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ARAŞTIRMA

Açık Erişim

The Mediating Role of Emotion Regulation on the Effect of Parental Pressure for Greater Academic Performance on Gaming Addiction

Ebeveyn Akademik Başarı Baskısının Oyun Bağımlılığı Üzerinde Etkisinde Duygu Düzenlemenin Aracı Rolü

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ABSTRACT

Today, the use of technology and the interest in technology-based games are very important for school-age children. This study seeks to use a Structural Equation Model (SEM) to examine the mediating role of difficulties in emotion regulation in the relationship between parental pressure for greater academic performance and gaming addiction in high school students. Additionally, this study endeavors to investigate gaming addiction, difficulties in regulating emotions, and parental pressure for greater academic performance through diverse variables. Using multistage cluster sampling to select participants from the universe, the study sample consists of 627 high school students aged 14-17 studying in various districts within the province of İstanbul, Turkey. The data for this study were collected using the Personal Information Form, the Gaming Addiction Scale for Adolescents, the Difficulties in Emotion Regulation Scale, and the Parental Pressure and Support for Greater Academic Performance Scale. An Independent Samples t-Test, an ANOVA, Pearson's Product-Moment Correlation, and a Path Analysis were used to analyze the study's data. After analysis of the SEM constructed for this study, we found that parental pressure for greater academic performance had a very high, direct effect on gaming addiction, that this effect decreased after including difficulties in emotion regulation as a mediating variable, and that parental pressure for greater academic performance had a low, indirect effect on gaming addiction through difficulties in emotion regulation. The results of the SEM analyses show that the fit indices of the model in question were within acceptable limits and that the model accounted for 21% of the total variance of gaming addiction.

Article Information

Keywords

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ÖZET

Günümüzde teknoloji kullanımı ve teknoloji temelli oyunlara yönelik ilgi okul çağı çocukları için oldukça önem arz etmektedir. Bu çalışmanın amacı lise öğrencilerinin ebeveynlerinin çocuklarına yönelik akademik başarı baskısının oyun bağımlılığı üzerindeki etkisinde duygu düzenleme güçlüğü'nün aracı rolünü Yapısal Eşitlik Modeli çerçevesinde incelemek ve oyun bağımlılığın, duygu düzenleme güçlüğü'nün, ebeveyn akademik başarı baskısının çeşitli değişkenlerle ilişkisini araştırmaktır. Araştırmanın örneklemini, İstanbul ilinde öğrenim gören lise öğrencilerini kapsamına alan araştırma evreninden çok aşamalı küme örnekleme yöntemi ile seçilen 14-17 yaş arası 627 öğrenci oluşturmaktadır. Araştırma verileri; Kişisel Bilgi Formu, Ergenler İçin Oyun Bağımlılığı Ölçeği, Duygu Düzenleme Güçlüğü Ölçeği ve Ebeveyn Akademik Başarı Baskısı ve Desteği Ölçeği ile toplanmıştır. Araştırmanın amaçları doğrultusunda yapılan veri analizlerinde Bağımsız Gruplar t-Testi, ANOVA (Tek Yönlü Varyans Analizi), Pearson Momentler Çarpımı Korelasyonu ve Yol Analizi kullanılmıştır. Çalışmanın amacı uyarınca kurulan Yapısal Eşitlik Modeli'ne göre ebeveyn akademik başarı baskısının oyun bağımlılığına doğrudan etkisinin oldukça yüksek olduğu, duygu düzenleme güçlüğü'nün aracı değişken olarak modele dâhil edilmesiyle ebeveyn akademik başarı baskısının oyun bağımlılığı üzerindeki etkisinin azaldığı, ebeveyn akademik başarı baskısının duygu düzenleme güçlüğü üzerinden oyun bağımlılığına dolaylı etkisinin düşük düzeyli olarak gerçekleştiği görülmektedir. YEM analizi sonuçları bakımından, test edilen modelin uyum indekslerinin kabul edilebilir düzeyde olduğu bulgulanmıştır. Kurulan model üzerinden oyun bağımlılığı değişkeninin toplam varyansının %21'lik bir kısmının açıklandığı görülmüştür.

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INTRODUCTION

Since the dawn of mankind, games have shown themselves to be a continuing need. In a period where technology continues to occupy an increasingly larger space in our lives, digital games have begun to increase in prevalence. Despite there being a wide diversity of digital games appealing to individuals of every age, most of such games are consumed by younger individuals and whereas the age of one's first experience with digital games continues to witness a decrease, the amount of time spent playing them has increased over time (Kim, Kim, Lee, Hong, Cho, Fava, Mischoulon, Heo, & Jeon, 2017; Prot, Anderson, Gentile, Brown, & Swing, 2014). Sağlam and Topsümer (2019) cite the primary reason for playing games as having grown up in gaming culture, followed by curiosity, relaxation, satisfaction, social relationships, and trust. Having great importance for individuals' development, games have increasingly come to be perceived as objects of fear on which restrictions should be placed. As times continue to change, games have migrated from the streets onto the computers, telephones, and tablets residing in our very homes, causing them to have completely changed forms while still being an agent of social-emotional development.

Gaming Addiction

In the related literature review, gaming addiction is characterized as an impulse control disorder with symptoms like impaired control over how long one plays, continuing to play despite adverse consequences, and feeling psychological deprivation when unable to play (Yalçın-Irmak & Erdoğan, 2016). Considered a form of technology addiction, gaming addiction is defined as the uncontrolled and compulsive playing of video games and is also regarded as a subcategory of internet addiction (Gökçearslan & Durakoğlu, 2014). Although gaming addiction is not an officially designated form of addiction in the DSM (APA, 2013), internet gaming disorder is included as a condition requiring further study and is defined as continuous and repeated involvement in video games for which there are several criteria: preoccupation with gaming even while during life activities, the need to spend more time gaming, unsuccessful attempts to control one's gaming habits, losing interest in previous hobbies, increased gaming despite having knowledge of psychological problems, deceiving others about the amount of time spent playing games, negative emotions, and jeopardizing educational or career opportunities because of gaming. Using substance use disorders and addiction disorders that trigger the reward system in the brain as a reference, gaming disorder can be considered a type of addiction in the same way that gambling disorder, itself diagnosed as a non-substance use disorder in DSM-5, is addressed. ICD-11 criteria also recognize gaming addiction as an online gaming disorder, describing it as causing one to lose control of his/her gaming habits, prioritize games and gaming over life activities, and neglect other social areas (ICD-11, 2018). Griffiths and Davies (2005), in discussing the existence of gaming addiction, emphasize six criteria that reveal instances of gaming addiction, namely, mood modification, salience, withdrawal symptoms, tolerance, conflict, and loss of control, and relapse.

Examining the relationship between psychological needs and gaming addiction in adolescents, Dursun and Eraslan-Çapan (2018) state that adolescents who are unable to build relationships with others seek to fulfill their needs of socialization and entertainment on virtual environments and that the need for autonomy predicts gaming addiction. Studies investigating the impact of gaming addiction on emotion regulation indicate that individuals addicts to gaming have a lower ability to regulate their emotions, have a propensity to depression, avoid negative feelings, and tend to engage in behaviors that entail addiction, like emotional adjustment and reorganization (Elmas, Cesur, & Oral, 2017; Evren, Evren, Dalbudak,

Topçu, Kutlu, & Elhai, 2019; Ilgaz, 2014; Kim et al., 2017; Şendurur & Şendurur, 2018; Taş & Güneş, 2018; Taylor, Bagby, & Parker, 1997; Tice, Bratslavsky, & Baumeister, 2010; Ulum, 2016). It is believed that the pressure for greater academic performance that adolescents' family members place on them hampers them from meeting their needs for autonomy and entertainment, which may lead to addiction. Just as loneliness is both the cause and effect of gaming addiction for adolescents, adolescents are observed to play games to regulate their feelings of loneliness (Şahin, Keskin & Yurdagül, 2019).

There are currently several studies demonstrating that the online games played by adolescents adversely affect their development and that creating a new identity for oneself in virtual environments leads to a variety of behavioral problems, aggressive behaviors, and tendencies toward violence (Anderson & Carnagey, 2005; Emre, 2020; Kaya, Bedir, & Kaval, 2019; Sallayıcı & Yöndem, 2020; Sarıkaya & Ilgaz Büyükbaykal, 2019; Yıldırım & Taştan, 2020). Joung (1999) states that addictions emerging while trying to cope with difficult situations entail significantly more negative consequences on constructive behaviors.

It would be inaccurate to claim that computer games only beget negative effects. Sepetçi (2017) states that games provide a venue for social interaction in which intellectual skills are developed. Kum (2020) holds that the interfaces of games increase students' creativity. That being said, here, it is important that the length and content of games be age-appropriate.

While investigating gamers' motivations for playing games, Yee (2006) finds that they are drawn to games for three reasons, namely, achievement, social, and immersion. Within the category of achievement, gamers seek rivalries with other players, to obtain a position of status, and to gain and exert power within the game. Here, adolescent gamers believe that they will be able to display the very power, achievement, and status that they were unable to obtain in real life despite parental pressure to do so and that they will be able to regulate these negative emotions through games.

Difficulties in Emotion Regulation

Emotion regulation is defined as a person's awareness of and ability to manage his/her emotions (Koole, 2010; Pepping, Davis, & O'Donovan, 2013). During adolescence, individuals find themselves in situations where they are required to use a variety of methods to cope with different emotions (Duy & Yıldız, 2014). Coping with anxiety and difficult situations is instrumental in one's ability to regulate his/her emotions (Jazaieri, Urry, & Grossve, 2013). The specifics of this developmental period sometimes cause adolescents to experience difficulties expressing and managing their emotions. Whereas studies indicate that the inability to control one's impulses serves to increase problematic gaming behaviors (Irmak, 2014), others have found that functional emotion regulation (a sub-dimension of emotion regulation) decreases as digital gaming addiction increases (Barut, 2019).

Parental Pressure for Greater Academic Performance

Parents play an important supportive role to adolescents as they set out on discovering the social world in which they live (Santrock, 2011; Yıldırım & Kaya, 2009). Indeed, parental support has been found to be essential to students' increased academic performance (Kapıkıran & Özgüngör, 2009). When families exert pressure on their children for greater academic performance, they do not function as the social support mechanism that families normally would. Previous studies have found that perceived social support decreases as digital gaming addiction increases (Barut, 2019), and the lack of family support has been connected to increased gaming addiction in adolescents (Pawlowska, Potembska, & Szmanska,

2018; Şahin, Keskin, & Yurdagül, 2019). In addition, family support holds an integral place in potential programs seeking to treat gaming addiction (Woog, 2016).

Various studies have found that family support is effective in preventing and reducing addiction and that although parents, as a support system, have a positive impact on their children's academic lives, they can sometimes exert pressure on their children. This study, therefore, examines the academic pressure that parents exert on their children and its relation to gaming addiction. Kapıkıran (2016) defines parental pressure for greater academic performance as coercion by parents against their children because they expect a greater academic performance from their children. The large majority of families do set restrictions on their children's playing computer games (Irmak, 2014). The pressure and restrictions placed on children by their families often entail excessive studying, holding unrealistic expectations with regard to performance and grades, making comparisons with their peers, and exhibiting a condescending attitude toward their peers which can lead to test anxiety and difficulties regulating their emotions (Kapıkıran, 2019).

METHOD

Research Model

This study employs a correlational survey model to investigate the mediating role of difficulties in emotion regulation in the relationship between parental pressure for greater academic performance and gaming addiction. Correlational survey models are helpful in identifying whether two or more variables influence each other and, if they do, what changes they produce and at what strength (Creswell, 2017).

SEM was employed to reveal the relationship between mediator, dependent, and independent variables and the model that they created. Structural Equation Modeling is a multivariate statistical technique that uses latent variables to analyze unobservable constructs. In other words, it is a comprehensive statistical approach that allows hypotheses about latent and unobserved variables to be tested (Jöreskog & Sörbom, 1993; Hoyle, 1995; Akt., Çokluk, Şekercioglu, & Büyüköztürk, 2012).

Study Group

The research universe consisted of a total of 580.546 students actively enrolled in officially recognized secondary education institutions within the greater province of Istanbul during the spring semester of the 2019-2020 academic year. The research sample, however, was composed of 627 students aged between 14 and 17 ($\bar{X}=14.37, SS=1.07$) selected from the universe through multistage cluster sampling. Using stratified sampling, specific districts of Istanbul were first selected for inclusion in the research sample and then random cluster sampling was used to determine in which secondary education institutions the study would take place. We used data from the study entitled "Quality of Life in Istanbul" (Şeker, 2011) for stratified sampling. Using education indicators as a point of reference in his study, Şeker identified the education indices of districts. First, the districts throughout greater Istanbul were divided into three strata (i.e., high, moderate, low) based on the education indicators in question, after which one district per stratum was selected using random sampling. Kadıköy (high), Kartal (moderate), and Sultanbeyli (low) where the three districts selected for this study. Then, after the schools of each school type (i.e., Imam Khatib high schools, vocational high schools, Anatolian high schools) were grouped into their own cluster, 15 secondary education institutions were selected for inclusion in the study using random sampling and data were collected for 9th, 10th, 11th, and 12th grade students. A total of 311,

108, and 208 students enrolled in Anatolian, Imam Khatib, and vocational high schools, respectively, were reached.

While determining sample size, the margin of error was calculated as $n=360$ with $\pm 5\%$ at a confidence interval of 95% for a heterogeneous universe (Gürbüz & Şahin, 2015). Of the individuals composing the sample group, 277 (44.2%) were females and 350 (55.8%) were males; 169 (27%) were 9th graders, 177 (28.2%) were 10th graders, 160 (25.5%) were 11th graders, and 121 (19.3%) were 12th graders. Of the students, 217 (34.6%) were enrolled in schools located in the district of Kadıköy, 244 (38.9%) in schools located in Kartal, and 166 (26.5%) in schools located in Sultanbeyli. Broken down by school type, 311 (49.6%) students were enrolled in Anatolian high schools, 108 (17.2%) in Imam Khatib high schools, and 208 (33.1%) in vocational high schools. A total of 423 students (67.5%) stated that they played online video games; of these, 281 students (44.8%) admitted to playing for one hour or less, 196 students (31.3%) between one and three hours, 43 students (6.9%) between three and six hours, and 18 students (2.9%) six hours or more.

Ethical Statements

Data in the research were obtained from paper-pencil forms by the student volunteers in class environments. It was emphasized that data would only be collected from student volunteers, and participants provided informed consent on the scale sets. The study was approved by authors' university Scientific Research and Ethical Review Board (2000/58654).

Data Collection Instruments

The Personal Information Form was used to collect information on students and their families, which included socio-demographic characteristics, social network use, information pertaining to online gaming, and how they perceived their parents' attitudes toward gaming. The Gaming Addiction Scale for Adolescents (Ilgaz, 2015) was used to determine the high school students' gaming addiction levels. The Difficulties in Emotion Regulation Scale (Yiğit & Güzey, 2017) was used to determine difficulties in emotion regulation. The Parental Pressure and Support for Greater Academic Performance Scale (Kapıkıran, 2016) were used to ascertain how much pressure students' parents placed on them for greater academic performance.

Personal Information Form. This form was prepared by the researchers to identify high school students' demographic characteristics, including gender, school type, and the district in which their school was located.

Gaming Addition Scale for Adolescents. We used this scale, developed by Ilgaz (2015), to determine high school students' gaming addiction levels. Composed of twenty-one 5-point Likert-type items (i.e., very frequently, frequently, sometimes, rarely, never) and 7 factors (i.e., salience, tolerance, mood modification, withdrawal, relapse, conflict, problems), this scale had an internal consistency coefficient (Cronbach's α) value of 0.92, indicating that it was highly reliable. Broken down by sub-dimension, Cronbach's α values were found to be 0.93 for relapse, 0.89 for tolerance, 0.88 for problems, 0.84 for conflict, 0.83 for salience, 0.77 for withdrawal, and 0.65 for mood modification. The highest and lowest scores able to be earned from this scale were 21 and 105, respectively, and cut off value was determined for diagnostic purposes. A high score indicates a high propensity to gaming addiction.

Difficulties in Emotion Regulation Scale [Turkish Version] (DERS-19T). This scale was adapted by Yiğit and Güzey (2017) to determine high school students' difficulties in regulating their emotions and consists of sixteen 5-type Likert items (i.e., almost never [0-10%], sometimes [11-35%], about half the time [36-65%], most of the time [66-90%], almost always [91-100%]). Composed of five subscales (i.e., clarity, goals, impulse, strategies, non-acceptance). Whereas Cronbach's α coefficient for the entire scale was 0.92, indicating high reliability, it was 0.84 for clarity, 0.84 for goals, 0.87 for impulse, 0.87 for strategies, and 0.78 for non-acceptance. The lowest and highest scores able to be earned from this scale were 16 and 105, respectively, and no cut-off value was set. A high score indicates that the individual has difficulty regulating emotions.

Parental Pressure and Support for Greater Academic Performance. This 5-point Likert-type scale was developed by Kapıkıran (2016) to evaluate the pressure for greater academic performance that high school students' parents place on them. The exploratory factor analysis (EFA) conducted to determine the scale's construct validity revealed it to be composed of a single factor that accounts for 60% percent of the variance. The factor loadings items of the scale ranged between 0.50 and 0.75. The confirmatory factor analysis (CFA) for the scale revealed the following values: RMSEA .070, SRMR, .070, and CFI .92. The 10-item scale was composed of two subscales (i.e., parental pressure for greater academic performance, parental support for greater academic performance), each consisting of five items. Whereas Cronbach's α coefficient for the entire scale was 0.82, it was calculated as 0.84 for parental pressure for greater academic performance and 0.71 for parental support for greater academic performance. The lowest and highest scores able to be earned from the parental pressure for greater academic performance subscale were 10 and 50, respectively, with a high score indicating that students perceived to be pressured by their parents to perform better academically.

Data Analysis

The data obtained from the scales were analyzed with SPSS 21 and Mplus 6.12. Also SPSS 21 was used to perform analyses on variables' descriptive statistics, an Independent Groups t-Test, a one-way ANOVA, and Pearson's Product-Moment Correlation whereas Mplus6.12 was used to test the SEM constructed for this study. Before performing the path analysis, the assumptions required by multivariate statistics were examined. These the the evaluation of missing values, extreme values, sample size, normality, linearity, multicollinearity and singularity (Tabachnick & Fidell, 2015). In this context, missing values were observed in the scales of 113 participants. Then, in order to evaluate whether these missing data are random, the data set with missing values and the data set without missing values were compared with the Independent groups t-test according to the scale scores. As a result of the evaluation, it was seen that removing the missing data did not change the score distribution, and accordingly, these data were removed. Then, it was determined that the values (Z scores) of the variables in the data set were in the range of +3 and -3; therefore, extreme values were not found (Johnson & Wichern, 2007). In this study, the Mahalanobis critical value was calculated as 22.45 (Tabachnick & Fidell, 2015). The sample size (n=360) in this study is consistent with the suggestions that a larger than 300 people would yield good results for path analysis under structural equation modeling (SEM) (Byrne, 2010). Care was taken to ensure that the skewness and kurtosis values were within the tolerance level (range 1.96 and -1.96) expressed by Tabachnick and Fidell (2015). In addition, multivariate linearity was checked by examining the scatter diagrams and p-plot plots between the variables, and it was accepted that the data provided multivariate normality.

RESULTS

This section presents information and results on the statistical analyses of the data obtained during this study.

Table 1. Results of the independent t-test conducted to determine whether scores on the gaming addiction, DERS-19T, and parental pressure for greater academic performance scales differed by gender

Score	Group	N	\bar{x}	ss	Sh $_{\bar{x}}$	t_{test}		
						t	Sd	P
Gaming Addiction	Male	350	50.7	14.881	0.795	-8.004	625	0.000
	Female	277	40.94	15.527	0.933			
Difficulties in Emotion Regulation	Male	350	36.33	13.04	0.697	5.489	625	0.000
	Female	277	42.3	14.103	0.847			
Parental Pressure for Greater Academic Performance	Male	350	24.72	9.919	0.53	-3.397	625	0.000
	Female	277	21.52	10.002	0.601			

As seen in Table 1, the results of the independent t-test conducted to determine whether students' scores differed by gender revealed that the arithmetic means of gaming addiction ($t=-8.004$; $p<.01$), of parental pressure for greater academic performance ($t=-3.397$; $p<.01$), and of difficulties in emotion regulation ($t=5.489$; $p<.01$) differed significantly by gender. Whereas the difference between the first two variables (i.e., gaming addiction, parental pressure for greater academic performance) favored males, that of the third variable (i.e., difficulties in emotion regulation) favored females.

Whereas female students were found to experience relatively more difficulties regulating emotions than male students, male students were found to have relatively higher gaming addiction levels and to be subject to more pressure for greater academic performance by their parents than female students.

(AHS – Anatolian High Schools, IKHS – Imam Khatib High Schools, VHS – Vocational High Schools)

As presented in Table 2 above, we conducted a one-way ANOVA to determine whether the scores on the Gaming Addiction, DERS-19T, and Parental Pressure for Greater Academic Performance scales differed by school type and the well-being index of the district in which the school was located. The results show there to be a meaningful difference between the arithmetic means of gaming addiction ($F=1.349$; $P<.05$), difficulties in emotion regulation ($F=2.113$; $P<.05$), and parental pressure for greater academic performance ($F=2.377$; $P<.05$) based on the education indices of the districts in which schools were located. We also found there to be a statistically meaningful difference between the arithmetic means of gaming addiction ($F=2.530$; $P<.05$), difficulty in emotion regulation ($F=7.998$; $P<.05$), and parental pressure for greater academic performance ($F=6.250$; $P<.05$) by school type. Following the ANOVA, we conducted complementary post-hoc analyses and a Scheffe test to identify from which groups these meaningful differences stemmed and found there to be a meaningful difference between gaming addiction averages by school type. We also found a meaningful difference to exist between the scores earned on the DERS-19T by students in Anatolian high schools and vocational high schools (in favor of students attending vocational high schools) and between those earned by students in Imam Khatib high schools and vocational high schools (in favor of students attending vocational high schools). With regard

to scores for parental pressure for greater academic performance, we found there to be a meaningful difference between the scores of students from Anatolian high schools and Imam Khatib high schools (in favor of students attending Anatolian high schools) and between those earned by students from Imam Khatib high schools and vocational high schools (in favor of students attending vocational high schools).

Table 2. Results of the ANOVA conducted to determine whether scores on the gaming addiction, ders-19t, and parental pressure for greater academic performance scales differed by school type and the well-being indices of the districts in which schools were located

Score	Group	f, \bar{x}, ss Values				ANOVA Results						
		Group	N	\bar{x}	ss	Source of Variance	KT	Sd	KO	F	P	
Gaming Addiction	Well-being Index	High	217	45.82	16.32	Inter-Group	682.59	2	341.294	1.349	.26	
		Moderate	244	45.72	15.17	Intra-Group	157888.46	624	253.026			
		Low	166	48.13	16.4	Total	158571.05	626				
		Total	627	46.56	15.96							
	School Type	AHS	311	44.95	14.83	Inter-Group	1275.41	2	637.705	2.530	.08	
		IKHS	108	47.75	15.81	Intra-Group	157295.64	624	252.076			
		VHS	208	47.83	17.36	Total	158571.05	626				
		Total	627	46.84	16.0							
	Difficulties in Emotion Regulation	Well-being Index	High	217	37.58	13.51	Inter-Group	805.70	2	402.849	2.113	.122
			Moderate	244	39.18	13.64	Intra-Group	118945.66	624	190.618		
			Low	166	40.48	14.42	Total	119751.36	626			
			Total	627	39.08	13.86						
School Type		AHS	311	38.28	12.99	Inter-Group	2993.01	2	1496.506	7.998	.00	
		IKHS	108	35.58	13.39	Intra-Group	116758.35	624	187.113			
		VHS	208	41.75	14.78	Total	119751.36	626				
		Total	627	38.54	13.72							
Parental Pressure for Greater Academic Performance		Well-being Index	High	217	22.17	9.42	Inter-Group	480.33	2	240.164	2.377	.094
			Moderate	244	23.63	10.61	Intra-Group	63047.27	624	101.037		
			Low	166	24.33	10.01	Total	63527.59	626			
			Total	627	23.38	10.01						
	School Type	AHS	311	23.34	9.89	Inter-Group	1247.65	2	623.823	6.250	.002	
		IKHS	108	20.52	9.16	Intra-Group	62279.95	624	99.808			
		VHS	208	24.71	10.54	Total	63527.59	626				
		Total	627	22.86	9.86							

Standard Deviations and Correlation Values for Gaming Addiction, DERS-19T, and Parental Pressure for Greater Academic Performance Scales

Table 3 presents the descriptive statistics calculated for the scores that students earned on the Gaming Addiction, DERS-19T, and Parental Pressure for Greater Academic Performance scales.

Table 3. Descriptive statistics

Factor	Mean	SS	1	2	3
1. Gaming Addiction	46.39	15.916	1	.245*	.425*
2. Difficulties in Emotion Regulation	38.97	13.831		1	.264*
3. Parental Pressure for Greater Academic Performance	23.31	10.047			1

*P<.01

As seen in Table 3, there is a positive and meaningful relation ($r=.425$ $p<.01$) between the independent variable (i.e., parental pressure for greater academic performance) and dependent variable (i.e., gaming addiction).

Results Pertaining to SEM Fit Indices and Threshold Values

We used a SEM to analyze the mediating role of difficulties in emotion regulation in the relationship between parental pressure for greater academic performance and gaming addiction. Table 4 depicts the values of first model that resulted from the SEM and those of the revised model.

Table 4. Fit Indices and Threshold Values used in the SEM Analysis

Fit indices	Model value	Goodness of fit	Acceptable fit values
χ^2/sd	3.64	$0 \leq \chi^2/sd \leq 2$	$2 \leq \chi^2/sd \leq 5$
χ^2 "p" value	.000	$0.05 < p \leq 1.00$	$0.01 \leq p \leq 0.05$
RMSEA	.065	$0 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$
SRMR	.044	$0.00 \leq SRMR \leq 0.05$	$0.05 \leq SRMR \leq 0.10$
CFI	.950	$0.95 \leq CFI \leq 1.00$	$0.90 \leq CFI \leq 0.95$
TLI	.938	$0.95 \leq TLI \leq 1.00$	$0.90 \leq TLI \leq 0.95$

As seen in Table 4 according to the SEM conducted, the goodness of fit values were both coherent and meaningful ($\chi^2/sd=3.64$; $p= .000$; $RMSEA=.065$; $SRMR=.044$; $CFI=.950$; $TLI=.938$). During the path analysis, the data in the table was within acceptable limits and the goodness of fit values were taken into account to examine whether the fitness indices were indeed adequate (Çokluk et al. 2001). Accordingly, the results of the path analysis revealed that all of the fit index values for the model being tested were within acceptable fit intervals. This result indicates that the theoretical model is a good fit for the data.

Figure 1 reveals that pressure for greater academic performance has a direct and meaningful ($\beta =.410$, $p < .01$) impact on gaming addiction, that pressure for greater academic performance has a meaningful ($\beta =.267$, $p < .01$) impact on difficulties in emotion regulation, and that difficulties in emotion regulation has a meaningful ($\beta =.132$, $p < .01$) impact on gaming addiction. According to the SEM, parental pressure for greater academic performance and difficulties in emotion regulation had a direct and positive ($R^2 = .21$, $p < .001$) impact at a level of .410 on gaming addiction and that parental pressure for greater academic performance explained 21% of the total variance.

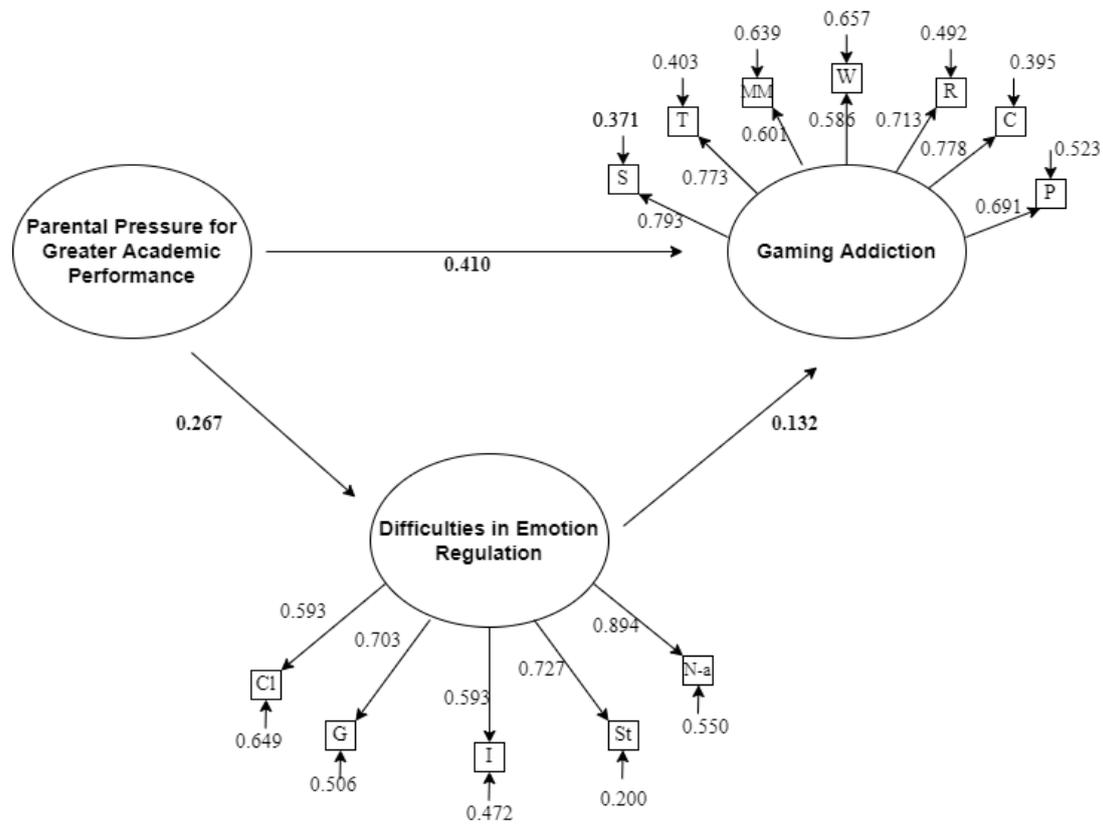


Figure 1. Pressure for Greater Academic Performance

(S: Saliency, T: Tolerance, MM: Mood Modification, W: Withdrawal, R: Relapse, C: Conflict, P: Problems, Cl: Clarity, G: Goals, I: Impulse, St: Strategies, N-a: Non-acceptance)

Figure 1. SEM pertaining to the mediating role of difficulties in emotion regulation in the relationship between parental pressure for greater academic performance and gaming addiction.

DISCUSSION

The aim of this study was to examine the mediating role of difficulties in emotion regulation on the relationship between parental pressure for greater academic performance and game addiction in high school students. The study's results found that the fit values were sufficient and within acceptable limits for the model depicting the mediating role of difficulties in emotion regulation in the relationship between parental pressure for greater academic performance and gaming addiction. These results indicate that high school students' gaming addiction levels were not high. Reaching a similar conclusion in her study with adolescents, Irmak (2014) stated that although national addiction levels were low, they were still rather high when compared with those of countries. A report published in 2016 by the Ankara Development Agency found that adolescents and young individuals made up the entirety of gamer profiles in the world and further predicts that the total number of players on gaming platforms will continue to increase until 2020. This implies that gaming disorders will only increase over time. Males were found to have higher gaming addiction rates than females, another result supported in the literature (Ekşi et al., 2020; Gökkaya & Deniz, 2014; Griffiths & Hunt, 1995; Horzum, 2011; Houge & Gentile, 2013; Irmak, 2014; Onay, Tüfekçi, & Çağiltay, 2005; Pala & Erdem, 2011).

Despite having an impact on gaming addiction levels, difficulties in emotion regulation were found, in general, not to be high. Previous studies have reached similar conclusions, emphasizing the relationship between addiction and the ability to regulate one's mood (Baker, Piper, McCarty, Majeskie, & Fiore, 2004;

Barut, 2019; Estévez, Jáuregui, Sánchez, González, & Griffiths, 2017; Irmak, 2014). Female students were found to have greater difficulty regulating their emotions than did male students. Although the results of some studies (Barut, 2019; Kapçı, 2019) exhibit similarities, the fact that other studies (Haradhvala, 2016; Haşimoğlu & Aslandoğan, 2018) have found that difficulties in emotion regulation do not differ by gender is certainly noteworthy.

The study's results articulate that parental pressure for greater academic performance was not, on average, high for high school students. Studies investigating the relationship between gaming addiction and academic performance reveal that academic performance decreases as gaming addiction increases (Ekşi et al., 2020). The literature shows that studies on parental pressure for greater academic performance are limited and that existing studies address it within the frame of perceived social support. Although several studies examining familial social support reach results that differ by gender in favor of females (Köseoğlu & Erçevik, 2015; Salazar, 2015), other studies found that there were no differences based on gender (Barut, 2019).

The results demonstrate that the SEM constructed to analyze the mediating role of difficulties in emotion regulation in the relationship between parental pressure for greater academic performance and gaming addiction was within acceptable limits. In the SEM, the external variable was parental pressure for greater academic performance, the mediating variable was difficulties in emotion regulation, and the internal variable was gaming addiction. Using this model, we sought to identify the direct and indirect effects between these variables. A Sobel test was conducted to determine with the mediating effects were indeed statistically meaningful. As a result, the path analyze found that parental pressure for greater academic performance had a considerably high and direct impact on gaming addiction that this impact decreased when difficulties in emotion regulation were included as a mediating variable in the model, and that parental pressure for greater academic performance had a low and indirect effect on gaming addiction through difficulties in emotion regulation meaning that it had a partial mediating effect on said relationship. The analysis results found that individuals subject to parental pressure for greater academic performance experienced difficulties both in overcoming gaming addiction and in regulating their emotions and that such individuals had a greater propensity to gaming addiction. In his study, Barut (2019) found that individuals suffering from high levels of video game addiction had difficulties expressing themselves and in their ability to regulate their emotions as their perception of familial social support diminished. In their study, Şahin, Keskin, and Yurdagül (2019) found that children who did receive familial social support had tendency to become gaming addicts through the mediation of feelings of loneliness.

Based on the results, the model employed in this study found that parental pressure for greater academic performance had a high, direct effect on gaming addiction, that served a mediating role in difficulties regulating one's emotions, and that both parental pressure for greater academic performance and difficulties in emotion regulation sufficiently explained gaming addiction.

Since parental pressure for greater academic performance is thought to be both the cause and effect of gaming addiction, we believe that studying the relationship between these two variables with different variables and sample groups will help shed further light on gaming addiction. Whereas gaming addiction is nurtured by a negative family climate (Ögel, 2012), a positive family climate fosters controlled and regulated gaming in students (Irmak, 2014). Since family support is integral in addiction therapy, its importance should be emphasized in preventative or therapeutic programs, family factors thought to

cause gaming should be kept in consideration during any such programs, and family members should be included in all related processes so as to address this condition systemically.

Limitations and Directions

This study has some limitations. The first limitation is related to obtaining the study data through self-report scale tools. The other limitation is related to participants. We assume that participants have answered questionnaires correctly. Participants are only high school students in this study. Results only reflect students' perceptions as their parents did not participate in the study.

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Author Contributions

This study was conducted by all the authors working together and cooperatively. All of the authors substantially contributed to this work in each step of the study.

Conflict of Interest

It has been reported by the authors that there is no conflict of interest.

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Ethical Statement

The study was approved by the Marmara University Institute of Educational Sciences Research and Publication Ethics Committee on March 19, 2021 (No: # 2100081892 / 2021-2-28). In addition, consent forms were obtained from all participants included in the study.

Ethics Committee Name: Marmara University Institute of Educational Sciences Research and Publication Ethics Committee

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