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The Mediating Role of Emotional and Psychological Well-Being in the Relationship Between Digital Addiction and Academic Procrastination among Secondary School Students

El papel mediador del bienestar emocional y psicológico entre la adicción digital y la procrastinación académica en estudiantes de secundaria Psychometric properties of the Grit scale in the Salvadoran university context

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ABSTRACT

This study examined whether emotional and psychological well-being are a mediating factor in the association between digital addiction and academic procrastination among middle school students. A correlational predictive model was used with a sample of 346 students enrolled in middle schools in the province of Diyarbakır (Turkey) during the 2024-2025 academic year. Data were collected using the Digital Addiction Scale, the Academic Procrastination Scale, and the Stirling Children's Emotional and Psychological Well-Being Scale. During the data analysis phase, examinations for extreme values, univariate and multivariate normality test, and homogeneity analyses were first performed. Subsequently, the Pearson product-moment correlation coefficient was calculated using the SPSS-23 software package to assess associations among the variables, and mediation analysis was conducted using the Hayes PROCESS Macro for SPSS. According to the results, digital addiction is a strong predictor of both academic procrastination and emotional and psychological health. Furthermore, middle school student emotional and psychological health was discovered to mediate the relationship between internet addiction and academic procrastination. The study findings were used to provide recommendations to policymakers and researchers for future quantitative and experimental studies on digital addiction and academic procrastination. Participating agencies included the Turkish Statistical Institute, Ministry of National Education, Higher Education Council, Ministry of Health, and the Information Technologies Authority.

KEYWORDS: Digital addiction, Academic procrastination, Emotional well-being, Psychological well-being, Middle school students.

RESUMEN

El objetivo de este estudio es determinar si el bienestar emocional y psicológico tiene un papel mediador en la relación entre la adicción digital y la procrastinación académica de los estudiantes de secundaria. La investigación se realizó en un modelo predictivo correlacional. El grupo de estudio de la investigación está formado por 346 estudiantes de secundaria que estudian en escuelas secundarias de la provincia de Diyarbakır en el año académico 2024-2025. Los datos para el estudio se recopilaron a través de la Escala de Adicción Digital, la Escala de Procrastinación Académica y la Escala Stirling de Bienestar Emocional y Psicológico para Niños. Durante la fase de análisis de datos, se realizaron análisis de valores extremos, análisis de normalidad univariados y multivariados y pruebas de homogeneidad sobre los datos recopilados. Posteriormente se realizó el análisis de mediación utilizando el coeficiente de correlación de Momento de Pearson y el Hayes Process Macro para SPSS para determinar la relación entre las variables utilizando el programa paquete SPSS-23. Como resultado de los análisis realizados en el marco de la investigación, se encontró que la adicción digital de los estudiantes de secundaria predijo de manera positiva y significativa la procrastinación académica y de manera negativa y significativa el bienestar emocional y psicológico. Además, se determinó que el bienestar emocional y psicológico

jugó un papel mediador en la relación entre la adicción digital y la procrastinación académica de los estudiantes de secundaria. Con base en los resultados de la investigación, se presentaron recomendaciones para investigadores y profesionales (Ministerio de Salud, Ministerio del Interior, Instituto Turco de Estadística, Ministerio de Educación Nacional, Instituciones de Educación Superior e Instituciones de Tecnologías de la Información, etc.) que quieran realizar investigaciones cuantitativas y experimentales sobre la adicción digital y la procrastinación académica.

PALABRAS CLAVE: Adicción digital, Procrastinación académica, Bienestar emocional, Bienestar psicológico, Estudiantes de secundaria.

INTRODUCTION

When we look at recent years, we see that technology has developed rapidly and that this development continues. Rapid advances and transformations in technology lead to radical changes in the daily lives of individuals. Due to reasons such as the rapid development of technology and easier access, it is seen that the interest in digital platforms and studies on the subject have increased. When the literature on digital addiction is reviewed, there are studies investigating the effects and relationships between digital addiction and different variables. Digital addiction is associated with psychological resilience (Bilgin & Taş, 2018; Sabaz & Bilgin, 2020; Sağar & Sağar, 2022), social anxiety level (Arslan & Bardakçı, 2021; Balcı & Sarıtaş, 2023), communication skills (Arslan & Bardakçı, 2020), violence tendencies (Arslan, 2020b), and leisure management (Denktaş et al., 2023). In studies like Arslan (2020a), Dresp-Langley and Hutt (2022), and Arslan et al. (2015) have examined the level of digital addiction in terms of different variables and groups.

The ever-developing technology can be defined as the sum of the knowledge and skills that enable the production of all kinds of tools and devices that make human life easier (Ören & Yüksel, 2012). It is observed that technology is effective in every area of life, especially the internet offers widespread communication opportunities and this situation accelerates the use of various tools (Bener et al., 2018; Fernandes et al., 2020; Yen et al., 2007). The basic functions of the internet include communication, obtaining information, conducting research, engaging in commercial activities and having fun (Seo et al., 2009). In this context, it is understood that the internet and digital devices make individuals' lives easier to a great extent. However, the widespread use of digital tools leads to the emergence of undesirable negative consequences as well as positive effects. The most important of these negative situations is digital addiction (Sparrow & Griffiths, 1997).

Digital addiction is defined by many researchers for young people as follows: this addiction offers a virtual lifestyle rather than a 1-day biological life, almost eliminating the perception of time. Young people share on social media at night, send messages while on the toilet or look at their phones

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even during face-to-face conversations (Kaltiala-Heino et al., 2004). Digital addiction, which requires constant addiction to the screen instead of an active and moving life, can bring about a sedentary lifestyle and this can lead to many physical health problems (Kabakçı et al., 2007).

Digital addiction, which is among the behavioral addictions today, defines the interactions of individuals with technological tools such as computers, phones, televisions, tablets and social media (Shaw & Black, 2008; Young, 1998). Familiarity with digital tools increases the risk of addiction. Individuals who were born after 1980 when digital tools were widely used and who actively use these technologies are called *digital natives*; those who were born before and actively use these tools are defined as *digital immigrants* (Prensky, 2001). It has been determined that digital natives differ from digital immigrants in terms of addiction levels and behaviors due to being born into technology (Eşgi, 2013). Digital addiction is generally addressed in two main categories: tool-based addictions (such as television, computers, tablets and phones) and platform-based addictions (internet, social media and virtual shopping; Shaw & Black, 2008). In this context, it is stated that internet addiction, which is the first type defined among digital addictions, creates both physical and psychological effects on individuals (Young, 1998). Another type of digital addiction that has attracted attention in recent years is game addiction. Digital natives in particular are negatively affected physically and psychologically by spending excessive time in virtual environments.

One of the problems caused by digital addiction is the procrastination of academic tasks. Every individual has responsibilities that they must fulfill in their daily lives. While these responsibilities for adults include tasks such as going to work, paying bills, and supporting their family, for middle school students, responsibilities include organizing their room, helping with housework, and studying. Leaving daily tasks to be done until the next day is a common problem. Individuals who exhibit procrastination behavior may initially feel comfortable, but over time, this can lead to anxiety and feelings of failure. These procrastinations, which seem like a single task at first, accumulate over time and can negatively affect more tasks. Ultimately, when unpleasant consequences occur, the problems brought about by procrastination are more clearly seen (Aydoğan, 2008). Academic procrastination, one of the procrastination behaviors that many students encounter in school life, is a notable problem.

In the study conducted by Börekçi and Uyangör (2024), digital addiction positively predicted academic procrastination and academic self-efficacy negatively predicted academic procrastination. Studies have consistently shown that digital addiction positively predicted academic procrastination, while academic self-efficacy served as a protective factor that negatively affected procrastination. Several studies have examined these relationships in different academic contexts. For example, Chen et al. (2021) investigated the structural relationship between mobile phone addiction, self-efficacy, and academic procrastination among university students. They found a direct, positive correlation

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between mobile phone addiction and procrastination, as students who were addicted to their phones were more likely to procrastinate academic tasks. However, self-efficacy was negatively associated with procrastination, indicating that students who believed more in their academic abilities procrastinated less even when faced with digital temptations (Chen et al., 2021). Other studies support these findings, such as Khalifa (2021), who showed that social networking addiction increases academic procrastination in students, but self-efficacy reduces procrastination by improving students' ability to control their study habits. Similarly, Narci (2022) highlighted the positive correlation between problematic internet use and academic procrastination, showing that students with high levels of self-efficacy are less likely to procrastinate because they can more effectively manage their online behavior.

In addition, the results of the study conducted by Can (2018) reveal a positive and significant relationship between internet addiction and academic procrastination. It was observed that students who used the internet for an average of 9 hours or more per day had higher academic procrastination scores than students who used the internet for less time. This shows that the duration of internet use has a significant effect on academic procrastination behaviors.

In the research findings conducted by Kayış and Ayas (2024) on middle school students, a positive, moderate relationship was found between digital game addiction and academic procrastination. The results of this study support the relationship between digital addiction and academic procrastination.

The study conducted by Ögüt and Karakoç (2024) on university students showed that there was a negative significant predictor between digital addiction and psychological resilience. As the psychological resilience levels of the students participating in thestudy decreased, an increase in their digital addiction was observed. This study is parallel to the current study on the "relationship between digital addiction and emotional and psychological well-being".

Academic procrastination means that students do not complete the academic tasks they are required to do on time (Akbay, 2009). This situation can bring about various problems in the academic field. According to a study conducted by Solomon and Rothblum (1984), academic procrastination usually occurs in students' activities such as school and exams. Students may postpone these tasks by producing various excuses to avoid performing tasks that require participation (Akdemir, 2013). In the literature, procrastination behavior has been explained with different types and it has been stated that individuals have experienced at least one of these types. Senécal et al. (1995) state that academic procrastination is a widespread problem and emphasize that this situation is a common form of procrastination among students.

Academic procrastination is defined by situations such as missing assignment deadlines, studying for written exams at the last minute, and getting low grades. This type of procrastination is more complex than just a behavioral tendency (Rothblum et al., 1986; Beswick et al. 1988; Lay & Burns, 1991; Ferrari et al., 1992). Academic procrastination includes behavioral elements as well as cognitive and

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emotional personality components (Ferrari et al., 1992). Ellis and Knaus (2002) observed that most individuals who tend to procrastinate are aware of this behavior, but have difficulty in stopping it. This situation causes students to feel bad about themselves (as cited in Schouwenburg, 1995), and at the same time, it causes their academic success to decrease (Akbay & Gizir, 2011). According to studies, video games that include violence can lead to negative effects such as aggressive behavior, introversion, bullying, anxiety and attention problems in individuals (Bushman & Anderson, 2009; Gentile, 2009; Kıldıran, 2019; Madran & Cakilci, 2014; Mentzoni et al., 2011; Wack & Tantleff-Dunn, 2009).

The study conducted by Bayramoğlu and Gürbüz (2023) in public and private middle schools affiliated with the National Education Directorate revealed that there is a relationship between digital game addiction and academic procrastination. The findings of this study show that there is a positive relationship between game addiction and academic procrastination behaviors. In other words, as game addiction increases, students' tendency to postpone their academic tasks also increases. The regression analysis results also reveal the effects of some factors affecting game addiction on academic procrastination. This study also showed that the current study was similar to the one in which digital addiction predicted academic procrastination. Also in this study; it was determined that especially choosing games over social life did not have a significant effect on game addiction. However, it was determined that situations such as imagining the game, associating it with real life and preferring it over other activities positively affected academic procrastination behaviors. These findings show that students' tendency to prefer playing games over other social activities may lead them to postpone their academic responsibilities.

In addition, spending excessive time with digital devices can cause individuals to neglect their responsibilities, decrease their academic success, lack of sleep, decrease in social interactions, social anxiety, weight gain and problems in the musculoskeletal system. These situations also lead to academic procrastination (Berber et al., 2014; Gentile, 2009; Mustafaoğlu & Yasacı, 2018; Odabaşıoğlu et al., 2007; Yiğit & Günüç, 2020). The middle school period is a critical transition period that marks the beginning of adolescence and prepares students for the years to come in a healthy way. In this process, ensuring emotional and psychological well-being is an important factor.

Well-being, one of the determinants of mental health, is defined by the individual's cognitive and emotional evaluations of their life (Diener, 2000). Well-being concepts are grouped into two main categories: hedonic and eudaimonic (Ryan & Deci, 2001) and are addressed from different perspectives. While the hedonic perspective defines well-being as achieving happiness and avoiding pain, the eudaimonic approach evaluates this as the individual's full potential (Gentzler et al., 2021). This concept is defined as psychological well-being (Ryff & Singer, 2008). Ryff (2013) defines psychological well-being as a whole that includes the individual's purpose in life, autonomy, control over life conditions, positive relationships with others, and the ability to accept oneself. The level of psychological well-being

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of school-age adolescents is considered to be a reflection of social well-being (Seligman et al., 2009) and is an important prerequisite for mental and physical health (Ryff, 2017). Previous research has shown that psychological well-being has important effects on emotional, cognitive, and social domains. Students with high psychological well-being exhibit higher academic achievement (Tape et al., 2021), lower aggression and risky behaviors (Huebner et al., 2004), and lower anxiety levels (Xu et al., 2021).

Academic procrastination leads to consequences such as frequently dropping classes, falling behind, or inadequate learning (Ackerman & Gross, 2005). In order to increase students' academic success and provide an effective learning experience, it is important to determine the factors that affect academic procrastination. In addition, with the developing technology, the time spent on online games is increasing. However, it is observed in the literature that there are limited studies on digital addiction and academic procrastination on individuals in childhood and adolescence. The middle school period represents the beginning of adolescence and plays a critical role in later life stages. It is expected that research to be conducted with students in this age group will contribute to the field and pave the way for future studies.

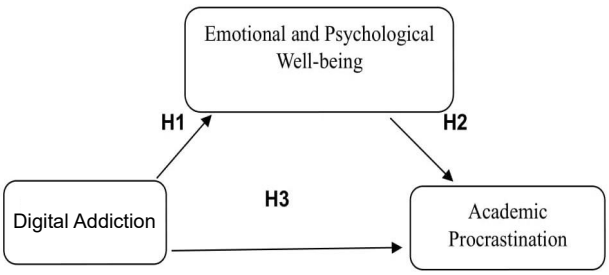
METHOD

Research model

This study aims to examine the relationship between digital addiction and academic procrastination in middle school students in terms of the mediating role of emotional and psychological well-being (See Figure 1). The research was designed using the quantitative research method. Quantitative research can be defined as the process of collecting and analyzing data numerically. In this type of research model, reality is considered independent of the researcher and the reality in the outside world is considered to be objectively observable and measurable (Büyüköztürk et al., 2020).

Figure 1.

Model Research



H4= Digital Addiction--------→ Emotional and Psychological Well-being-------→ Academic Procrastination

Source: Own elaboration.

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The study uses descriptive and causal-comparative methods, which are one of the quantitative research types. The descriptive method is a technique preferred to collect information about a specific subject. Causal-comparative is a method that aims to analyze by comparing the differences in variables between different groups (Gurbetoğlu, 2018). In addition, the relationship between digital addiction and self-control levels and psychological resilience was addressed with the simple mediation model. This type of analysis examines the relationship between the independent and dependent variables through a third variable and defines this mediation partially or fully (Yılmaz & İlhan-Dalbudak, 2018).

In Table 1, 58.4% of the students participating in the study were male (n = 202), 41.6% (n = 144) were female students. In addition, 27.2% (n = 94) of the students were 5th grade, 27.2% (n = 94) were 6th grade, 15.8% (n = 66) were 7th grade, and 22% (n = 92) were 8th grade students. The rate of students who had their own technological device (smartphone, tablet, computer) was 33.2% (n = 115), the rate of students who did not have their own device was 33.2% (n = 115), and the rate of students who shared a device was 33.5% (n = 116).

Table 1.

Demographic Variables Table

Variable	Group	$\bar{x}/sd$	n	%
Gender	Female	1.42/.494	144	41.6
	Male		202	58.4
Class	5	6.45/1.151	94	27.2
	6		94	27.2
	7		66	15.8
	8		92	22
Do you have your own device?	Yes	2.00/.818	115	33.2
	No		115	33.2
	Common Use		116	33.5

Source: Own elaboration.

Universe and sample

The universe of the study consisted of 159,178 secondary school students in the Diyarbakır province of Turkey (https://istatistik.meb.gov.tr/OgrenciSayisi/Index). In this context, the sample was randomly selected on a voluntary basis and 346 students whose parental consent was obtained were included in the study. However, 27 students who gave incomplete answers to the questions were excluded from the study.

Data collection tools

In the study, Socio-Demographic Information Form, Digital Addiction Scale, Academic Procrastination Scale, Stirling Scale for Children's Emotional and Psychological Well-being were used as data collection tools.

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Socio-demographic information form

The Socio-Demographic Information Form prepared for the students included in the study consists of questions prepared by the researchers, including the students' socio-demographic information such as their grade level, gender, and whether they have a device that belongs to them or is shared.

Digital Addiction Scale

The Digital Addiction Scale for Teenagers (DAST), developed by Seema et al. (2022), was created to assess the digital addiction levels of adolescents. The scale is also known in the literature as the Using Digital Devices Scale for Teenagers (UDDST). The scale, designed to measure the use of digital devices and the emotions associated with them, consists of 10 items. Participants evaluate how often the specified situations occur on a 7-point Likert-type scale. The scores that can be obtained from the scale range from 10 to 70, with higher scores indicating an increased level of digital addiction. Validity and reliability studies were conducted on two separate samples consisting of students between the ages of 11-19. An exploratory factor analysis was conducted using the data obtained from both samples, and in this analysis, the Kaiser-Meyer-Olkin (KMO) test was calculated as .87 for the first sample and 0.88 for the second sample. The analysis results revealed that the scale has a single-factor structure. However, it was determined that the single factor included two main topics: attachment to digital devices (tolerance, deprivation, etc.) and compulsive use in different environments (during meals, while walking, etc.). The item factor loadings of the scale ranged between 0.59 and 0.76 in the first sample and between 0.60 and 0.76 in the second sample. In the analyses conducted within the scope of similar and discriminant validity, it was seen that the scores obtained from the scale had a negatively significant relationship with emotional commitment to school (r = -.25, p < .01) and life satisfaction (r = -.21, p < .01). However, a positive significant relationship was found between school burnout (r = .34, p < .01) and learning disabilities (r = .30, p < .01) and scale scores. In addition, a positive relationship was found between screen time and scale scores (r = .34, p < .01). Within the scope of reliability analysis, Cronbach's alpha internal consistency coefficient was calculated as .85 for the first sample and .83 for the second sample (Seema et al., 2022).

Academic Procrastination Scale

The Academic Procrastination Scale was developed by Çakıcı (2003) and aims to assess students' procrastination tendencies for various tasks that they need to accomplish in their education. The scale includes 19 items, 12 negative and 7 positive, related to tasks such as studying, preparing for exams, preparing projects. The scale, which is scored with a five-point Likert-type evaluation system, is rated one-way by giving 1 point to the answer does not reflect me at all and 5 points to the answer completely reflects me. The scores that can be obtained from the scale range from 19 to 95. The Cronbach Alpha reliability coefficient was determined as .92 in the original study. In the analyses conducted

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specifically for this study, the internal consistency coefficient was calculated as .84. The scale is used as a reliable and valid tool in assessing students' behaviors in fulfilling their academic tasks.

Stirling Scales of Emotional and Psychological Well-being for Children

This scale, developed by Liddle and Carter (2015), was adapted into Turkish by Akın et al. (2016). A total of 149 students, 63 male and 86 female, from primary, secondary and high school were included in the study. The scale consisted of 12 items in 5-point Likert format (1 Never - 5 Always). The scale is a single-factor scale. The sum of the item correlation coefficients in the scale varies between .57 and .73. In the validity study conducted for the scale in order to verify the results of the explanatory factor analysis, confirmatory factor analysis was conducted. It was determined that the fit indices for the scale were appropriate (x^2 = 96.87, RMSEA = .073, SRMR = .051, CFI = .93, IFI = .93, GFI = .90). In the test conducted to ensure the reliability of the scale, the Cronbach Alpha coefficient was found to be .90. In the criterion validity study using the Dubois Self-Esteem Scale, a positive relationship of .69 was observed between the self-esteem scale and the adapted scale. The items of the scale are as follows: What is happening around me cheers me up, I think good things will happen in my life.

Data Collection Process

Before starting to collect data within the scope of the research, permission was obtained from Atatürk University Educational Sciences Ethics Committee dated 2/12/2024 and numbered 10/03. The scales were applied by the researchers in the classroom environment. During this process, the necessary permissions were obtained from the school administration, teachers and parents of the students. The purpose of the study was explained to the students in the classrooms and the scales were applied based on voluntary participation. Attention was paid to the volunteering of the participants, and it was clearly stated that the students could withdraw from participating in the study if they wished.

The data collection process was carried out under the supervision of the researchers and in the classroom environment. Volunteer students were determined according to their order of participation. In the study, students who were found to have filled out the scales incompletely or carelessly were not included in the analysis. The research data were collected in December 2024. Before starting the study, permission was obtained from the parents through an informed consent form, and detailed information was given to both parents and students about the purpose, duration and scope of the study.

It was also stated in the study that the students could withdraw from participation at any time based on their voluntariness. In addition, the Higher Education Institutions Scientific Research and Publication Ethics Directive was fully complied with throughout the research process. None of the violations within the scope of *Actions Contrary to Scientific Research and Publication Ethics* specified in the second section of the directive were included in the research.

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Analysis of Data

The Statistical Package for the Social Sciences (SPSS) 23.0 software was used to analyze the data obtained in the study. In order to decide which tests to apply in the analysis of the data, compliance with normal distribution was evaluated. According to the Kolmogorov-Smirnov test results ($p < .001$), it was seen that the distribution of the data was not normal. However, as the sample size increases, the probability of this test being statistically significant increases. Therefore, skewness and kurtosis coefficients were examined in order to provide more reliable information. The skewness and kurtosis values are presented together with the scores obtained from the relevant scales in Table 2.

In the study, Structural Equation Modeling (SEM) was applied to examine the mediating role of emotional and psychological well-being in the relationship between digital addiction and academic procrastination behaviors of middle school students. Before proceeding to the SEM analysis, the descriptive statistics of the variables and the correlation relationships between them were evaluated. After determining that the data were suitable for normal distribution and that there were significant relationships between the variables, a two-stage SEM process was performed.

In the first stage, the measurement model was analyzed. After the verification of the measurement model, the theoretically created structural model was tested. In order to fully determine the mediating effects, both the partial mediating model and the full mediating model were examined. Goodness of fit indices were used to evaluate the adequacy of the models. The indices used are: the ratio of chi-square to degrees of freedom (χ^2/df), CFI, NFI, TLI and SRMR. The critical threshold values were determined as follows: $\chi^2/df < 5$; CFI, NFI and TLI > .90; SRMR < .80 (Hu & Bentler, 1999; MacCallum et al., 1996; Tabachnick & Fidell, 2001).

Table 2.

Descriptive Statistics of Research Variables

Variables	*N*	X̄	SS	Skewness	Kurtosis
Academic Procrastination	346	3.14	1.30	.017	-1.80
Digital Addiction	346	4.02	1.90	.117	-1.46
Emotional and Psychological Well-being	346	2.72	1.06	.121	-1.61

Source: Own elaboration.

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Skewness and kurtosis values for all variables are shown in Table 2. These values are within the tolerance range values suggested by Tabachnick and Fidell (2001) and are (-1.96) and (+1.96). In line with these values, it is seen that the variables meet the normality assumption.

RESULTS

This section includes the analysis of the data obtained in line with the purpose of the study. The findings obtained as a result of these analyses and their evaluations are included. For this purpose, mediation analyses were conducted using SPSS version 3.4 PROCESS macro Model 4 to determine whether emotional and psychological well-being has a mediating role in the relationship between digital addiction and academic procrastination behaviors of middle school students constituting the sample group of the study (Hayes, 2018). In the analysis process, 5000 resampling option with bootstrap technique was preferred. Whether emotional and psychological well-being has an indirect effect on the relationship between digital addiction and academic procrastination was determined according to the confidence intervals obtained with the bootstrap technique. The findings of the analysis are presented in Table 3 and Table 4 below.

Table 3.

Pearson Correlation Analysis Results for Predicting Digital Addiction, Academic Procrastination and School Burnout of Secondary School Students

	Academic procrastination	Digital addiction	Emotional and Psychological Well-being
Academic Procrastination	1	5.35*	-.932*
Digital addiction	-	1	-.641*
Emotional and Psychological Well-being		-	1

Note. * = $p < .01$

Source: Own elaboration.

When Table 3 is examined, it is seen that the correlation between all variables is statistically significant at the .01 significance level. It was observed that there was a positive correlation between digital addiction and academic procrastination. However, a negative correlation was found between academic procrastination and emotional psychological well-being and between digital addiction and emotional and psychological well-being.

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Table 4.

Regression Analysis Results for Bootstrapping Test

	Emotional and Psychological Well-being (M)		Academic Procrastination (Y)	
Predictive Valuable	*b*	SE	*b*	SE
Digital Addiction (X)	-.3564***	.0230	-.0726	.0170
Emotional and Psychological Well-being (M)			-1.228***	.0306
Constant	4.1545	.1022	1.677	.1382
	R^2 = .411 F(1; 346) = 240, 2772; p < .001		R^2 = .875 F(1; 346) =1197, 2094; p <.001	

Nota. *p < .05; **p < .01; *** p <.001, k = 5000, SE = Standard error, unstandardized beta coefficients (b) are reported.

Source: Own elaboration.

When Table 4 is examined, it is seen that digital addiction negatively and significantly predicts emotional and psychological well-being (b = -.3594, SE = .0230, p < .001). It was also determined that emotional and psychological well-being negatively and significantly predicts academic procrastination (b = -1.228, SE = .0306, p < .001). In addition, digital addiction explains 41% of the variance in life satisfaction. In addition, digital addiction, together with emotional and psychological well-being, was found to explain 87% of the variance in academic procrastination. As a result of the Bootstrapping test for mediation analysis, the indirect, direct and total effects of digital addiction on academic procrastination are given in Table 5.

Table 5.

Índices de confiabilidad de las dimensiones de la Escala Grit-S

Effect	Path	Bootstrapping		95% Interval	Confidence
		B	SE	LLCI	ULCI
Indirect Effect	Dig. Add.-Emt. Psk. -Akd. Ert	.4376	.0230	.3917	.4815
Direct Effect	Dij. Bağ - Acd. Proc.	-.0726	.1070	-.1060	-.0391
Total Effect	Direct + Indirect Effect	.3651	.3039	.3039	.4262

Note. n = 346, k = 5000, Dig. Add. = Digital Addiction, Emt. Psk = Emotional Psychological Well-being, Acd. Proc = Academic Procrastination

Source: Own elaboration.

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In a simple mediation model, the total effect of variable X (Digital Addiction) on variable Y (Academic Procrastination) is evaluated as the sum of the direct effect of X on Y and the indirect effect of X on Y through M (Emotional and Psychological Well-being) (Hayes, 2018). According to the research findings, the direct effect of digital addiction on academic procrastination (b = -.0726, SE = .0170, p < .001) is negative and significant. However, the indirect effect of digital addiction on academic procrastination (b = .4376, SE = .0230, 95% CI [.3917 - .4815]) is positive and significant. The indirect effect emerges by estimating the change in Y as a result of the effect of X on M, and the effects of this situation on Y are taken into account. In this case where the indirect effect is significant, it can be stated that M (Emotional and Psychological Well-being) is a mediator of the relationship between X and Y (Hayes, 2018). When the full standardized effect size of the mediation effect was examined, β = .6412 was found within the 95% confidence interval (CI [.5714 - .7098]). This value was evaluated as close to a moderate mediation effect. Effect size values are interpreted as low if close to .01, medium if close to .09, and high if close to .25 (Preacher & Kelley, 2011).

In line with these results, it can be said that emotional and psychological well-being play a significant mediating role in the relationship between digital addiction and academic procrastination.

DISCUSSION

This study was conducted to examine the mediating role of emotional and psychological well-being in the relationship between digital addiction and academic procrastination in middle school students. The findings revealed that digital addiction increases academic procrastination and negatively affects emotional-psychological well-being. In addition, it was determined that emotional and psychological well-being plays a mediating role in the relationship between digital addiction and academic procrastination. In line with the literature, the finding that digital addiction is positively associated with academic procrastination is supported by previous studies (Akın et al., 2016; Rozgonjuk et al., 2018; Yang et al., 2020; Jeffrey et al., 2022). It is known that excessive use of digital technologies causes distraction and time management problems, leading to procrastination of academic tasks. However, the negative effect of digital addiction on emotional and psychological well-being (Andreassen et al., 2017). As stated by the studies of Elhai et al. (2017) and Keles et al. (2020), it can reduce academic motivation by increasing individuals' stress levels.

One of the most important contributions of this study is that it reveals the mediating role of emotional and psychological well-being. The findings show that digital addiction triggers academic procrastination not only directly but also indirectly by reducing the level of well-being. This result is consistent with the research results of Chen et al. (2022), which determined that psychological well-being decreases as the level of internet addiction increases and that psychological well-being decreases as the level of smartphone addiction increases (David & Roberts, 2021; Islam et al., 2021). It is consistent with the "digital stress and lack of self-regulation" model.

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Previous studies in the relevant literature have shown that both internet and smartphone addiction have a predictive role for psychological well-being (Cangöl & Sögüt, 2021; Fernandes et al., 2020; Islam et al., 2021). Digital addiction is an important problem that results in difficulties in managing one's daily life (Caplan, 2005). While individuals with a number of psychosocial problems (e.g. social anxiety, lack of social skills, shy personality, etc.) may use technological devices problematically (Davis, 2001), it seems inevitable that individuals with pathological usage rates will also experience some emotional, psychological and physical problems. Some studies have shown that individuals who report high levels of technological device use suffer from high levels of depression, anxiety, loneliness and sleep disorders (Bener et al., 2018; Odacı & Çıkrıkçı, 2017). These factors can make life unbearable and meaningless and have negative effects on psychological well-being, which is considered as the individual's evaluation of his or her own life. Adolescents who spend most of their time having fun on the internet with their smartphones, exceeding their normal usage time, are likely to experience vision and posture problems, and back and neck pain. In addition, it is also possible that some adolescents suffer from pathological insomnia due to sleep during this developmental period when sleep is important. Adolescent individuals who cannot focus on their lessons and spend time studying due to these negative health consequences are likely to encounter some obstacles in perceiving their lives positively. As a result of the composition of all these negative factors, it can be said that digital addiction rates will cause adolescents to evaluate their lives negatively and this has an explanatory content for the results obtained from the research. In conclusion, this study has revealed that emotional and psychological well-being play a critical role in the relationship between digital addiction and academic procrastination. The findings support the need to develop psycho-educational programs and digital detox strategies in groups with a high risk of digital addiction, such as middle school students. In future studies, different dimensions of digital addiction (social media, game addiction, etc.) and subcomponents of well-being (self-compassion, psychological resilience) can be examined in detail.

CONCLUSION

In conclusion, this study and Can's (2018) study emphasize the negative effects of game and internet addiction on academic success. It is important for students to develop appropriate strategies to cope with such addictions and fulfill their academic responsibilities. These results are parallel to the results of the study.

In this context, understanding the relationship between digital addiction and psychological well-being is of critical importance in protecting and improving individuals' mental health. Developing education, awareness, and support programs on this issue can help individuals cope with digital addiction. It has been determined that emotional and psychological well-being plays a mediating role in

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the relationship between middle school students' digital addiction and academic procrastination. No studies on the mediating role of emotional and psychological well-being in the relationship between digital addiction and academic procrastination have been found in the literature. However, studies show that individuals with increased emotional and psychological well-being have lower digital addiction levels (Limone & Toto, 2021; Stiglic & Viner, 2019). In addition, digital addiction disrupts the individual's functionality in important life areas, reduces social interaction in real life, and can lead to relationship disorders (Aker et al., 2017).

According to the latest results determined within the scope of the research findings; It has been determined that there is a negative relationship between students' psychological well-being and their involuntary procrastination tendencies. According to this result, it can be stated that as students' psychological well-being increases, their procrastination tendencies will decrease. The same applies in the opposite case. It can be interpreted that positive changes that can be experienced in students' mental, emotional or behavioral states in a holistic way can reduce their involuntary procrastination tendencies and enable them to gain a more effective ability to struggle against difficulties. This result is also parallel to the results of many studies in domestic and foreign literature examining general procrastination and academic procrastination behaviors. For example, Jayaraja et al. (2017) found a relationship between students' psychological well-being and procrastination behaviors in their studies on university students. In addition, the same study concluded that procrastination behavior is the strongest predictor of psychological well-being. According to the compilation study conducted by Arifiana et al. (2020) during the CoV-19 period, it was determined that the results of many studies in the relevant literature concluded that procrastination behavior reduces psychological well-being and vice versa. In addition, it was concluded that the psychological well-being of university students has an effect on their involuntary procrastination tendencies. This result is parallel to many research results in domestic and foreign literature (Patra et al., 2023; Reinecke et al., 2018; Topal et al., 2023).

According to these findings, as the emotional and psychological well-being levels of middle school students increase, their digital addiction and academic procrastination behaviors decrease. Another finding of the study was that emotional and psychological well-being played a mediating role in the relationship between middle school students' digital addiction and academic procrastination behavior. Emotional and psychological well-being, which is related to both digital addiction and academic procrastination, reduces the negative effect of digital addiction on academic procrastination and, in a sense, acts as a regulator. This may indicate that if the emotional and psychological well-being levels of middle school students increase, their digital addiction will decrease. Providing informative training to families and directing students to activities that will positively affect their emotional and

psychological well-being levels can contribute to the prevention of digital addiction. Also, supporting the emotional and psychological well-being of middle school students can reduce the effects of digital addiction and may be effective in reducing middle school students' academic procrastination behaviors. The following suggestions were made for researchers and practitioners regarding the findings obtained as a result of the analyses:

The determination that emotional and psychological well-being plays a mediating role in the relationship between middle school students' digital addiction and academic procrastination behaviors can be an important reference in studies to be conducted on middle school students. In this direction, emotional and psychological well-being can be included in strengthening studies to be conducted on middle school students.

New studies can be conducted by supporting the findings with similar studies and including variables such as conscious awareness, communication skills, social skills, etc. in the studies to reduce the digital addiction of middle school students.

Informing the parents of middle school students about digital addiction can be done and the factors that will positively affect the emotional psychological well-being of the students can be explained.

Research findings obtained by collecting data with quantitative methods can be supported and enriched with qualitative research methods and experimental studies.

Since a significant portion of our country's population is young and these young people constitute a potential risk group for digital addiction, the importance of drawing attention to the issue will be clearly seen. For this reason, academic, cultural and social activities should be organized that will direct users to use digital tools in limited times and in areas where they are needed, show them the importance of emotional contact where they can communicate face to face and find common feelings in the same environment, and ensure coordination between institutions (Ministry of Health, Ministry of Internal Affairs, Turkish Statistical Institute, Ministry of National Education, Higher Education Institution and Information Technologies Institution, etc.).

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