



The mediating role of online gambling addiction in the effect of future anxiety on academic underachievement among university students

El papel mediador de la adicción al juego online en el efecto de la ansiedad futura sobre el bajo rendimiento académico entre los estudiantes universitarios

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Abstract

Introduction: Students who have to cope with various exams and academic concerns in order to proceed to higher education may encounter many problems such as academic, economic, social, developmental, psychological, family problems and future anxiety throughout their higher education life.

Objective: This study examined the mediating effect of online gambling addiction in the effect of future anxiety on academic underachievement, based on four hypotheses.

Methodology: This study employed a relational screening model, and the sample for this study comprised 1,414 university students. "Future Anxiety Scale in University Students", "Online Gambling Addiction Scale" and "Perceived Academic Underachievement Scale" were used as data collection tools.

Results: The results of the analyses performed to determine the relationship between the variables revealed that there was a moderate, positive, significant difference between future anxiety and perceived academic underachievement and a weak, positive, significant difference between online gambling addiction, while there was a weak, positive, significant relationship between perceived academic underachievement and online gambling addiction.

Discussions: The study also concluded that online gambling addiction has a positive and significant effect on academic underachievement. It was concluded that online gambling addiction plays a partial mediator role in the effect of future anxiety on academic underachievement.

Conclusion: All four hypotheses (H₁, H₂, H₃, and H₄) were supported. Based on the results of this study, recommendations were offered.

Keywords

Online gambling addiction; academic underachievement; future anxiety.

Resumen

Introducción: Los estudiantes que tienen que hacer frente a diversos exámenes y preocupaciones académicas para poder acceder a la educación superior pueden encontrarse con muchos problemas, como problemas académicos, económicos, sociales, de desarrollo, psicológicos, familiares y ansiedad futura a lo largo de su vida de educación superior.

Objetivo: Este estudio examinó el efecto mediador de la adicción al juego en línea en el efecto de la ansiedad futura sobre el bajo rendimiento académico, basándose en cuatro hipótesis.

Metodología: Este estudio empleó un modelo de cribado relacional y la muestra para este estudio comprendió a 1.414 estudiantes universitarios. "Escala de ansiedad futura en estudiantes universitarios", "Escala de adicción al juego en línea" y "Escala de bajo rendimiento académico percibido" se utilizaron como herramientas de recopilación de datos.

Resultados: Los resultados de los análisis realizados para determinar la relación entre las variables revelaron que había una diferencia moderada, positiva y significativa entre la ansiedad futura y el bajo rendimiento académico percibido y una diferencia débil, positiva y significativa entre la adicción al juego en línea, mientras que había una relación débil, positiva y significativa entre el bajo rendimiento académico percibido y la adicción al juego en línea.

Discusiones: El estudio también concluyó que la adicción al juego en línea tiene un efecto positivo y significativo en el bajo rendimiento académico. Se concluyó que la adicción al juego en línea juega un papel mediador parcial en el efecto de la ansiedad futura en el bajo rendimiento académico.

Conclusión: Las cuatro hipótesis (H₁, H₂, H₃ y H₄) fueron apoyadas. Con base en los resultados de este estudio, se ofrecieron recomendaciones.

Palabras clave

Adicción al juego en línea; bajo rendimiento académico; ansiedad futura.



Introduction

In formal education, which continues from preschool education to higher education and can also be defined as a planned/programmed education process, students are placed in undergraduate or associate degree programs based on the average score they receive from the higher education transition exams. Although family, socio-economic, and individual reasons are the main reasons that lead young people to pursue higher education (Özkan & Gizir, 2013), having a good job, being financially comfortable, pursuing a career, and obtaining professional and social status (Spronken-Smith et al., 2009) are also among those reasons. According to 2024 data, there are 7,081,289 students enrolled in higher education in Turkey (www.udef.org.tr), which reveals that approximately 9% of the country's population are university students. Many studies in the relevant literature focus on the problems and concerns faced by university students, who constitute a significant part of society. The word anxiety, derived from the ancient Greek term 'Anxietas,' meaning worry and fear (Köknel, 1989), is used today to describe a physical, cognitive, and emotional reaction to perceived danger or threatening stimulus (Hammad, 2016; Şanlı-Kula & Saraç, 2016). Anxiety, which is categorized into state and trait anxiety (Öner & Le Compte, 1985), is classified as reality, neurotic, and moral anxiety by Sigmund Freud (1856-1939). While reality anxiety arises from a current situation, moral concern is about whether an individual acts in accordance with fundamental moral norms. Neurotic anxiety, in contrast, stems from factors that do not actually exist yet or will never happen but cause unrest in the individual (Corey, 2008; Yıldırım & Kumcağız, 2022). Future anxiety, which is one of the types of neurotic anxiety and is unique to humans (Türkçapar et al., 2015), can be explained as uncertainty about the future or anxiety and/or fear about the realization of a future other than the intended one (Dağtekin et al., 2020; Zaleski, 1996).

Students who have to handle various exams and academic concerns to move on to higher education, which is the last step of formal education, may encounter many problems such as academic, economic, social, developmental, psychological, and family problems, as well as future anxiety throughout their higher education life (Donat et al., 2019; Geylani, 2024; Mofatteh, 2021). Being able to respond to social and individual expectations by adapting to dynamic conditions that change every day can create anxiety for university students. Uncertainties in business life, especially after completing the education process, along with socio-cultural and economic changes at the national and international levels, can cause anxiety in individuals receiving higher education (Frings et al., 2022; Rabei, Ramadan & Abdallah, 2020).

Studies conducted by Akpur (2015), Azher et al. (2010), Doğan (2008), Hewitt and Stephenson (2012), and Nishitani and Toshiki (2011) showed negative relationships between the anxiety experienced by university students and their academic success levels. In other words, as the anxiety level of university students increases, their academic success decreases. However, numerous studies in the literature indicate that anxiety plays a role in the development of addictions. These studies report positive relationships between anxiety level and drug use (Scorzelli & Chaudhry, 2009), internet addiction (Ağırtas & Güler, 2020; Weinstein, 2015), smartphone addiction (Nocici & Sarı, 2020; Matar-Boumosleh & Jaalouk, 2017; Mamani-Jilaja et al. 2024), and gambling addiction (Altıntaş, 2018; Blaszczynski & McConaghy, 1989; Kerber et al., 2008; Ste-marie et al., 2002). In light of the results of these studies, it can be stated that as the level of anxiety increases, the addictions of individuals also increase. Gambling addiction, among others, emerged with the rapid development of technology and is becoming more widespread day by day (Ünlü & Noyan, 2024), causing physical, psychological, economic, social, and emotional problems and can cause serious consequences that lead individuals to suicide (McCormack & Griffiths, 2011). The results of this study are significant as they contribute to the existing literature, particularly in light of the rising anxiety levels among university students, the increased access to gambling due to technological advancements, and the growing trend of young individuals resorting to online gambling for financial gain, entertainment, and social satisfaction (Neighbors et al., 2022).

The purpose, model, and the hypotheses of the study

According to the research conducted by Statista (2024), the world gambling market is estimated to reach 449.69 billion dollars in 2025. In addition, the world gambling market continues to grow with an average annual increase of 3.21%. Therefore, it is assumed that the number of people expected to actively participate in the world gambling market in 2029 will reach 985.3 million. On the other hand, the weight of online gambling in the world gambling market is also increasing (Statista, 2024). It is an obvious reality that the world gambling market will become increasingly widespread due to the rapid

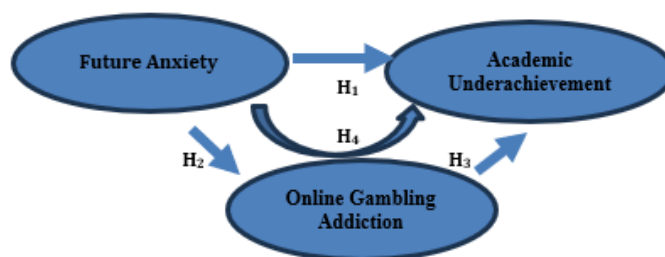


increase in the world population and the fact that it is estimated to exceed 8 billion in 2023 and reach 9.7 billion in 2050 (www.ourworldindata.org). In addition, technological advances and developments have made online gambling more accessible (Indra et al., 2025).

It is known that university students often have future anxiety (Dağtekin et al., 2020; Rabei et al., 2020; Şanlı-Kula & Saraç, 2016) and that there is a significant relationship between future anxiety and perceived academic underachievement (Hammad, 2016; Hodapp, 1989; Karayaşar, 2019; Polat, 2017; Topcu & Uzundumlu, 2012). Moreover, with the increasing prevalence of online gambling addiction in today's digital world and the growing number of individuals engaging in gambling through digital applications (Chóliz, 2016; İli, 2024; İncekara & Taş, 2022; Öztürkmen, 2023), this study examines the mediating effect of online gambling addiction on the effect of future anxiety on academic underachievement. This study is significant as it reveals students' levels of future anxiety, perceived academic underachievement, and online gambling addiction. Additionally, by examining the effect level of online gambling addiction on academic underachievement, this study can serve as a guide for addressing online gambling addiction -a type of psychological addiction- through educational programs both in-school and out-of-school learning processes, alongside efforts to combat physical addictions such as smoking or alcohol consumption.

This study is based on four main objectives. The first of these is to determine the levels of future anxiety, perception of academic underachievement, and online gambling addiction among university students and the relationship between these variables. The second aim of the study is to determine the effect of university students' future anxiety on academic underachievement and online gambling addiction. The third aim of the study is to determine the effect of university students' online gambling addiction on academic underachievement. The fourth objective of the study is to reveal the mediating role of online gambling addiction in the effect of university students' future anxiety on academic underachievement. The research model determined in accordance with the purpose of the study is presented in Figure 1.

Figure 1. Research Model



The H1, H2, H3, and H4 hypotheses presented in the research model shown in Figure 1 are as follows:

There are many studies in the literature that reveal that anxiety about the future has an effect on academic failure. Examples of these studies are the studies conducted by Hammad (2016), Hodapp (1989), Karayaşar (2019), Polat (2017) and Topcu and Uzundumlu (2012). In addition, Arroyo et al. (2024) stated in their study that anxiety can be effective in perceived success. In this context, the H1 determined is as follows:

H1: Future anxiety among university students affects academic underachievement.

When the studies on gambling addiction and future anxiety in the literature are examined; many studies can be found that show that anxiety and especially future anxiety can have an effect on gambling addiction. Examples of these studies are the studies conducted by Coman et al. (1997), Hutul and Karner-Huțuleac (2022), Mueller et al. (2010) and Rizeanu, (2013). In this context, the H2 determined is as follows:

H2: Future anxiety among university students affects online gambling addiction.

There are many studies in the literature that show that gambling addiction has an effect on academic failure. Examples of these studies are the studies conducted by Gupta and Derevensky (2000), Jaisoorya et al. (2017), Vitaro et al. (2018) and Wahlström and Olsson (2023). In this context, H3 is determined as follows:

H3: Online gambling addiction of university students affects academic underachievement.

Since there are many studies in the literature showing that anxiety about the future has an effect on academic failure (Hammad, 2016; Hodapp, 1989; Karayaşar, 2019; Polat, 2017; Topcu & Uzundumlu, 2012) and gambling addiction (Coman et al., 1997; Hutul & Karner-Huţuleac, 2022; Mueller et al., 2010; Rizeanu, 2013) and because gambling addiction can affect academic failure (Gupta & Derevensky, 2000; Jaisoorya et al., 2017; Vitaro et al., 2018; Wahlström & Olsson, 2023), it was decided to test the hypothesis expressed as H4 in this study. Accordingly, the determined H4 is as follows:

H4: Online gambling addiction has a mediating role in the effect of university students' future anxiety on academic underachievement.

Method

Research design

Aiming to determine the mediating role of online gambling addiction in the effect of future anxiety among university students on their academic underachievement, this study employed a relational screening design. This design allows the researcher to test research hypotheses by revealing the relationship or effect between variables (Büyüköztürk et al., 2017; Creswell, 2017; Karasar, 2013).

Population and sample

The population for this study consists of a total of 21,476 students enrolled in the first semester (fall semester) of the 2024-2025 academic year of a state university operating in the Eastern Anatolia Region. Due to the size of the population and the impossibility of reaching the entire population, a simple random sampling method was used. The simple random sampling method ensures that every individual in the population has an equal opportunity to participate in the sample (Büyüköztürk et al., 2017), enhancing the reliability of the research. While the required sample size for this study, calculated with a 95% confidence level and a 5% margin of error, was at least 384 individuals, a total of 1,414 participants were reached. According to Joseph et al. (2019), a sample size exceeding 1,000 indicates an excellent level of sufficiency. Of the sample, 67.4% (f=953) were female and 32.6% (f=461) were male. Regarding educational level, 53.5% (f=757) were pursuing an associate degree, while 46.5% (f=657) were at the undergraduate level. In terms of academic performance, 21.9% (f=309) had a GPA of 2.0 or below, 66.8% (f=944) had a GPA between 2.0 and 3.0, and 11.3% (f=161) had a GPA between 3.0 and 4.0.

Data collection tool

Developed by Geylani and Çiriş-Yıldız (2022), the *Future Anxiety of University Students Scale* (FAS) is a measurement tool consisting of 19 items and 2 dimensions (1. Future Fear, 2. Despair of the Future). The scale has six reverse-coded items: 2, 4, 6, 8, 10, and 12). In their study on the validity and reliability of the FAS, Geylani and Çiriş-Yıldız (2022) found that the scale had an internal consistency coefficient of .91 with an explained variance load of 63.5% with its current structure. The fit indices reported by Geylani and Çiriş-Yıldız (2022) from the confirmatory factor analysis (CFA) conducted to assess the construct validity of the FAS were as follows: CMIN/df = 4.43, GFI = .86, CFI = .90, NFI = .88, TLI = .89, and RMSEA = .093. Although these values show that the FAS is a valid and reliable measurement tool, internal consistency coefficients were also calculated within the scope of this study to increase the reliability of the research results. In this study, internal consistency was .899 for the "future fear" dimension, .866 for the "despair of the future" dimension, and .934 for the total scale. These values reveal that the data obtained through the FAS are highly reliable.

Developed by Karaibrahimoğlu et al. (2021), the *Online Gambling Addiction Scale* (OGAS/ ÇKBÖ) is a measurement tool consisting of 21 items and 3 dimensions (1.Motivation, 2.Addiction, 3.Negative Psychology). In their study examining the validity and reliability of the OGAS, Karaibrahimoğlu et al. (2021) found that the scale had an internal consistency coefficient of .92 with an explained variance load of 65.4% with its current structure. They also conducted a confirmatory factor analysis (CFA) for the construct validity of the OGAS and reported the following fit indices: CMIN/df=4.25, GFI=.88, CFI=.96, RNI=.88, NFI-TLI=. 96-.96, RMSEA=.041., SRMR=.064. Although these values show that the OGAS is a



valid and reliable measurement tool, internal consistency coefficients were also calculated within the scope of this study to increase the reliability of the research results. In this study, the internal consistency was .955 for the "motivation" dimension, .922 for the "addiction" dimension, .917 for the "negative psychology" dimension, and .972 for the total OGAS. These values reveal that the data obtained with OGAS are highly reliable.

The Perceived Academic Underachievement Scale (PAFS), developed by Bozgün et al. (2022), is a six-item, single-dimension measurement tool. Item 2 in the scale is reverse-coded. In their study on the validity and reliability of the PAFS, Bozgün et al. (2022) reported an internal consistency coefficient of .80 and an explained variance of 57.0% for the scale's current structure. They also provided the following fit indices from the confirmatory factor analysis (CFA) conducted to assess the scale's construct validity: CMIN/df=1.76, GFI=.96, AGFI=.91, CFI=.98, IFI=.98, NFI=.96-.96, RMSEA=.076., RMR=.048. Although these values indicate that the PAFS is a valid and reliable measurement tool, internal consistency coefficients were recalculated in this study to further increase the reliability of the results. The analysis revealed an internal consistency coefficient of .835 for the PAFS, demonstrating that the data obtained through PAFS are highly reliable.

In addition, the construct validity of the data collection tools was also tested with CFA. The CFA results (fit indices) for each scale are presented in Table 1.

Table 1. DFA-Uyum İndeksleri (FAS-OGAS-PAFS)

Fit Indexes	Core Values*		Results			Evaluation		
	Good	Acceptance	FAS	OGAS	PAFS	FAS	OGAS	PAFS
CMIN/DF	$0 < \chi^2 / sd \leq 3$	$3 < \chi^2 / sd \leq 5$	4.972	4.919	3.842	Accept.	Accept.	Accept.
RMSEA	$0 \leq RMSEA \leq .05$	$.05 \leq RMSEA \leq .08$	.053	.053	.045	Accept.	Accept.	Good
GFI	$.90 < GFI \leq 1$	$.80 < GFI \leq .90$	.957	.951	.995	Good	Good	Good
AGFI	$.90 < GFI \leq 1$	$.80 < GFI \leq .90$	.930	.926	.981	Good	Good	Good
CFI	$.95 < CFI \leq 1$	$.90 < CFI \leq .94$	.975	.980	.995	Good	Good	Good
RMR	$0 \leq RMR \leq .05$	$0.05 \leq RMR \leq .10$	.057	.044	.031	Accept.	Good	Good
TLI	$.95 < TLI \leq 1$	$.90 < TLI \leq .94$	.963	.972	.988	Good	Good	Good
NFI	$.95 < TLI \leq 1$	$.90 < TLI \leq .94$	.975	.975	.994	Good	Good	Good
DF			116	153	6			
CMIN			576.809	752.656	23.055			

*Fit Index References:: (Hooper et al., 2008; Kline, 2011; Schermelleh-Engel & Moosbrugger, 2003)

When the data in Table 1 and the internal consistency coefficients were evaluated, it was deemed appropriate to proceed with the data analysis process by accepting the validity and reliability of the data collection tools.

The scales followed a five-point Likert structure (5 = Strongly Agree to 1 = Strongly Disagree). The rating ranges were classified as follows: 1.00–1.80 = Very Low, 1.81–2.60 = Low, 2.61–3.40 = Moderate, 3.41–4.20 = High, and 4.21–5.00 = Very High.

Data Analysis-Processing

In the data analysis, internal consistency coefficients were initially calculated to assess the reliability of the data obtained through the collection tools. Once the reliability of these tools was confirmed, the distribution of the data was examined. At this stage, the skewness and kurtosis values for the dimensions and the overall research scales were found to be within the range (Skewness=-.071/.644; Kurtosis=-.856/-.437). According to Tabachnick and Fidel (2013), skewness-kurtosis values between -1 and +1 indicate normal distribution. Therefore, it was assumed that the data were normally distributed and parametric statistical techniques were used in the study. Pearson's correlation (PC) coefficient (r) was calculated to determine the relationship between the variables used in the study (online gambling addiction, future anxiety, and perception of academic underachievement). Structural Equation Modeling (SEM) was used to analyze the direct and mediating effects of the relevant variables. At this stage, the stages specified by Hair et al. (2019) were taken into consideration. The analysis was performed using SPSS 22 and AMOS 20 statistical software. The data were collected between November and December 2024. Ethical principles were followed throughout the research process, as confirmed by the ethical compliance report obtained from the state university. The data obtained from the individuals participating in the study was not shared with any other person, institution or organization. During the data collection process, participants were informed about the purpose of the study and data



confidentiality. In this way, it was aimed to minimize/eliminate the prejudice that the participants may have.

Results

Descriptive statistical data of the scales (FAS, OGAS, and PAFS) used to examine the future anxiety, perceived academic underachievement, and online gambling addiction levels of university students are presented in Table 2.

Table 2. Descriptive Statistics

Scales	Dimensions/Overall Means	n	\bar{X}	sd	Level
FAS	Future Fear	1414	3.15	.82	Moderate
	Despair of the Future		3.19	.95	Moderate
	FAS (Mean)		3.16	.83	Moderate
OGAS	Motivation	1414	2.29	1.10	Low
	Addiction		2.33	1.12	Low
	Negative Psychology		2.34	1.13	Low
	OGAS (Mean)		2.31	1.04	Low
PAFS	PAFS (Mean)	1414	2.94	.91	Moderate

As shown in Table 2, the dimensions and overall means for the FAS [$\bar{X}_{\text{Future Fear}}=3.15/ss.82$, $\bar{X}_{\text{Despair of the future}}=3.19/ss.95$, and $\bar{X}_{\text{Overall}}=3.16/ss.83$] and the overall PAFS ($\bar{X}=2.94/ss.91$) were moderate, while OGAS dimensions and overall [$\bar{X}_{\text{Motivation}}=2.29/ss1.10$]; [$\bar{X}_{\text{Addiction}}=2.33/ss1.12$]; [$\bar{X}_{\text{Negative Psychology}}=2.34/ss1.13$]; [$\bar{X}_{\text{Overall}}=2.31/ss1.04$] were low. The results indicate that university students experience moderate levels of future anxiety and perceived academic underachievement, while their levels of online gambling addiction are low.

The "r" and "p" values of the relationship between university students' future anxiety, perceived academic underachievement, and online gambling addiction levels are presented in Table 3.

Table 3. Relationships Between the Scales

Scale/Dimension		FAS	OGAS	PAFS
FAS	r	1		
	p	-		
OGAS	r	.053*	1	
	p	.047	-	
PAFS	r	.355**	.260**	1
	p	.000	.000	-

*Significant at the $p<.05$ level, ** significant at the $p<.01$ level

As shown in Table 3, there was a moderate, positive, and significant relationship between university students' future anxiety and their perceived academic underachievement levels ($r=.355$, $p<.01$). Additionally, there was a weak, positive, and significant relationship between the future anxiety of university students and their online gambling addiction levels ($r=.053$, $p<.05$). Another result shown in the table is that there was a weak, positive, and significant relationship between the university students' perceived academic underachievement and their online gambling addiction levels ($r=.260$, $p<.01$).

Results for H_1

The results of the path analysis performed to test the H_1 : Future anxiety of university students affects academic underachievement are presented in Table 4 and Figure 2.

Figure 2. (PAFS \leftarrow FAS)

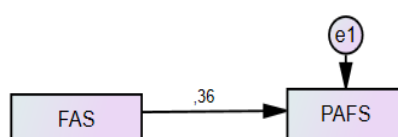


Table 4. (PAFS<- -FAS)

Analysis	Standardized Estimate(β)	S.E.	C.R.	p
PAFS<---FAS	.355	.027	14.283	***

According to Table 4 and Figure 2, the future anxiety of university students had a positive and significant effect on their academic underachievement ($\beta=.355$, $p<.001$). This result suggests that a 100-unit increase in future anxiety will cause a 35.5-unit increase in academic underachievement. Thus, **H₁** is supported.

Results for H₂

Table 5 and Figure 3 present the results of the path analysis that was conducted to test H2: future anxiety of university students affects online gambling addiction.

Figure 3. (OGAS<- -FAS)



Table 5. (OGAS<- -FAS)

Analysis	Standardized Estimate(β)	S.E.	C.R.	p
OGAS<---FAS	.053	.034	1.989	.047*

According to Table 5 and Figure 3, the future anxiety of university students had a positive and significant effect on online gambling addictions ($\beta=.053$, $p<.005$). This finding indicates that a 100-unit increase in future anxiety will cause a 5.3-unit increase in online gambling addiction, supporting H2.

Results for H₃

Table 6 and Figure 4 show the results of the path analysis performed to test H₃: Online gambling addiction of university students affects academic underachievement.

Figure 4. (PAFS<- -OGAS)

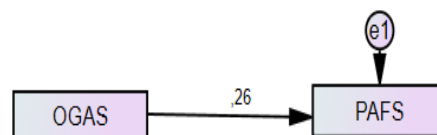


Table 6. (PAFS<- -OGAS)

Analysis	Standardized Estimate(β)	S.E.	C.R.	p
PAFS<---OGAS	.260	.022	10.132	***

According to Table 6 and Figure 4, it was determined that online gambling addictions of university students had a positive and significant effect on their academic underachievement ($\beta=.260$, $p<.001$). This finding indicates that a 100-unit increase in online gambling addiction will cause a 26-unit increase in academic underachievement, supporting H3.

Results for H₄

Table 7 and Figure 5 show the results of the path analysis conducted to test the H4: Online gambling addiction has a mediating role in the effect of university students' future anxiety on academic underachievement.

Figure 5. (PAFS<-- --OGAS)

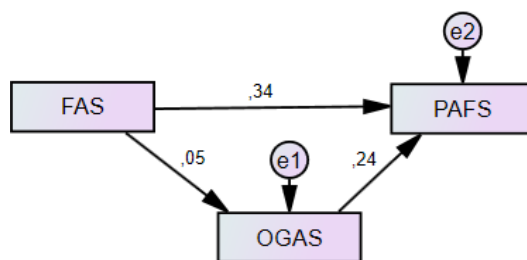


Table 7. (PAFS<-- --OGAS)

Structural Relationship	Standardized Estimate(β)	S.E.	C.R.	p
PAFS<---FAS	.342	.026	14.234	***
PAFS<---OGAS	.242	.021	10.066	***
OGAS <---FAS	.053	.034	1.989	.047*

In Table 7 and Figure 5, to examine the mediating role of online gambling addiction in the effect of university students' future anxiety on academic underachievement, the effect of future anxiety on academic underachievement was first analyzed by excluding online gambling addiction. The results in Table 4 revealed that future anxiety had a positive and significant effect on academic underachievement ($\beta=.355$, $p<.001$). Additionally, according to the model in Figure 5 showing the mediating role online gambling addiction plays in the effect of future anxiety on academic underachievement, it was determined that future anxiety had a positive and significant effect on academic underachievement ($\beta=.342$, $p<.001$). With the inclusion of the mediator variable, online gambling addiction, in the model, the effect of future anxiety on academic underachievement decreased. This indicates that online gambling addiction plays a partial mediator role in the effect of future anxiety on academic underachievement, supporting H4.

Discussion and Conclusions

In this study, which was designed to examine the mediating effect of online gambling addiction on the effect of future anxiety on academic underachievement with four hypotheses, 1414 university students were reached. The obtained data were analyzed using parametric statistical techniques. According to the analysis, the levels of academic underachievement perceived by the students and their future anxiety were moderate, and their online gambling addiction levels are low. While these results reveal that students evaluate their academic underachievement as moderate and have moderate levels of future anxiety, their levels of online gambling addiction are low. The analyses performed to examine the relationship between the variables showed that there was a moderately positive and significant difference between future anxiety and perceived academic underachievement, a weak, positive, and significant difference between future anxiety and online gambling addiction, and a weak, positive, and significant relationship between perceived academic underachievement and online gambling addiction. Moreover, the order of the research hypotheses was followed to ensure clarity, transparency, and simplicity in the presentation of the results obtained by testing the research hypotheses. Accordingly, the first hypothesis, H₁: Future anxiety of university students affects academic underachievement, was tested, and it was concluded that students' future anxiety has a positive and significant effect on their academic underachievement. Then, the second hypothesis of the study, H₂: Future anxiety of university students affects online gambling addiction, was tested, and it was concluded that students' future anxiety has a positive and significant effect on online gambling addictions. Next, the third hypothesis of the study, H₃: Online gambling addiction of university students affects academic underachievement, was tested, and it was concluded that online gambling addictions of students have a positive and significant effect on their academic underachievement. Lastly, H₄: Online gambling addiction has a mediating role in the effect of university students' future anxiety on academic underachievement was tested, and it was concluded that online gambling addiction plays a partial mediator role in the effect of students' future anxiety on academic underachievement. Overall, hypotheses H₁, H₂, H₃, and H₄ were supported. These

results reveal that as students' anxiety about the future increases, their academic underachievement and online gambling addictions increase. On the other hand, it was determined that an increase in students' online gambling addiction levels affects their perceived levels of academic success. It was also found that online gambling addiction has a partial mediating effect on the effect of students' future anxiety on their perception of academic underachievement. For better understanding of the study results' position within the literature, the results of this study were compared with the results of other studies in the literature. In this context, Akpur (2015), Azher et al. (2010), Doğan, (2008), Hammad (2016), Hewitt and Stephenson (2012), Hodapp (1989), Karayaşar (2019), Nishitani and Toshiki (2011), Polat (2017), and Topcu and Uzundumlu (2012) found negative relationships between the anxiety levels of university students and the levels of academic success, reporting that as the anxiety level increases, the success level decreases. Altıntaş (2018), Blaszczyński and McConaghy (1989), Kerber et al. (2008), and Ste-marie et al. (2002) reported in their study that there is a positive relationship between anxiety and gambling addiction, and that as the anxiety level of the individual increases, gambling addiction also increases. Mohd-Shukry et al. (2024), Nderitu et al. (2024), Nnebe and Obikeze (2024), Yesilyurt (2020), and Zhu (2024) revealed in their studies that gambling addiction has a negative correlation with academic success and that as the tendency/addiction to gambling increases, academic success decreases. When the relevant literature is evaluated, it can be stated that the results obtained with the subjects and variables discussed in this study (future anxiety, academic underachievement, and online gambling addiction) are frequently supported by the literature. In other words, the results of this study align with the results of the studies found in the literature.

On the other hand, it has been determined that future anxiety or online gambling addiction does not only affect the academic failure of university students, but also affects their life satisfaction (Dursun & Özkan, 2019), happiness (Gedikli & Akdoğan, 2023), depression and stress levels (Dağtekin et al., 2020), loneliness (Tekindal & Çalışkan, 2016) and technology addiction (Akay et al., 2023). Therefore, this study can contribute to coping with future anxiety, which is frequently encountered by students studying at higher education level. On the other hand, the results of the study reveal the spread of online gambling addiction among university youth. For this reason, it is recommended that public institutions and organizations urgently start combating online gambling. In other words, in addition to carrying out activities such as public service announcements, social media, seminars-conferences, etc., it can be recommended that educational programs be organized (preparation of lessons/subjects/units and/or content related to gambling addiction).

Recommendations

The findings of this study were assessed, and recommendations were provided for the literature, researchers, educational stakeholders including teachers, academics, decision-makers, and students. Accordingly, it can be recommended that the reasons that lead students to online gambling be determined, and universities organize more frequent activities (festivals, sports activities, club activities, cultural and artistic events such as theatre, cinema, and concerts, etc.) to ensure that extracurricular time is spent more effectively and efficiently. Moreover, the factors contributing to future anxiety in students can be identified, and studies, planning, or regulations can be implemented on a national scale to mitigate these factors. It can also be recommended that the necessary psycho-social support for individuals experiencing problems such as future anxiety or gambling addiction can be provided. Various events (seminars, conferences, etc.) can be held to combat online gambling and other addictions and raise awareness. Additionally, access to digital platforms that provide access to online gambling can be blocked on a national scale, and necessary changes in the legislation in this context can be made. Similar studies can be conducted on different types of addictions that students have (internet-technology-smartphone addiction, drug addiction, shopping addiction, alcohol-cigarette-tobacco addiction, food addiction, etc.). Higher education institutions, like other educational levels, can offer guidance and psychological counseling services. In this way, individuals with future anxiety, individuals with online gambling addiction, and other addiction-mood disorders can be identified and directed to the necessary services. While the main population in the study consisted of 21,476 students, all of whom were enrolled in the first semester (fall semester) of the 2024-2025 academic year, the sample consisted of 1414 students. Therefore, future studies on this topic can be conducted with different populations and at different education levels. As this study used a quantitative-relational



survey design, it cannot reveal causality or conduct in-depth analysis. Experimental designs can be used to study causality, and studies with qualitative or mixed-methods designs can be conducted for in-depth analysis.

As in every study, there are some limitations in this study. The first of these limitations stems from the universe and sample of the study. The universe and sample of the study consist of students enrolled in the fall semester of the 2024-2025 academic year at a state university operating in the east of Turkey. In order to minimize this limitation of the study, an attempt was made to reach as many individuals as possible and data was obtained from 1414 individuals. For this reason, it is recommended that similar studies be conducted in different periods/years, regions or universities or educational institutions at other levels. The study data are limited to the statements in the data collection tools. Validity/reliability analyses were applied to ensure that the data obtained with the data collection tools could respond correctly to the research hypotheses and not lead to Type 1 and Type 2 errors.

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