https://doi.org/10.5455/kpd.26024438m000070

Helicopter parenting, self-control, and problematic online gaming in emerging adults

Yankı Süsen[1], Halil Pak[2], Esra Çevik[3]

Keywords
problematic online gaming, helicopter parenting, self-control, emerging adulthood

Abstract
This study aimed to investigate the mediating role of self-control on the relationship between perceived helicopter parental attitudes and problematic online gaming among emerging-adult online gamers. 186 gamers from Turkey were reached using a cross-sectional online survey. According to the results obtained in this study, self-control was negatively associated with problematic online gaming and perceived paternal helicopter parenting attitudes. Also, problematic online gaming was positively correlated with perceived maternal helicopter parenting attitude. It was further found that age, gender, and having previous psychiatric diagnosis were significantly related to problematic online gaming. Age had a positive significant correlation with problematic online gaming whereas those who reported having previous psychiatric diagnosis and male respondents also stated higher levels of problematic online gaming. Lastly, mothers were significantly perceived as having higher helicopter parental attitudes compared to fathers. However, the indirect effect was found significant only at paternal level. Thus, it can be concluded that the indirect effect was due to the tendency for those who perceived higher paternal helicopter parenting attitude to have lower levels of self-control, which in turn resulted in higher levels of problematic online gaming. This study offers novel insight into online gaming research, indicating that perceived paternal helicopter parenting attitude may lead to developing problematic online gaming among emerging adult children with low self-control.

Anahtar kelimeler
problemli çevrimiçi oyun oynama, helikopter ebeveynlik, öz-kontrol, beliren yetişkinlik

Öz
Beliren yetişkinlerde helikopter ebeveynlik, öz-kontrol ve problemli çevrimiçi oyun oynama
Bu çalışma, beliren yetişkinler arasında algılanan helikopter ebeveynlik tutumu ile problemli çevrimiçi oyun oynama davranışı ilişkisinde öz-kontrolün aracılık rolünü incelemeyi amaçlamıştır. Çevrimiçi kesitsel anket çalışması yoluyla Türkiye'den 186 oyuncuya ulaşılmıştır. Bu çalışma kapsamında elde edilen bulgulara göre; öz-kontrolün hem problemli çevrimiçi oyun oynama davranışı hem de baba için algılanan helikopter ebeveynlik tutumu ile negatif yönde bir ilişkiye sahip olduğu görülmüştür Ayrıca, problemli çevrimiçi oyun oynamanın, anne için algılanan helikopter ebeveynlik tutumu ile olumlu yönde bir ilişkiye sahip olduğu görülmüştür. Yaşın, cinsiyetin ve psikiyatrik tanı geçmişinin de problemli çevrimiçi oyun oynama davranışıyla anlamlı ilişkileri olduğu bulunmuştur. Yaş, problemli çevrimiçi oyun oynama ile pozitif yönde bir ilişkiye sahipken; psikiyatrik tanı geçmişi olanlar ve erkek katılımcılar daha fazla problemli çevrimiçi oyun oynadıklarını bildirmişlerdir. Son olarak, babalara kıyasla annelerin, anlamlı bir şekilde daha fazla algılanan helikopter ebeveyn tutumuna sahip oldukları görülmüştür; fakat, dolaylı etki yalnızca babalık düzeyinde anlamlı bulunmuştur. Dolayısıyla, baba için algılanan helikopter ebeveynlik tutumunun yüksek olduğu, beliren yetişkinlerde öz-kontrol seviyelerinin daha düşük olduğu, bu durumun ise yüksek seviyede problemli çevrimiçi oyun oynama ile ilişkili olduğu sonucuna varılabilir. Bu çalışma, baba için algılanan helikopter tutumların, öz-kontrolü düşük beliren yetişkinler arasında problemli çevrimiçi oyun oynamaya neden olabileceğini ortaya koyarak çevrimiçi oyun oynama araştırmalarına özgün bir katkı sağlamaktadır.

To cite: Süsen, Y., Pak, H., & Çevik, E. (2022). Helicopter parenting, self-control, and problematic online gaming in emerging adults. *Journal of Clinical Psychology Research, 6*(3), 331-341.

Halil Pak · halilpak88@gmail.com | [1]Asst. Prof., Department of Psychology, Ankara Yıldırım Beyazıt University, Ankara, Türkiye; [2]Ph.D. Student, Department of Social Work, Hacettepe University, Ankara, Türkiye; [3]Psychologist, Turkish Green Crescent Society, Turkey.
Received *May 7, 2021,* ***Revised*** *Aug 31/Sep 5, 2021,* ***Accepted*** *Sep 6, 2021*

Problematic gaming has received rising attention from the addiction research community due to the critical growth in the popularity of online games. Although there have been numerous studies demonstrating the relationship between problematic gaming and its negative psychosocial and physical outcomes including, but not limited to, higher levels of depression, aggression, shyness, problematic cell phone use, and anxiety (Coyne et al., 2020), lower psychosocial well-being, and loneliness (Lemmens et al., 2011), decreased academic performance (Skoric et al., 2009), increased fatigue, sleep or concentration problems (Manniko et al., 2015), and lack of physical activity (Henchoz et al., 2016), the psychological and psychiatric literature has lacked a consistent and standardized definition of the construct for a long time.

Following the release of first report as 'video game addiction' (Soper & Miller, 1983), the construct has been stated in the literature with different names such as game addiction (King & Delfabbro, 2020), excessive gaming (Griffiths, 2010), problematic gaming (Green et al., 2020), game overuse, gaming disorder, and pathological gaming (Ferguson & Colwell, 2020). On the other hand, there has been a consensus that an overabundant form of online gaming is the sign of the maladaptive pattern and associated with behavioral addictions (King et al., 2013; Kiraly et al., 2014). In the present study, the construct was worded as problematic gaming since it describes the essence of the phenomenon (i.e., not only that the behavior is extreme but gaming-related problems are also anticipated) while refraining from the idea of dependency or disorder (since there is a need of the exact definition and diagnostic criteria to be clarified or agreed upon) (Demetrovics et al., 2012).

Despite a large body of research specifically examining why and how individuals are deeply involved in online games (e.g., Nielsen et al., 2020; Unubol et al., 2020; Wartberg et al., 2020), the growing popularity of online gaming and the negative outcomes linked to problematic online gaming make further research exploring the underlying mechanisms of it valuable. Nonetheless, until now, several studies have emphasized the role of parental and family factors related to problematic gaming on adolescents (see Nielsen et al., 2020). Particularly, authoritarian (Abedini et al., 2012) and demanding (Cheng, 2019) parenting styles, poor family relationship (Muñoz-Miralles et al., 2016), and family disharmony (Wang et al., 2014) were found to have positive and strong correlations with problematic gaming in adolescent samples. However, the research community has paid little attention to the role of helicopter parenting as a parenting style on problematic online gaming.

Helicopter parenting is a form of excessively involved, overly controlling, and developmentally inappropriate parenting (Nelson et al., 2020; Padilla-Walker & Nelson 2012). The contradiction of this kind of parenting is that, notwithstanding its apparently affectionate parenting, most of the research has focused on the relationship between helicopter parenting and maladaptive behavioral outcomes during emerging adulthood. For instance, helicopter parenting was found to be associated with higher levels of risky behaviors such as gambling, self-harm, illegal drug use, and cigarette smoking (Romm et al., 2020), increased use of medication for anxiety and depression (LeMoyne & Buchanan 2011), and increased sexual risk-taking behaviors, unhealthy diet choices, and reduced exercise (Macias, 2019) among emerging adults. Conducting more research with emerging adult samples who are aged between 18 and 25 years is important since this age period is the critical-determining period of problematic online gaming (Coyne et al., 2020).

A few research efforts investigating the association between helicopter parenting and emerging adults' problematic online gaming have also brought the necessity of identified potential mediating factors linking them. Self-control, the ability to effectively regulating behaviors, thoughts, and emotions in a socially acceptable manner (de Ridder et al., 2012), might be regarded as one of the psychological mediating factors worth unearthing. Parents and parenting behavior have well-known effects on the development of offspring self-control (Gottfredson & Hirschi, 1990). Noticeably, the self-control theory attributes that effective parenting is the principal mechanism for the growth of self-control. However, behaviors of helicopter parents like trying to make all the child's major decisions may serve as a barrier to practice self-control among emerging adults whose need is to feel autonomous and competent (Hong & Cui, 2020). A recent study conducted with college students (Love et al., 2020) evidenced that those who declared higher levels of perceived maternal and paternal helicopter parenting attitudes also reported lower levels of self-control. Also, another study exploring the effect of helicopter parenting on college students' psychological maladjustment gave support to the negative relationship between maternal and paternal helicopter parenting and self-control (Hong & Cui, 2020).

Further, empirical evidence supporting that inadequate self-control is related to various addictive behaviors (e.g., internet addiction, smartphone addiction, problem gambling behavior) has been arising (Kim et al., 2018; McQuade & Gill, 2012; Oh, 2003). According to a study exploring the negative association between self-control and online game addiction, low self-control was suggested as a psychological characteristic that may lead individuals to become addicted to online games (Kim et al., 2008). Moreover, self-esteem is associated with self-control and problematic internet use (Kim & Davis, 2009). On the other hand, recent studies provided that insufficient self-control mediated the association between helicopter parenting and emerging adults' emotional and behavioral issues including school burnout (Love et al.,

2020), alcohol use (Cui et al., 2019), and depression, anxiety, and low life satisfaction (Hong & Cui, 2020). To conclude, these findings confirm that poor self-control may have a mediating role between helicopter parenting and problematic online gaming.

Grounded in the previous body of research mentioned above, the purpose of the current study was to investigate the association between perceived maternal and paternal helicopter parenting attitudes and emerging adults' problematic online gaming. In particular, to achieve a more in-depth understanding of the mechanism that might account for this association, self-control was assumed to be a potential mediator in the model. Accordingly, a mediation model was hypothesized at maternal and paternal levels:

H1. Higher levels of perceived helicopter parenting attitudes would lead to lower self-esteem.
H2. Lower self-esteem would lead to higher levels of problematic online gaming.
H3. Higher levels of perceived helicopter parenting attitudes would lead to higher levels of problematic online gaming.
H4. Perceived helicopter parenting attitudes would have an indirect effect on emerging adults' problematic online gaming through self-control.

METHODS

Participants

Respondents were 186 emerging-adult online-gamers aged between 18 and 25 (M = 20.11, SD = 1.84). Of the sample, 48% were female. 91% have started to play video games under the age of 15 and 70% reported preferring to play games with other players. Moreover, all respondents stated playing games online and 47% reported playing games for fun. 29% declared playing games every day while 33% reported spending more than 3 hours a day on such activities. The most-reported hardware used for game-playing were personal computer (PC) (56%) and tablet/mobile phone (40%).

Data Collection Tools

The online survey included a Demographic Information Form, The Perceived Helicopter Parenting Attitude Scale (PHPAS), The Brief Self-Control Scale (BSCS), The Game Addiction Scale (GAS), and The Rosenberg Self-Esteem Scale (RSE).

Demographic Information Form This form included questions concerning participants' age, gender, and mental health diagnosis history. Also, there were questions related to game-player characteristics such as onset age of game-playing, game-playing days/hours per week/days, preferred game-player mode, preferred gaming mode, purpose of game-playing, and hardware used for game-playing.

The Perceived Helicopter Parenting Attitude Scale (PHPAS) Yilmaz (2019) developed the 21-item PHPAS to measure perceived maternal and paternal helicopter parenting attitudes. PHPAS (α = .85 for mother and .83 for father) is a four-dimension scale that assesses helicoptering on ethical and moral issues (HEM, α = .82 for mother and .83 for father), helicoptering in academic/school life issues (HASL, α = .83 for mother and .78 for father), helicoptering in basic confidence and life skills (HBCLS, α = .79 for mother and .83 for father), and helicoptering in emotional-personal life (HEPL, α = .80 for mother and .76 for father). Each item (e.g., "S/he was worried more about my school grades than I did") is scored on a four-point Likert scale ranging from 1 (*never behaves like this*) to 4 (*always behaves like this*). Higher scores obtained from the scale indicate the higher levels of helicopter parental attitudes. For the present study, a total score was computed and used for the analyses (α = .86 for mother and .86 for father).

The Brief Self-Control Scale (BSCS) The BSCS was developed by Tangney and colleagues (2004) to assess the trait of self-control and adapted into Turkish by Nebioglu and colleagues (2012). The Turkish form of BSCS (α = .83) includes 9 items with two sub-scales, impulsivity (five items, α = .87) and self-discipline (four items, α = .81). Each item (e.g., "I have trouble concentrating") is scored on a five-point Likert scale ranging from 1 (completely contrary) to 5 (completely suitable). Higher scores show a higher level of self-control. For the current study, a total score was computed and used for the analyses (α = .71).

The Game Addiction Scale (GAS) 21-item GAS was developed by Lemmens and colleagues (2009) to measure online game addiction on 12-18 years old. The GAS was adapted into Turkish to determine game addiction and related factors on an adult sample (Baysak et al., 2016). The Turkish version of 21-item GAS (α = .96) examines 7 criteria that each of them was measured by 3 items. These criteria are "salience" (α = .80), "tolerance" (α = .86), "mood modification" (α = .76), "relapse" (α = .87), "withdrawal" (α = .93), "conflict" (α = .84), and "problems" (α = .78). Participants respond to each item (e.g., "Did you play longer than intended?") using a five-point Likert-type scale ranging from 1 (*never*) to 5 (*very often*) and higher scores demonstrate a higher level of game addiction. In this study, the total score of GAS was used for the analyses and the reliability coefficient was .92.

The Rosenberg Self-Esteem Scale (RSE) RSE (Rosenberg, 1965) is a 10-item self-esteem measurement tool. It was adapted into Turkish by Cuhadaroglu (1986).

Table 1. Descriptive Information on the Study Variables (N = 186)

Variables	*M* or %	*SD*	Min.	Max.
Perceived helicopter parenting attitudes				
Maternal	46.16	10.77	21	77
Paternal	38.13	9.98	21	66
Self-control	28.76	5.68	14	43
Problematic online gaming	49.30	15.86	21	96
Self-esteem	46.63	10.90	10	60
Demographics				
Age	20.11	1.84	18	25
Gender				
Female	43%			
Male	57 %			
Not reported	1 %			
Previous diagnosis with a mental disorder	14%			
Game-player characteristics				
Onset age of game-playing				
5 and below	12%			
6-10	48%			
11-15	31%			
16-20	8%			
Game-playing days per week				
1-2 days	29%			
3-4 days	22%			
5-6 days	20%			
7 days	29%			
Game-playing hours per day				
Less than 1 hour	31%			
More than 1 hour, less than 3 hours	37%			
More than 3 hours, less than 6 hours	18%			
More than 6 hours, less than 9 hours	12%			
More than 9 hours	3%			
Preferred game-player mode				
Single player	30%			
Competitive multiplayer in the same server with other players	17%			
Collaborative multiplayer in the same server with other players	19%			
Competitive multiplayer on the internet	19%			
Collaborative multiplayer on the internet	16%			
Preferred gaming mode				
Only online game-playing	24%			
Both online and offline game-playing	76%			
Purpose of game-playing				
Profession	3%			
Fun	47%			
Leisure activity	45%			
Other	5%			
Hardware used for game-playing				
Personal computer	56%			
PlayStation/Xbox	2%			
Game console	2%			
Tablet/mobile phone	40%			

The Turkish version of RSE (α = .81) also includes 10 items (e.g., "On the whole, I am satisfied with myself") rated by a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores are the indicators of a higher level of global self-esteem. For the present study, Cronbach's alpha coefficient for RSE was determined as .95.

Procedure and Statistical Analyses

Ethical approval for the present study was obtained from the research teams' university ethics committee on March 4, 2020, with the decree no. 70 in accordance with the Helsinki declaration. The study's sample size was determined following the Fritz and MacKinnon's (2007) guidelines. The necessary sample size for bias-corrected bootstrap to achieve .80 power with a halfway effect referring to the values between small and medium effects ranges from 118 and 368. It was hence aimed to reach a number of participants between this range. Accordingly, 200 respondents were recruited using an online survey software (i.e., *Qualtrics*). All the participants were informed about the study and had freely consented to take part. A purposive sampling method was adopted to recruit the participants based on two criteria of being an online gamer and aged between 18 and 25. However, of the sample, 14 were excluded from the dataset because they did

not meet the age criteria. Among the remaining 186 respondents; descriptive statistical analyses were performed, and hypotheses were tested. Version 22 of SPSS was used for data analyses. Descriptive statistical analyses included means, standard deviations, ranges, percentages, and *t* tests for comparisons of means and correlational analyses. Further, two series of bootstrapped mediation analyses were conducted using the PROCESS Macro plug-in for SPSS (Hayes, 2013). The prediction was performed with 5000 bootstrapping resamples and bias-corrected 95% Confidence Intervals (CIs) for the indirect effects. To calculate the Sobel's test (1982), an interactive calculation tool developed by Preacher and Leonardelli (2001) for mediation analyses was used for conducting an inquiry for the possibility of the proposed mediation models. This study is correlational. Thus, before performing mediation analyses, the relations between demographic and model variables, precisely mediating and dependent variables were explored to determine covariates through regression analyses. As mentioned above, self-esteem was also controlled because low self-esteem is a stronger predictor of low self-control and problematic internet use (Kim & Davis, 2009). Regarding the significant relations of the variables with mediating and/or dependent variables, age, gender, mental health diagnosis history, onset age of game-playing, game-playing days/hours per week/days, preferred game-player mode, purpose of game-playing, hardware used for game-playing, and self-esteem were included as covariates in mediation models.

RESULTS

Descriptive Statistics

Table 1 shows the means, standard deviations, and ranges or the percentages of the study variables. The current study aimed to analyze perceived helicopter parenting attitudes for maternal and paternal levels. Hence, perceived maternal and paternal helicopter parental attitudes were reported separately. A pairwise *t*-test provided that perceived maternal helicopter parenting attitude was significantly higher than perceived paternal helicopter parenting attitude, $t(185) = 11.12$, $p < .001$, $\eta^2 = .40$.

There was a significant and positive association between age and problematic online gaming, $r = .28$, $p < .001$. Males ($M = 53.43$, $SD = 15.34$) significantly reported higher levels of problematic online gaming than females ($M = 43.77$, $SD = 15.03$), $t(183) = –4.27$, $p < .001$, $\eta^2 = .09$. Also, those who previously diagnosed with mental disorder ($M = 56.85$, $SD = 21.10$) showed higher levels of problematic online gaming than undiagnosed group ($M = 48.07$, $SD = 14.56$), and the difference was partially significant $t(29) = 2.04$, $p = .05$, $\eta^2 = .02$. Table 2 illustrates the correlations among the study variables used in hypotheses testing for the proposed mediation models. Firstly, perceived maternal helicopter parenting attitude was positively and significantly correlated with perception of paternal helicopter parenting attitude, $r = .15$, $p = .05$, and problematic online gaming, $r = .56$, $p < .001$. Those who reported higher levels of perceived maternal helicopter parenting attitude also declared higher levels of perceived paternal helicopter parenting attitude and problematic online gaming. Secondly, self-control had significant and negative correlations with the perception of paternal helicopter parenting attitude, $r = –.16$, $p = .03$, and problematic online gaming, $r = –.35$, $p < .001$. Those who reported lower self-control also stated higher levels of perceived paternal helicopter parenting attitude and problematic online gaming.

Table 2. Correlations among the study Variables Used in Hypotheses Testing for Mediational Analyses

Measure	1	2	3	4
1. Perceived maternal helicopter parenting attitude	-			
2. Perceived paternal helicopter parenting attitude	.56**	-		
3. Self-control	-.12	-.16*	-	
4. Problematic online gaming	.15*	.10	-.35**	-

*$p < .05$, **$p < .001$. All tests are two–tailed.

Hypotheses Testing

As indicated in Figure 1 and Table 3, self-control did not significantly mediate the association between perceived maternal helicopter parenting attitude and problematic online gaming. Based on the total effect model, the perception of maternal helicopter parenting attitude was a significant predictor of problematic online gaming, $c = .22$, $SE = .09$, $t(166) = 2.49$, $p = .01$. For path *a*, self-control was predicted by perceived maternal helicopter parenting attitude, $a = –.08$, $SE = .04$, $t(166) = –2.19$, $p = .03$.

Considering path *b*, self-control significantly predicted problematic online gaming, $b = –.81$, $SE = .17$, $t(165) = –4.75$, $p < .001$. Finally, the regression coefficient for path *c'* did not remain significant, $c' = .15$, $SE = .09$, $t(165) = 1.80$, $p = .07$, which is indicative of full mediation (Baron & Kenny, 1896). The CIs do not include zero for significant indirect effects (Preacher & Hayes, 2004). However, the 95% confidence interval ranged from –.0001 to .1509. Therefore, it can be concluded that the indirect effect was statistically insignificant.

Figure 2 and Table 4 provides evidence for the significant mediating role of self-control in the relationship between perceived paternal helicopter parenting attitude and problematic online gaming. Regarding path *c*, perception of paternal helicopter parenting attitude partially and significantly predicted problematic

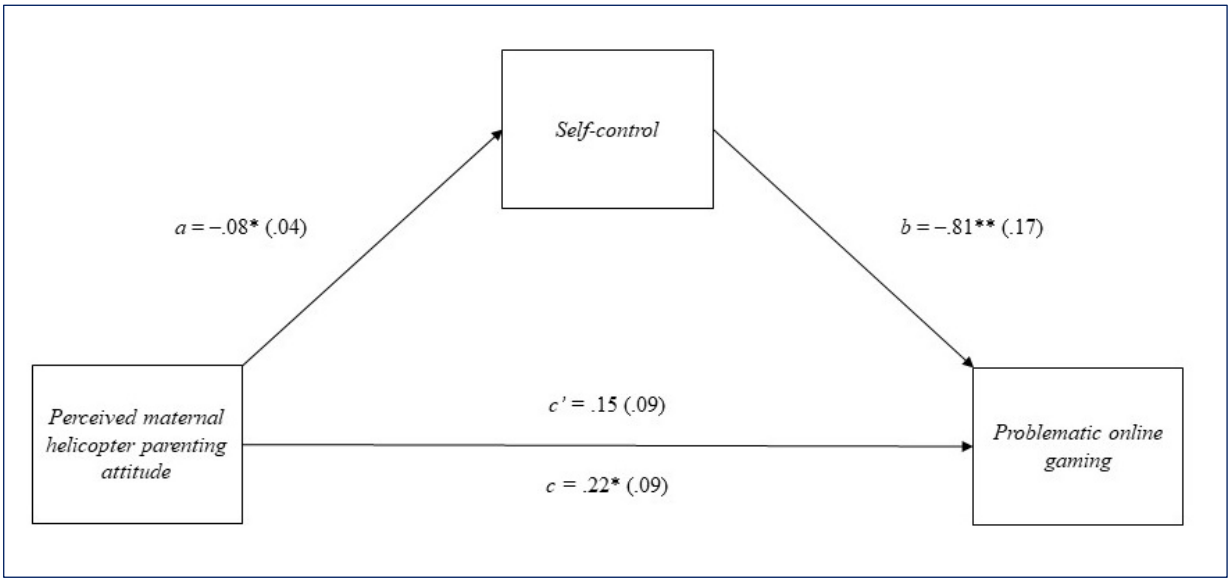

Figure 1. Self-control as the mediator of the effect of perceived maternal helicopter parenting attitude on problematic online gaming. Age, gender, mental health diagnosis history, onset age of game-playing, game-playing days/hours per week/days, preferred game-player mode, purpose of game-playing, hardware used for game-playing, and self-esteem were included in the model as covariates but are not depicted. Path values are unstandardized regression coefficients with standard errors in parentheses. *$p < .05$, **$p < .001$.

Table 3. Regression Coefficients, Standard Errors, and Model Summary Information for Perceived Maternal Helicopter Parenting Attitude

		Consequent						
		Self-control				*Problematic online gaming*		
Antecedent		Coeff.	*SE*	*p*		Coeff.	*SE*	*P*
Perceived maternal helicopter parenting attitude	*a*	–.08	.04	.03	*c'*	.15	.09	.07
Self-control		–	–	–	*b*	–.81	.17	.00
Constant	i_1	25.28	8.07	.00	i_2	44.94	18.13	.01
		$R^2 = .23$ F (19, 166) = 2.54, $p = .00$				$R^2 = .53$ F (20, 165) = 9.26, $p = .00$		

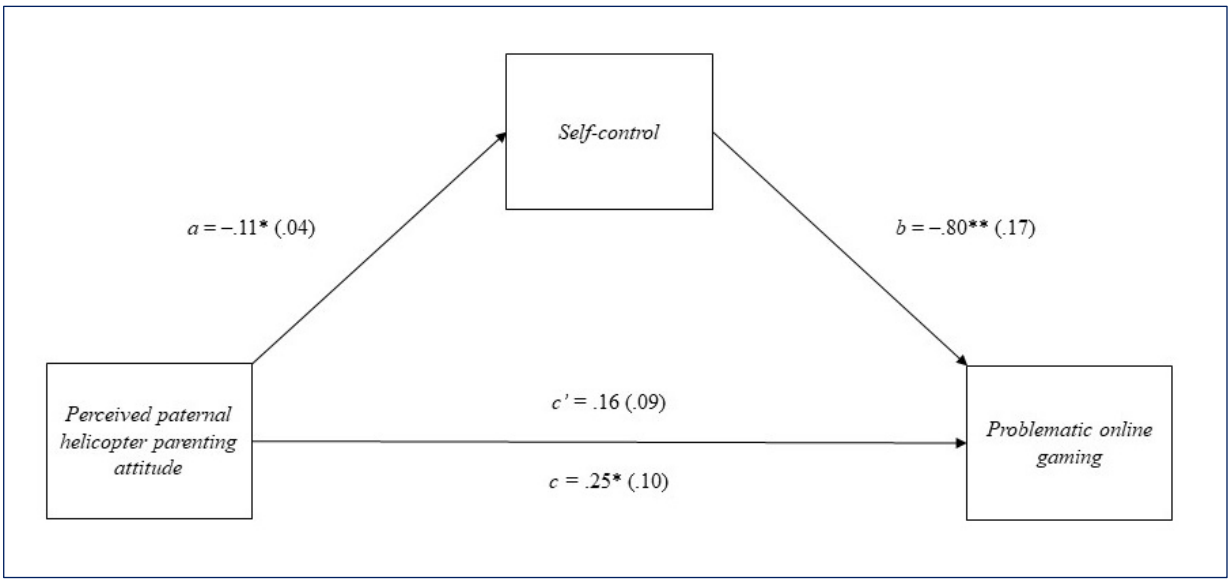

Figure 2. Self-control as mediator of the effect of perceived paternal helicopter parenting attitude on problematic online gaming. Age, gender, mental health diagnosis history, onset age of game-playing, game-playing days/hours per week/days, preferred game-player mode, purpose of game-playing, hardware used for game-playing, and self-esteem were included in the model as covariates but are not depicted. Path values are unstandardized regression coefficients with standard errors in parentheses. *$p < .05$, **$p < .001$.

Table 4. Regression Coefficients, Standard Errors, and Model Summary Information for Perceived Paternal Helicopter Parenting Attitude

		Consequent						
		Self-control				*Problematic online gaming*		
Antecedent		Coeff.	*SE*	*p*		Coeff.	*SE*	*P*
Perceived paternal helicopter parenting attitude	*a*	–.11	.04	.01	*c'*	.16	.09	.09
Self-control		–	–	–	*b*	–.80	.17	.00
Constant	i_1	31.30	7.00	.00	i_2	37.41	16.24	.02
		R^2 = .23				R^2 = .53		
		F (19, 166) = 2.64, p = .00				F (20, 165) = 9.24, p = .00		

online gaming, c = .25, SE = .10, t(166) = 2.53, p = .05. Also, this perception was significant predictor of self-control, a = –.11, SE = .04, t(166) = –2.54, p = .01. Self-control further predicted problematic online gaming significantly, b = –.80, SE = .17, t(165) = –4.70, p < .001. However, no significant coefficient for path c' was found, c' = .16, SE = .09, t(165) = 1.73, p = .09. According to Barron and Kenny (1986), this result refers to full mediation. The 95% confidence interval ranged from .0071 to .1925. Thus, there was a significant indirect effect according to Preacher and Hayes (2004). Also, the Sobel's test, z = 2.37, SE = .04, p = .02, confirmed that the indirect effect was significant.

In conclusion, after controlling the effects of age, gender, mental health diagnosis history, onset age of game-playing, game-playing days/hours per week/days, preferred game-player mode, purpose of game-playing, hardware used for game-playing, and self-esteem, the bootstrapped indirect effect of perceived paternal helicopter parenting on problematic online gaming through self-control was .09. Hence, it can be concluded that participants who differ one unit in their perceived paternal helicopter parenting attitude levels were predicted to differ by .09 units positively in the reported levels of problematic online gaming. In other words, the indirect effect was based on the tendency for those who perceived higher paternal helicopter parenting attitude to have lower levels of self-control, which in turn translates into higher levels of problematic online gaming.

With regards to the study's hypotheses, the results of mediation analyses provided that *H1*, *H2*, and *H3* were supported at maternal and paternal levels. *H4* was further supported at paternal level. However, *H4* was rejected at maternal level.

DISCUSSION

In 2019, the number of online games was about two billion, and it is expected to reach more than six billion online games in 2023 around the world according to the recent reports on online gaming (Liao et al., 2020). It is obvious that the popularity of online gaming has been growing. However, this popular growth may have some negative outcomes for the well-being of online gamers (Billieux et al., 2015). In particular, the increase in the popularity of online gaming would lead to an increased risk of problematic online gaming (Naskar et al., 2016). Also, the prevalence of problematic online gaming in emerging adults is increasing (Long et al., 2018). Thus, the present study was designed to investigate some underlying mechanisms of problematic online gaming among emerging adults. More specifically, it was aimed to explore the relationship between helicopter parenting, self-control, and problematic online gaming. The literature on helicopter parenting has focused on negative offspring mental health outcomes such as depression, anxiety, and life dissatisfaction (Hong & Cui, 2020; Reed et al., 2016; Schiffrin et al., 2014; Turner et al., 2020). However, problematic online gaming has not been yet under scrutiny within the context of helicopter parenting. Hence, the results of this study elucidated how helicopter parenting attitudes would be impairing for self-control and consequently lead to problematic online gaming in a sample of emerging adults. Moreover, these results also advanced the current understanding of problematic online gaming by adding the significant role of helicopter parenting to the relevant literature.

This study provided evidence that self-control mediated the relationship between helicopter parenting and problematic online gaming. However, although it was found that mothers were significantly perceived as having higher helicopter parental attitude than fathers, the indirect effect was significant only at paternal level. This finding can be explained by another evidence of the study that self-control as the mediator had a significant association only with perceived paternal helicopter attitude. Further, based on the results of mediation analyses, the coefficients of paternal helicopter parenting attitude for self-control and problematic online gaming were higher than the coefficients of maternal helicopter parenting attitude. Thus, it can be concluded that, compared to mothers, fathers perceived as having helicopter parental attitudes may have a stronger impact on emerging adult's self-control and result in higher levels of problematic online gaming. This finding can be explained by the cultural representations of fathers as authoritarian figures in Turkey (Kavas & Gunduz-Hosgor, 2013). Also, parental gender differences found in this study were

supported by the previous body of research within different contexts. For example, studies showed that paternal helicopter parenting had higher effects on or associations with depression, anxiety, alcohol use, maladaptive college adjustments, and school burnout than maternal helicopter parenting (Cui et al., 2019; Hong & Cui, 2020; Klein & Pierce, 2009; Love et al., 2020; Rousseau & Scharf, 2015). For Love and her colleagues (2020), paternal helicopter parenting attitude would be more influential on emerging adults because emerging adult offspring may internalize paternal helicopter parenting more negatively and less normative than maternal helicopter parenting owing to established norms displayed by mothers such as involvement, care, and control.

The study also published an association between self-control and problematic online gaming. Self-control issues may lead to adverse coping behaviors like binge-eating and alcohol use (Tangney et al., 2004). Therefore, it can be inferred that problematic online gaming might be a coping behavior as a result of low self-control. In fact, this inference was supported by the literature. For example, a survey study showed that multiplayer online gamers who demonstrated more often problematic online gaming also reported playing online games as a coping strategy to escape from real-life issues (Stetina et al., 2011). The vast majority of our study's sample consisted of multiplayer online gamers. Thus, it can be disputed that those who are subjected to higher levels of helicopter parental attitudes and consequently have lower levels of self-control may diverge to online games to cope with parental expectations about their lives. For the practitioners working with individuals who have game related issues, it is clinically important to concentrate on their patients' game motivation. It can be an adaptive coping strategy like serving to alleviate stress from daily hassles and so, improving their daily functioning. On the other hand, it can emerge from internalizing other problems, such as depression originating from low self-control. At this point, escapism via gaming needs to be taken into consideration more seriously.

Age is an important variable strongly predicting problematic online gaming (Festl et al., 2012; Mentzoni et al., 2011). Also, age has a curvilinear association with problematic online gaming, which increases during childhood and early adolescence, reaches to a peak, and decreases throughout emerging adulthood because of life interventions and obligations (Henchoz et al., 2016; Ream et al., 2013). Furthermore, a six-year longitudinal study conducted by Coyne and her colleagues (2020) with a group of adolescences aged at the initial between 14 and 16 showed that, despite the lower prevalence rate, the emerging adulthood period was a critical-determining period of game addiction among online gamers. Related, this study confirmed previous findings in terms of age's significant association with problematic online gaming. However, the direction of this association was positive. Regarding the study of Coyne and her colleagues (2020), it can also be argued that the respondents of this study who were at their late emerging-adulthood ages might be at risk of game addiction.

It was additionally found that males had higher levels of problematic online gaming than females. This finding was also supported by former studies (Griffiths, 2014; Griffiths et al., 2012; Kircaburun et al., 2019). Online video game addiction statistics demonstrated that males aged between 18 and 24 are at higher risk for problematic online gaming (Healthy Gamer, 2020; The Recovery Village, 2020). Demographically, this data refers to emerging adult males. Therefore, relating this statistic to the findings of the present research and relevant literature, it can be deduced that problematic online gaming is particularly prevalent among emerging-adult male gamers. It should also be noted that the majority of this study's sample were male and the most used hardware for playing online games was reported as personal computers. According to another research (Healthy Gamer, 2020), women tended to show addictive behaviors for mobile games more than men. Thus, although it was drawn a conclusion for emerging adult males' problematic online gaming, future research may replicate the model of this study with a sample of female gamers to understand the particular relationship between women and problematic online gaming through helicopter parenting in the case of mobile gaming.

Further, this study evidenced that those who previously diagnosed with a mental disorder were more likely to report higher levels of problematic online gaming. Psychopathologies related to problematic online gaming are generally evaluated as a behavioral addiction and obsessive-compulsive disorder (Starcevic & Aboujaoude, 2017). On the other hand, a systematic review study (Manniko et al., 2017) showed that problematic gaming behavior is associated with depression, anxiety, attention-deficit hyperactivity disorder, and obsessive–compulsive disorder. The current study advocated previous findings because some respondents reported being previously diagnosed with anxiety disorder, attention deficit hyperactivity disorder, behavioral addiction, major depressive disorder, manic depression, and obsessive-compulsive disorder. On the other hand, a number of the participants stated having Asperger syndrome, atypical autism, bipolar disorder, bulimia nervosa, and paranoia. Importantly, it should be noted that it is not possible to make causal inferences about the relationship between problematic online gaming and such psychological disorders based on survey-based studies. Thereof, qualitative studies using an interpretative phenomenological approach conducted with those mentally disordered may highlight the multidirectional links between and get a deeper understanding of such relationships.

Present findings should be read in the light of its limitations as well. First, this study is a cross-sectional

survey. For this reason, making causal inferences about the mediating effects through the obtained data is not confident. Accordingly, future studies are recommended to adopt a longitudinal approach to draw causal links between helicopter parenting, self-control, and problematic online gaming. Second, this study sampled emerging-adult online gamers. As discussed, this age period is defined as a critical-determining period of problematic online gaming. Therefore, replicating this study with clinical group samples will show to what extent helicopter parenting is related to the psychopathological outcomes of online gaming. Third, this study was conducted in Turkey with a limited sample due to the difficulties to reach online gamers. Therefore, it is not possible to generalize the findings at a cross-country or -cultural level. In fact, culture shapes human behavior and accordingly parenting (Ho et al., 2008). Hence, researchers from different countries are invited to rerun the study's model within different cultural contexts for its cross-cultural validity. Also, the study's sample consisted of self-identified online gamers. Future studies reperforming the mediation model among diagnosed online gamers are highly recommended. Lastly, recent research evidenced that the relationship between perceived helicopter parenting and psychological maladjustment was stronger among college students living with their parents than those living away from their parents (Hong & Cui, 2020). Although living arrangement was not controlled or added as a moderating variable in this study, a moderated mediation model testing the indirect/conditional direct effect of perceived helicopter parenting on problematic online gaming through self-control/living arrangement is suggested for future work.

DECLARATIONS

Compliance with Ethical Standards This study was approved by Ankara Yıldırım Beyazıt University Ethics Committee (04.03.2020-70).

Conflict of Interest The authors declare no conflict of interest.

REFERENCES

Abedini, Y., Zamani, B. E., Kheradmand, A., & Rajabizadeh, G. (2012). Impacts of mothers' occupation status and parenting styles on levels of self-control, addiction to computer games, and educational progress of adolescents. *Addiction & Health, 4*(3-4), 102–110.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182.

Baysak, E., Kaya, F. D., Dalgar, I., & Candansayar, S. (2016). Online game addiction in a sample from Turkey: Development and validation of the Turkish version of Game Addiction Scale. *Bulletin of Clinical Psychopharmacology, 26*(1), 21–31.

Billieux, J., Thorens, G., Khazaal, Y., Zullino, D., Achab, S., & Van der Linden, M. (2015). Problematic involvement in online games: A cluster analytic approach. *Computers in Human Behavior, 45*, 242–250.

Cheng, Y. H. (2019). The mediating effects of motivation for playing pokémon go on internet gaming disorder and well–being. *The American Journal of Family Therapy, 47*(1), 19–36.

Coyne, S. M., Stockdale, L. A., Warburton, W., Gentile, D. A., Yang, C., & Merrill, B. M. (2020). Pathological video game symptoms from adolescence to emerging adulthood: A 6-year longitudinal study of trajectories, predictors, and outcomes. *Developmental Psychology, 56*(7), 1385–1396.

Cuhadaroglu, F. (1986). *Adolesanlarda benlik saygisi* (Unpublished master's thesis). Hacettepe University Faculty of Medicine, Department of Psychiatry, Ankara, Turkey.

Cui, M., Allen, J. W., Fincham, F. D., May, R. W., & Love, H. (2019). Helicopter parenting, self-regulatory processes, and alcohol use among female college students. *Journal of Adult Development, 26*(2), 97–104.

de Ridder, D. T., Lensvelt-Mulders, G., Finkenauer, C., Stok, F. M., & Baumeister, R. F. (2012). Taking stock of self-control: A meta-analysis of how trait self-control relates to a wide range of behaviors. *Personality and Social Psychology Review, 16*(1), 76–99.

Demetrovics, Z., Urbán, R., Nagygyorgy, K., Farkas, J., Griffiths, M. D., Pápay, O., Kökenyei, G., Felvinczi, K., & Oláh, A. (2012). The development of the Problematic Online Gaming Questionnaire (POGQ). *PloS One, 7*(5), e36417.

Ferguson, C. J., & Colwell, J. (2020). Lack of consensus among scholars on the issue of video game "addiction". *Psychology of Popular Media, 9*(3), 359–366.

Festl, R., Scharkow, M., & Quandt, T. (2012). Problematic computer game use among adolescents, younger and older adults. *Addiction, 108*(3), 592–599.

Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science, 18*(3), 233–239.

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime.* Stanford University Press.

Green, R., Delfabbro, P. H., & King, D. L. (2020). Avatar identification and problematic gaming: The mediating role of self-concept clarity. *Addictive Behaviors, 113*(106694).

Griffiths, M. D. (2010). The role of context in online gaming excess and addiction: Some case study evidence. *International Journal of Mental Health and Addiction, 8*(1), 119–125.

Griffiths, M. D. (2014). Online games, addiction and overuse of. In R. Mansell, & P. H. Ang (Eds.), *The international encyclopedia of digital communication and society*.

Griffiths, M. D., Kuss, D. J., & King, D. L. (2012). Video game addiction: Past, present and future. *Current Psychiatry Reviews, 8*, 308–318.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. The Guilford Press.

Healthy Gamer (2020). *Video game addiction statistics 2020*

2020: Is the world addicted to video games? https://www.healthygamer.gg/video-game-addiction-statistics/

Henchoz, Y., Studer, J., Deline, S., N'Goran, A. A., Baggio, S., & Gmel, G. (2016). Video gaming disorder and sport and exercise in emerging adulthood: A longitudinal study. *Behavioral Medicine, 42*(2), 105–111.

Ho, C., Bluestein, D. N., & Jenkins, J. M. (2008). Cultural differences in the relationship between parenting and children's behavior. *Developmental Psychology, 44*(2), 507–522.

Hong, P., & Cui, M. (2020). Helicopter parenting and college students' psychological maladjustment: The role of self-control and living arrangement. *Journal of Child and Family Studies, 29*, 338–347.

Kavas, S., & Gunduz-Hosgor, A. (2013). The parenting practice of single mothers in Turkey: Challenges and strategies. *Women's Studies International Forum, 40*, 56–67.

Kim, E. J., Namkoong, K., Ku, T., & Kim, S. J. (2008). The relationship between online game addiction and aggression, self-control and narcissistic personality traits. *European Psychiatry, 23*(3), 212–218.

Kim, H. J., Min, J. Y., Min, K. B., Lee, T. J., & Yoo, S. (2018). Relationship among family environment, self-control, friendship quality, and adolescents' smartphone addiction in South Korea: Findings from nationwide data. *PloS One, 13*(2), 1–13.

Kim, H. K., & Davis, E. D. (2009). Toward a comprehensive theory of problematic Internet use: Evaluating the role of self-esteem, anxiety, flow, and the self-rated importance of Internet activities. *Computers in Human Behavior, 25*(2), 490–500.

King, D. L., Delfabbro, P. H., & Griffiths, M. D. (2013). Video game addiction. In *Principles of Addiction* (pp. 819–825). Academic Press.

King, D. L., & Delfabbro, P. H. (2020). Video game addiction. In *Adolescent Addiction* (pp. 185–213). Academic Press.

Kiraly, O., Nagygyorgy, K., Griffiths, M. D., & Demetrovics, Z. (2014). Problematic online gaming. In *Behavioral Addictions* (pp. 61–97). Academic Press.

Kircaburun, K., Griffiths, M. D., & Billieux, J. (2019). Trait emotional intelligence and problematic online behaviors among adolescents: The mediating role of mindfulness, rumination, and depression. *Personality and Individual Differences, 139*, 208–213.

Klein, M. B., & Pierce, J. D. (2009). Parental care aids, but parental over protection hinders, college adjustment. *Journal of College Student Retention: Research, Theory and Practice, 11*(2), 167–181.

Lemmens, J. S., Valkenburg, P. M., & Peter, J. (2009). Development and validation of a Game Addiction Scale for Adolescents. *Media Psychology, 12*(1), 77–95.

Lemmens, J. S., Valkenburg, P. M., & Peter, J. (2011). Psychosocial causes and consequences of pathological gaming. *Computers in Human Behavior, 27*(1), 144–152.

LeMoyne, T., & Buchanan, T. (2011). Does "hovering" matter? Helicopter parenting and its effect on well-being. *Sociological Spectrum, 31*(4), 399–418.

Liao, G. Y., Pham, T. T. L., Cheng, T. C. E., & Teng, C. I. (2020). How online gamers' participation fosters their team commitment: Perspective of social identity theory. *International Journal of Management, 52*, 1–12.

Long, J., Liu, T., Liu, Y., Hao, W., Maurage, P., & Billieux, J. (2018). Prevalence and correlates of problematic online gaming: A systematic review of the evidence published in Chinese. *Current Addiction Reports, 5*, 359–371.

Love, H., May, R. W., Cui, M., & Fincham, F. (2020). Helicopter parenting, self-control, and school burnout among emerging adults. *Journal of Child and Family Studies, 29*, 327–337.

Macias, L. (2019). *Helicopter parenting and the relationship to health behaviors during emerging adulthood* (Unpublished professional doctoral dissertation). Palo Alto University, State of California, United States of America.

Manniko, N., Billieux, J., & Kaariainen, M. (2015). Problematic digital gaming behavior and its relation to the psychological, social and physical health of Finnish adolescents and young adults. *Journal of Behavioral Addictions, 4*(4), 281–288.

Manniko, N., Ruotsalainen, H., Miettunen, J., Pontes, H. M., & Kaariainen, M. (2017). Problematic gaming behavior and health-related outcomes: A systematic review and meta-analysis. *Journal of Health Psychology, 25*(1), 67–81.

McQuade, A., & Gill, P. (2012). The role of loneliness and self-control in predicting problem gambling behaviour. *Gambling Research: Journal of the National Association for Gambling Studies (Australia), 24*(1), 18–30. http://vuir.vu.edu.au/30358/1/McQuade%2C%20Gill%202012.pdf

Mentzoni, R. A., Brunborg, G. S., Molde, H., Myrseth, H., Skouverøe, K. J. M., Hetland, J., & Pallesen, S. (2011). Problematic video game use: estimated prevalence and associations with mental and physical health. *Cyberpsychology, Behavior and Social Networking, 14*, 591–596.

Muñoz-Miralles, R., Ortega-González, R., López-Morón, M. R., Batalla-Martínez, C., Manresa, J. M., Montellà-Jordana, N., Chamarro, A., Carbonell, X., & Torán-Monserrat, P. (2016). The problematic use of Information and Communication Technologies (ICT) in adolescents by the cross sectional JOITIC study. *BMC Pediatrics, 16*(1), 1–11, 140.

Naskar, S., Victor, R., Nath, K., & Sengupta, C. (2016). "One level more:" A narrative review on internet gaming disorder. *Industrial Psychiatry Journal, 25*(2), 145–154.

Nebioglu, M., Konuk, N., Akbaba, S., & Eroglu, Y. (2012). The investigation of validity and reliability of the Turkish version of the Brief Self-Control Scale. *Bulletin of Clinical Psychopharmacology, 22*(4), 340–351.

Nelson, L. J., Padilla-Walker, L. M., & McLean, R. D. (2020). Longitudinal predictors of helicopter parenting in emerging adulthood. *Emerging Adulthood*, 1–12.

Nielsen, P., Favez, N., & Rigter, H. (2020). Parental and family factors associated with problematic gaming and problematic internet use in adolescents: A systematic literature review. *Current Addiction Reports, 7*, 365–386.

Oh, W. O. (2003). Factors influencing internet addiction tendency among middle school students in Gyeong-buk area. *Journal of Korean Academy of Nursing, 33*(8), 1135–1144.

Padilla-Walker, L. M., & Nelson, L. J. (2012). Black hawk down? Establishing helicopter parenting as a distinct construct from other forms of parental control during

emerging adulthood. *Journal of Adolescence, 35*(5), 1177–1190.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments & Computers, 36*(4), 717–731.

Preacher, K. J., & Leonardelli, G. J. (2001). *Calculation for the Sobel test: An interactive calculation tool for mediation tests*. http://quantpsy.org/sobel/sobel.htm

Ream, G., Elliott, L., & Dunlap, E. (2013). Trends in video game play through childhood, adolescence, and emerging adulthood. *Psychiatry Journal, 6*, 1–7.

Reed, K., Duncan, J. M., Lucier-Greer, M., Fixelle, C., & Ferraro, A. J. (2016). Helicopter parenting and emerging adult self-efficacy: Implications for mental and physical health. *Journal of Child and Family Studies, 25*(10), 3136–3149.

Romm, K. F., Barry, C. M., & Alvis, L. M. (2020). How the rich get riskier: Parenting and higher-SES emerging adults' risk behaviors. *Journal of Adult Development, 27*, 281–293.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton University Press.

Rousseau, S., & Scharf, M. (2015). "I will guide you" The indirect link between overparenting and young adults' adjustment. *Psychiatry Research, 228*(3), 826–834.

Schiffrin, H. H., Liss, M., Miles-McLean, H., Geary, K. A., Erchull, M. J., & Tashner, T. (2014). Helping or hovering? The effects of helicopter parenting on college students' well-being. *Journal of Child and Family Studies, 23*, 548–557.

Skoric, M. M., Teo, L. L. C., & Neo, R. L. (2009). Children and video games: Addiction, engagement, and scholastic achievement. *Cyberpsychology & Behavior, 12*(5), 567–572.

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. *Sociological Methodology, 13,* 290–312.

Soper, W. B., & Miller, M. J. (1983). Junk-time junkies: An emerging addiction among students. *The School Counselor, 31*(1), 40–43.

Starcevic, V., & Aboujaoude, E. (2017). Internet gaming disorder, obsessive-compulsive disorder, and addiction. *Current Addiction Reports, 4*, 317–322.

Stetina, B. U., Kothgassner, O. D., Lehenbauer, M., & Kryspin-Exner, I. (2011). Beyond the fascination of online-games: Probing addictive behavior and depression in the world of online-gaming. *Computers in Human Behavior, 27*(1), 473–479.

Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality, 72*(2), 271–324.

The Recovery Village (2020). *Video game addiction statistics*. https://www.therecoveryvillage.com/process-addiction/video-game-addiction/related/gaming-addiction-statistics/

Turner, L., Faulk, R. D., & Garner, T. (2020). Helicopter parenting, authenticity, and depressive symptoms: A mediation model. *The Journal of Genetic Psychology, 181*(2), 500–505.

Unubol, H., Koc, A. S., Sayar, G. H., Stavropoulos, V., Kircaburun, K., & Griffiths, M. D. (2020). Measurement, profiles, prevalence, and psychological risk factors of problematic gaming among the Turkish community: A large-scale national study. *International Journal of Mental Health and Addiction*, 1–21.

Wang, C. W., Chan, C. L., Mak, K. K., Ho, S. Y., Wong, P. W., & Ho, R. T. (2014). Prevalence and correlates of video and Internet gaming addiction among Hong Kong adolescents: A pilot study. *The Scientific World Journal*, *2014*, 1–9.

Wartberg, L., Zieglmeier, M., & Kammerl, R. (2020). An empirical exploration of longitudinal predictors for problematic internet use and problematic gaming behavior. *Psychological Reports, 124*(2), 543–554.

Yilmaz, H. (2019). A good parent is not always the parent who does everything, every time for his/her child: A study to develop Helicopter Parent Attitude/s Scale (HPAS). *Journal of Early Childhood Studies, 3*(1), 3–30.