org/10.3758/s13428-011-0091-y

Demirtaş-Zorbaz, S., Ulaş, O., & Kızıldağ, S. (2015). Relation between Video Game Addiction and Interfamily Relationships on Primary School Students. *Educational Sciences: Theory & Practice*, *15*(2). https://doi.org/10.12738/estp.2015.2.2090

Donati, M. A., Guido, C. A., De Meo, G., Spalice, A., Sanson, F., Beccari, C., & Primi, C. (2021). Gaming among children and adolescents during the COVID-19 lockdown: The role of parents in Time spent on Video Games and Gaming disorder symptoms. *International Journal of Environmental Research and Public Health*, *18*(12), 6642. https://doi.org/10.1016/j.chb.2021.107081

Fikkers, K. M., Piotrowski, J. T., & Valkenburg, P. M. (2017). A matter of style? Exploring the effects of parental mediation styles on early adolescents' media violence exposure and aggression. *Computers in Human Behavior*, *70*, 407–415. https://doi.org/10.1016/j.chb.2017.01.029

Fraenkel, J., Wallen, N., & Hyun, H. (2018). *How to Design and Evaluate Research in Education* (10th ed.). McGraw-Hill Education.

Hayes, A. (2020). *Introduction to Mediation, Moderation, and conditional process analysis, Second Edition: A regression-based Approach (Methodology in the Social Sciences)*. The Guilford Press.

Joussemet, M., Landry, R., & Koestner, R. (2008). A self-determination theory perspective on parenting. *Canadian Psychology*, *49*(3), 194–200. https://doi.org/10.1037/a0012754

Kardefelt-Winther, D. (2014). The moderating role of psychosocial well-being on the relationship between escapism and excessive online gaming. *Computers in Human Behavior*, *38*, 68–74. https://doi.org/10.1016/j.chb.2014.05.020

Király, O., Urbán, R., Griffiths, M. D., Ágoston, C., Nagygyörgy, K., Kökönyei, G., & Demetrovics, Z. (2015). The mediating effect of gaming motivation between psychiatric symptoms and problematic online gaming: An online survey. *Journal of Medical Internet Research*, *17*(4), e88. https://doi.org/10.2196/jmir.3515

Laconi, S., Pirès, S., & Chabrol, H. (2017). Internet gaming disorder, motives, game genres and psychopathology. *Computers in Human Behavior*, *75*, 652–659. https://doi.org/10.1016/j.chb.2017.06.012

Larrieu, M., Billieux, J., & Decamps, G. (2022). Problematic gaming and quality of life in online competitive videogame players: Identification of motivational profiles.Addictive Behaviors,107363.

Liu, Y. L. (2020). Maternal mediation as an act of privacy invasion: The association with internet addiction. *Computers in Human Behavior*, *112*. https://doi.org/10.1016/j.chb.2020.106474

Meeus, A., Beyens, I., Geusens, F., Sodermans, A. K., & Beullens, K. (2018). Managing positive and negative media Effects among Adolescents: Parental mediation matters—but not always. *Journal of Family Communication*, *18*(4), 270–285. https://doi.org/10.1080/15267431.2018.1487443

Melodia, F., Canale, N., & Griffiths, M. D. (2020). The role of avoidance coping and escape motives in problematic online gaming: A systematic literature review. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-020-00422-w

Mills, D. J., & Allen, J. J. (2020). Self-determination theory, internet gaming disorder, and the mediating role of self-control. *Computers in Human Behavior*, *105*. https://doi.org/10.1016/j.chb.2019.106209

Müller, K. W., Janikian, M., Dreier, M., Wölfling, K., Beutel, M. E., Tzavara, C., Richardson, C., & Tsitsika, A. (2015). Regular gaming behavior and internet gaming disorder in European adolescents: results from a cross-national representative survey of prevalence, predictors, and psychopathological correlates. *European Child and Adolescent Psychiatry, 24*(5), 565–574. https://doi.org/10.1007/s00787-014-0611-2

Nathanson, A. I. (2001). Parent and child perspectives on the Presence and meaning of parental television mediation. *Journal of Broadcasting & Electronic Media*, *45*(2), 201–220. https://doi.org/10.1207/s15506878jobem4502_1

OECD (2017). *Use of online games/chat/social networks outside of school, by gender and socio-economic status*. https://doi.org/10.1787/9789264273856-Tables

Pontes, H. M., & Griffiths, M. D. (2015). Measuring DSM-5 internet gaming disorder: Development and validation of a short psychometric scale. *Computers in Human Behavior*, *45*, 137–143. https://doi.org/10.1016/j.chb.2014.12.006

Przybylski, A. K., & Weinstein, N. (2019). Investigating the motivational and Psychosocial Dynamics of Dysregulated Gaming: Evidence from a Preregistered Cohort Study. *Clinical Psychological Science*, *7*(6), 1257–1265. https://doi.org/10.1177/2167702619859341

Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, and well-being Self-Determination Theory. *American Psychological Association, 55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2017). Motivation and need satisfaction in Video Games and virtual environments. *Self-determination theory; Basic Psychological needs in motivation, Development, and Wellness* (pp. 508–531). The Guilford Press.

Slavin, R. (2018). *Educational Psychology: Theory and Practice* (12th ed.). Pearson.

Soenens, B., Vansteenkiste, M., Duriez, B., & Goossens, L. (2006). *In Search of the Sources of Psychologically Controlling Parenting: The Role of Parental Separation Anxiety and Parental Maladaptive Perfectionism*.

Tabachnick, B., & Fidell, L. (2012). *Using Multivariate Statistics*. Pearson: Sixth.

Valkenburg, P. M., Piotrowski, J. T., Hermanns, J., & de Leeuw, R. (2013). Developing and validating the perceived parental media mediation scale: A self-determination perspective. *Human Communication Research*, *39*(4), 445–469. https://doi.org/10.1111/hcre.12010

van Petegem, S., de Ferrerre, E., Soenens, B., van Rooij, A. J., & van Looy, J. (2019). Parents' degree and style of restrictive mediation of Young Children's Digital Gaming: Associations with parental attitudes and Perceived Child Adjustment. *Journal of Child and Family Studies*. https://doi.org/10.1007/s10826-019-01368-x

van Petegem, S., Soenens, B., Vansteenkiste, M., & Beyers, W. (2015). Rebels with a cause? Adolescent defiance from the perspective of Reactance theory and self-determination theory. *Child Development*, *86*(3), 903–918. https://doi.org/10.1111/CDEV.12355

Vansteenkiste, M., Soenens, B., Petegem, S. V., & Duriez, B. (2014). Longitudinal associations between adolescent perceived degree and style of parental prohibition and internalization and defiance. *Developmental Psychology*, *50*(1), 229–236. https://doi.org/10.1037/a0032972

World Health Organization (2019). *International Classification of Diseases* (11th ed.). https://icd.who.int/

Xu, Z., Turel, O., & Yuan, Y. (2012). Online game addiction among adolescents: Motivation and prevention factors. *European Journal of Information Systems (Vol*, *21*(3), 321–340. https://doi.org/10.1057/ejis.2011.56. Palgrave Macmillan Ltd.

Yang, X., Jiang, X., Mo, P. K. H., Cai, Y., Ma, L., & Lau, J. T. F. (2020). Prevalence and interpersonal correlates of internet gaming disorders among Chinese adolescents. *International Journal of Environmental Research and Public Health, 17*(2), 579. https://doi.org/10.3390/ijerph17020579

Yee, N. (2006). Motivations for play in online games. *Cyberpsychology and Behavior*, *9*(6), 772–775. https://doi.org/10.1089/cpb.2006.9.772

Yu, H., & Cho, J. (2016). Prevalence of internet gaming disorder among Korean adolescents and associations with non-psychotic psychological symptoms, and physical aggression. *American Journal of Health Behavior, 40*(6), 705–716. https://doi.org/10.5993/AJHB.40.6.3