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SPORT PSYCHOLOGY | RESEARCH ARTICLE

Investigation of problematic internet use behaviors of athletes in terms of personality traits

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Abstract: The aim of study is to reveal the relationship between the personality traits of athletes and problematic internet use (PIU), and in this way, to reveal which personality traits athletes tend to PIU. A total of 428 athletes, 204 (47.7%) males and 224 (52.3%) females, who were engaged in amateur and professional level sports in various sports clubs, participated in the study. “Internet Addiction Scale” was used to determine the PIU status of the participants and “Five Factor Model of Personality Scale” was used to determine the personality characteristics. The step-wise regression method was used to determine the level of predicting PIU of personality traits. As a result of the analyzes, it was determined to what extent the variables of extraversion, agreeableness, conscientiousness, neuroticism, openness, and gender predicted PIU and as a result of this process, $R = .798$, $R^2 = .637$. As a result, it was seen that 63.7% of the total variance in the PIU of the athletes was explained by the personality traits.

Subjects: Exercise Psychology; Sport Psychology; World Wide Web & Internet

Keywords: internet addiction; personality; extraversion; technology; problematic internet use



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PUBLIC INTEREST STATEMENT

There are 59% of the 7.75 billion world population, ie 4.54 billion internet users. Despite the many benefits of widespread internet use, there are also negative consequences of overuse. One of the most important problems caused by easy access to the internet is “Problematic Internet Use (PIU)”. The widespread PIU has a negative impact on sports fields in addition to business life, social relations and professional development. Spending excessive time on the internet causes communication, concentration, and focusing problems on athletes. The aim of this study is to determine the PIU levels of athletes and to reveal the personality traits that affect PIU. In this way, coaches will be able to make predictions about which personality type athletes may tend to PIU by performing personality analysis of athletes. As a result of the analysis, these athletes will be prevented from turning into problematic internet users in the future.

1. Introduction

With the development of technology, the rapid increase in internet usage worldwide has caused the number of Internet users worldwide to reach three billion (InternetWorldStats, 2019). Supporting individuals' access to information, research, personal development such as problem solving, creativity and critical thinking are among the main reasons for this development (Berson & Berson, 2003; Kubey, 2002). In addition to facilitating social life, contributing to the social and personal development of the Internet, it also brings some risks. It is stated that due to excessive and out of purpose use of the internet, it affects the development of personal skills negatively, (Colwell & Kato, 2003; Kerber, 2005) and causes PIU (Chou et al., 2005; Nalwa & Anand, 2003).

It is suggested that PIU causes anxiety disorder, sleep problems, depression, and problematic relationships with family and friends (Ceyhan, 2011; Solmaz et al., 2011). Currently, the DSM-5 does not include internet addiction or intensive internet use as an addictive disorder, nor does it include internet consumption in general within the "behavioral addictions" (APA, 2013; Lenihan, 2007; Young, 2010). PIU and Internet addiction are frequently used interchangeably. However, in order to avoid current discussions about whether behavioral addiction exists, problematic use terminology is widely preferred instead of addiction. PIU; functional disorder and mental distress of daily activities due to an individual's inability to control excessive internet use (Douglas et al., 2008). In other words, the desire to overuse the internet in general cannot be prevented, the time spent without being connected to the internet loses its importance, the state of extreme irritability and aggression when deprived, and the gradual deterioration of the person's social, family and business life (Aksoy, 2009). There have been many studies on PIU in the last 10 years (Castille & Sheets, 2012; Peters & Malesky, 2008; Phillips, 2014; Young, 2004).

PIU can be seen at any age, but adolescents and young people are regarded as one of the important risk groups (Öztürk et al., 2007). The close attention of individuals in this category to technology, using the internet more than other age groups, and continuing their cognitive, emotional, and social development cause individuals in this development period to become a risk group for PIU (Ceyhan, 2008; Yang & Tung, 2007). Young people tend to use the internet as a form of socialization (Arnett & Tanner, 2006).

In a study on adults, excessive internet use was reported to be associated with problems such as unemployment, marital problems, child neglect, sleep disturbance (Young, 1998). PIU in South Korea started to be considered as a public health problem after a murder due to ten cardiopulmonary deaths and games that occurred in the internet cafe (Block, 2008; Choi, 2007; Koh, 2007). Cerniglia et al. (2019) examined unique patterns of psychopathological risks, similar levels of impulsivity, internet gaming disorder (IGD), and social media addiction (SMA) features using the latent profile analysis to identify different adolescent profiles. According to the findings, technology-based addictions such as IGD, and SMA have been found to have similar properties. To prevent these addictions, it is suggested that intervention program designs with similar characteristics will be more effective in obtaining results.

It is stated in the studies that personality types are one of the main factors affecting components related to PIU (Weibel et al., 2010). In other words, personal features significantly affect the behavior of internet users (Kayis et al., 2016).

Personality is one of the broadest concepts in psychology. Every property that belongs to a person and defines it, helps us to know and understand that person (Sarıcaoğlu, 2011). In this sense, personality; is a term that includes the characteristics of a person's all interests, attitudes, abilities, way of speaking, appearance and adaptation to his environment (Burger, 2006). The purpose of scientific studies on personality; to reveal the order of the person in emotions, thoughts and observable behaviors. Thus, it is possible to make an estimation about the emotions, thoughts and behaviors of the individual.

Various personality theories have been developed to reveal individual aspects of behavior and distinguish the individual from others. The most prominent of these theories is the *distinguishing feature theory* put forward by Allport (1961). According to this theory, human behavior is unique and the most important term in analyzing individual differences of behavior is the concept of distinguishing feature. According to this theory, human personality is a closed and unique system. Here, interpersonal relations, culture and roles are sources that provide information about human personality, but not directly. Individuals' motives, traits or tendencies, and personal style are the most important parts of personality (Yanbasti, 1996).

The distinctive feature studies that started with Allport and continued with Cattell and Eysenck and efforts to determine the basic dimensions of personality reached a new point in the late 1970s and early 1980s with the research of Robert McCrae and Paul Costa. McCrae and Costa observed that personality consists of five factors: extraversion, neuroticism, openness, agreeableness and conscientiousness, and developed a test that measures these five dimensions (Alacatlı, 2013; R. R. McCrae & Costa, 1985). Extraversion sub-dimension consists of features such as being energetic, talkative, friendly, excited and enthusiastic and social. Individuals with high levels of extraversion are considered as sympathetic individuals who can easily relate to people, who love being with people, are prone to cooperation (Benet-Martinez & John, 1998; Somer et al., 2002). Neuroticism includes personality traits such as being depressed and sad, tense, anxious, often experiencing emotional ups and downs, anxiety, restlessness and impatience (Balcanlı et al., 2009; Benet-Martinez & John, 1998). Conscientiousness consists of features such as being disciplined, task awareness, responsible, regularity, careful and careful (Balcanlı et al., 2009; Costa Jr. & McCrae, 1995). Openness consists of personality traits such as engagement, curiosity, openness to innovation, independence, creativity, openness to change (Benet-Martinez & John, 1998; Costa Jr. & McCrae, 1995; Somer et al., 2002). The last component of the model is called agreeableness. The personality traits that make up this component can be listed as charity, forgiveness, kindness, tolerance, respect and flexibility (Balcanlı et al., 2009).

The performances of athletes depend not only on their physical and physiological characteristics, but also on their psychological characteristics. Today, studies in sports psychology have focused on psychological skills such as self-confidence, imagination, coping with stress, concentration, and goal setting. However, now the athletes spend a lot of time on the internet and telephone during their time out of the training competition. This situation creates an obstacle for the preparation of athletes psychologically and mentally. In the literature review, although there are many studies on the effect of problematic personality traits on PIU (Chak & Leung, 2004; Davis et al., 2002; Dieris-Hirche et al., 2020; Mottram & Fleming, 2009; Peters & Malesky, 2008; Shi et al., 2011; Velezmoro et al., 2010; Zhou et al., 2019), no study on the internet addiction levels of athletes and personality traits affecting this was found.

The aim of this study is to determine the PIU levels of athletes and to reveal the personality traits that affect PIU. In the light of the information obtained as a result of this study, coaches and sports psychologists will be able to understand which type of athletes are prone to PIU and provide extra psychological support for athletes with this personality feature.

2. Method

2.1. Research design

In the study, relational survey model was employed. Survey model allows the quantitative description of the universe through the research conducted on the sampling (Cresswell, 2012). In relational survey studies, the purpose is to determine the relationship between different variables. The mentioned method was chosen to determine the power of personality traits and gender to predict PIU.

2.2. Participants

428 amateur and professional athletes engaged in sports in various branches in Erzurum province, including 204 men (47.7%) and 224 women (52.3%). This information was informed before

applying the scales determined in the participating athletes. Written informed consent form was received from all participants.

2.3. Measurement tools

Internet Addiction Scale: In the research, "Internet Addiction Scale", which was developed by Hahn and Jerusalem (2001) and later validated in Turkish by Şahin and Korkmaz (2011), was used to determine the PIU levels of individuals. The lowest score that can be obtained from the scale is 19 and the highest score is 95. The reliability coefficient of the scale was found as (Cronbach Alpha) .858.

Five Factor Model of Personality Scale: "Five Factor Model of Personality Scale" developed by Robert R. R. McCrae and Costa (1987) was used for the personality test of the participants. The developed scale consists of 40 items and five sub-dimensions. These sub-dimensions are "Neuroticism", "Extraversion", "Openness", "Agreeableness", "Conscientiousness".

2.4. Analysis of data

It was determined that the data provided normal distribution assumptions by looking at skewness and kurtosis values. Accordingly, the Independent-Samples T Test, a parametric test, was used to compare personality traits and PIU in terms of gender variable. In addition, variance inflation factor (VIF) and tolerance values were checked to control multicollinearity, which is one of the multiple regression analysis assumptions. It was observed that all VIF values were less than 10 (between 1.18 and 2.20) and tolerance values were between .45 and .84. In addition, the Durbin-Watson test was applied to the data to see that these values were 1.82 and as a result, there was no autocorrelation in the data. Pearson Correlation analysis was conducted to determine the relationship between the variables. Pearson Correlation analysis was performed to determine the relationship between PIU and personality traits. Then, multi-directional regression analysis was applied to determine the extent to which independent variables such as neuroticism, extraversion, openness, agreeableness and conscientiousness, which are sub-dimensions of personality type, are predictive of PIU. The stepwise regression method was applied to determine which of the independent variables made a significant contribution to predicting PIU. Using Stepwise regression, variables contributing significantly to predicting PIU and their contribution to the total variance explained in predicting PIU were determined. In this study, the level of significance was accepted as 0.05.

2.5. Findings

The comparison of PIU and personality types of the participants in terms of gender is given in Table 1.

When Table 1 is examined, it is seen that PIU is higher in male athletes compared to female. In addition, it is seen that female athletes have more extraversion, conscientiousness and openness to experience personality traits than male. Neuroticism personality traits are seen more than male athletes.

Pearson correlation values between the PIU scores and personality types of the participants are given in Table 2.

When Table 2 is analyzed, it is seen that there is a highly significant correlation between the PIU and extraversion ($r = -.686$, $p < .05$), agreeableness ($r = -.387$, $p < .05$), conscientiousness ($r = -.494$, $p < .05$), openness ($r = -.545$, $p < .05$) and gender ($r = -.370$, $p < .05$) variables, and a positive and significant positive relationship between the neuroticism variable ($r = .508$, $p < .05$).

Multiple regression analysis results for determining the power of personality traits to predict PIU are shown in Table 3 and Table 4.

When Table 4 is examined, the extent to which the predictors of PIU extraversion, agreeableness, conscientiousness, neuroticism and openness are determined by applying linear multiple

Table 1. Comparison of PIU and personality traits in terms of gender variable

	Gender	n	x	ss	t	p
PIU	Male	255	2.95	0.60	9.316	.000***
	Female	280	2.39	0.77		
Extraversion	Male	255	4.21	1.03	-3,828	.000***
	Female	280	4.62	1.38		
Agreeableness	Male	255	4.25	1.47	-0,664	.507
	Female	280	4.33	1.40		
Conscientiousness	Male	255	4.07	1.32	-5,221	.000***
	Female	280	4.67	1.34		
Neuroticism	Male	255	3.13	0.96	2,923	.004*
	Female	280	2.88	0.98		
Openness	Male	255	3.89	1.32		
	Female	280	4.65	1.05	-7,260	.000***

*p < 0.05, ***p = 0.000

regression and as a result of this process, $R = .798$, $R^2 = .637$. As a result, it was observed that 63.7% of the total variance in PIU was explained by these variables. As a result of the analyzes, it was determined that the effect size was high.

Stepwise regression was used to determine the variables that contribute significantly to predicting PIU and their contribution to the total variance explained in predicting PIU, and the results are shown in Table 5 and Table 6.

In the first model, extraversion regression equation was entered and 47.7% of the variance in PIU was explained by the extraversion variable ($R = .691$, $R^2 = .477$). In other words, the strongest predictor of the PIU variable is determined as the extraversion variable. The direction of the beta value is negative (-), there is an inverse relationship between extraversion and PIU; As the extraversion score increases, PIU rates decrease.

In the second regression model, the neuroticism variable was added to the model after the extraversion variable, and the variance explained in the PIU score increased from 47.7% to 56.1% ($R = .749$, $R^2 = .561$). In other words, the neuroticism variable contributes approximately 9% to the explained variance. Beta value of the neuroticism variable (.235) shows that the relationship between neuroticism and PIU is positive, and PIU score increases as neuroticism score increases.

In the third regression model, the gender variable was added to the extraversion and neuroticism variables. As a result of this addition, the variance explained in the PIU score increased from 56.1% to 61.9%. The Beta value (-.367) of the gender variable indicates that the relationship between gender and PIU is negative. This shows that female contribute negatively to PIU.

In the fourth regression model; The conscientiousness variable has been added to the model and as a result, it has made a 1.3% contribution to the variance explained in the PIU score, increasing it to 63.2%. The data obtained showed that there is a negative relationship between conscientiousness and PIU.

Finally, as a result of adding the openness variable to the model in the fifth regression model, the explained variance of the PIU score increased up to 63.7%. According to the data obtained, there was a negative relationship between openness and PIU.

3. Discussion

In the study, the effect of the personality traits of athletes on PIU was examined. In the study, it was observed that the PIU variance, which is determined as dependent variable, which is an independent variable, predicts 63.7%.

Extraversion was found to be the biggest contributor to the total variance. It is known that individuals with high personality traits such as extraversion are excited, talkative, and sociable (Kutlu & Pamuk, 2017). As the person's extraversion feature increases, a decrease in PIU is observed. In this context, there is a negative relationship between them. This result obtained in the research supports the "social compensation hypothesis". This hypothesis argues that PIU is mostly observed in introverted individuals (McKenna & Bargh, 2000). The studies carried out within the framework of this hypothesis argue that anonymity and the ability to hide the identity of the person increase the self-disclosure behavior of the online person, since the anxiety of rejection and mockery of the introverted individual decreases (Batigün & Kılıç, 2011; Pennebaker, 1989). When the field article is examined, the previous studies support the findings (Anderson, 2008; McElroy et al., 2007; Puerta-Cortes & Carbonell, 2014; Servidio, 2014; Van Der Aa et al., 2009).

Contrary to the social compensation hypothesis, according to the "social network theory", individuals with high extraversion feature tend to have PIU. This theory argues that personality traits are the most important factor that determines motivation and behavior especially in social interaction. Extraversion individuals like to initiate social interaction and are particularly successful in this interaction than introverted individuals. This theory argues that the internet primarily benefits extraversion individuals. It is stated that extraversion individuals need to communicate more than introverted individuals and therefore use the internet for more interaction (Robert R R. McCrae & Costa, 1987). Research conducted in line with this hypothesis (Hwang et al., 2014; Rahmani & Lavasani, 2011) found that there is a positive relationship between PIU. Researches conducted in line with this hypothesis found that there is a positive relationship between PIU and its feature (Batigün & Kılıç, 2011). These results are in contradiction with the findings obtained in the study.

Another independent variable that makes the biggest contribution to total variance is neuroticism. Neuroticism; can be characterized as anxiety, anxiety and anxiety (Roberts et al., 2015). According to the analysis, as the neuroticism features of the individual increases, it becomes more prone to PIU. Neuroticism makes the person inclined to use excessive technology in general. Individuals with neuroticism in this way tend to communicate with other people through communication tools such as mobile phones, computers or social media, rather than communicating face to face with others. Some studies (Batigün & Kılıç, 2011; Hardie & Tee, 2007; Kraut et al., 2002; Morsünbül, 2014; Wolfradt & Doll, 2001) showed that the neuroticism variable positively affects internet addiction, while the extraversion variable negatively. The results of this study support the findings obtained.

According to another result of the research, it was found that conscientiousness personality factor was statistically significantly negative predicting PIU. According to the results obtained, individuals with higher conscientiousness feature were found to have low PIU tendencies. Conscientiousness feature of the individual; connected with self-discipline, task orientation and cautiousness (Lopes et al., 2003). Conscientiousness individuals try to fulfill the given work meticulously (Merdan, 2013). Individuals with low responsibilities tend to take unplanned and unscheduled action (Demirhan et al., 2016). In this context, individuals who have not developed the conscientiousness feature do not do the work that should be done in their daily lives, and show deferring behaviors. They tend to use excessive internet instead of doing their daily work, especially because the internet is becoming widespread and accessible from anywhere. When the literature was examined, it was understood that this result obtained was similar to the results of previous studies (Batigün & Kılıç, 2011; Morsünbül, 2014).

Openness, on the other hand, expresses the characteristics of people being adventurous, open to innovations, imaginative and curious about new things. Individuals with high openness feature like to

Table 2. Mean and standard deviations of dependent and independent variables and correlation results between variables

	\bar{X}	ss	1	2	3	4	5	6
1. PIU	2.65	0.74						
2. Extraversion	4.26	1.36	-.686**					
3. Agreeableness	4.29	1.43	-.387**	.657**				
4. Conscientiousness	4.27	1.31	-.494**	.664**	.528**			
5. Neuroticism	2.99	0.98	.508**	-.366**	-.154**	-.272**		
6. Openness	4.28	1.24	-.545**	.664**	.606**	.571**	-.177**	
7. Gender	-.370**	.161**	.029	.220**	-.126**	.303**		

n = 428, **p < 0.001

Table 3. Predicting levels of variable PIU

R	R ²	Adjusted R ²	Std. Error
.798	.637	.633	.453

take risks and seek to enjoy life. Individuals with this low quality prefer situations they are familiar with in their lives and are reluctant to new experiences unless they have to (Anthony et al., 2000). According to the findings, individuals with high openness feature had low PIU habits. When the literature was examined, it was determined that the openness variable predicted PIU negatively (Durak & Senol-Durak, 2014; McElroy et al., 2007). On the other hand, there are studies that find that this variable positively predicts PIU (Kuss et al., 2013; Rahmani & Lavasani, 2011; Tuten & Bosnjak, 2001).

Agreeableness individuals are not competitive and do not easily conflict (Kayis et al., 2016). Aggregated individuals who are characterized by high compassion and tolerance avoid behaviors such as pressure and use of force (Robert R R. McCrae & Costa, 1987). In studies related to the subject, it has been determined that the agreeableness variable predicts PIU negatively. (Anderson, 2008; Puerta-Cortes & Carbonell, 2014; Randler et al., 2014; Servidio, 2014; Van Der Aa et al., 2009). In other words, individuals with low agreeableness feature tend to have PIU. (Kayis et al., 2016).

Another finding of the study is the differences in personality traits and PIU in terms of gender. The findings show that male athletes tend to use more PIU than female. In addition, while positive

Table 4. β and Beta correlation coefficients and significance levels of variables

	B	Std. Error	β	t	p
(Constant)	4.170	.134	31.204	.000	
Extraversion	-.271	.023	-.451	-11.579	.000
Agreeableness	.027	.019	.051	1.412	.159
Conscientiousness	-.074	.019	-.135	-3.932	.000
Neuroticism	.209	.022	.274	9.568	.000
Openness	-.061	.024	-.101	-2.554	.011
Gender	-.306	.043	-.204	-7.180	.000

Table 6. β and Beta correlation coefficients and significance levels of variables

Model		B	Std. Error	β	t	p
1	(Constant)	4.496	.087	51.908	.000	
	Extraversion	-.416	.019	-.691	-22.053	.000
2	(Constant)	3.511	.126	27.862	.000	
	Extraversion	-.352	.018	-.585	-19.130	.000
	Neuroticism	.235	.023	.308	10.068	.000
3	(Constant)	4.027	.131	30.809	.000	
	Extraversion	-.332	.017	-.552	-19.209	.000
	Neuroticism	.220	.022	.288	10.087	.000
	Gender	-.367	.041	-.245	-9.004	.000
4	(Constant)	4.188	.134	31.332	.000	
	Extraversion	-.289	.020	-.481	-14.742	.000
	Neuroticism	.205	.022	.268	9.421	.000
	Gender	-.340	.041	-.227	-8.405	.000
Conscientiousness	-.079	.018	-.144	-4.384	.000	
5	(Constant)	4.188	.133	31.443	.000	
	Extraversion	-.264	.023	-.438	-11.559	.000
	Neuroticism	.211	.022	.276	9.657	.000
	Gender	-.319	.042	-.213	-7.661	.000
Conscientiousness	-.069	.018	-.125	-3.715	.000	
	Openness	-.049	.022	-.081	-2.189	.029

personality traits such as Extraversion, Conscientiousness and Openness are more dominant in female, Neuroticism with negative personality trait is more dominant in male. There is evidence that male are more aggressive than female in interpersonal relationships (Card et al., 2008). With this aspect, the findings obtained from the study are similar to the literature. However, the opposite is found in the literature in the findings. For example, Zimmer-Gembeck et al. (2013) revealed that female are more aggressive in interpersonal relationships than male. In addition, it is seen in the studies that female show positive personality traits such as conscientiousness, openness, extraversion more than male, and negative personality characteristics such as neuroticism show male more dominantly (Branje et al., 2007; Kokkinos et al., 2017; R. R. McCrae et al., 2002). Lacey et al. (2020) argue that this distinction between genders in personality traits stems from female having more religious and spiritual values. Another striking finding of the study is that male athletes tend to PIU more than female. (Lozano-

Table 5. Stepwise regression analysis results regarding PIU

Model	R	R ²	Adjusted R ²	Std. Error
1	.691	.477	.476	.541
2	.749	.561	.559	.496
3	.787	.619	.617	.463
4	.795	.632	.630	.455
5	.797	.636	.632	.453

Blasco & Cortes-Pascual, 2020) revealed that male are more vulnerable to PIU than female. In the same study, it is suggested that the gender variable is a moderate predictor of PIU.

As a result, it was observed that there is a relationship between PIU and personality traits. It has been determined that individuals with Neuroticism and Agreeableness personality are prone to PIU. Coaches and sports psychologists need to know the athletes with this personality feature in the team and follow these athletes firmly about PIU. It should be considered that Agreeableness athletes are timid about fighting and fighting, and in this direction, extra psychological support should be given to the athletes with this personality trait for motivation.

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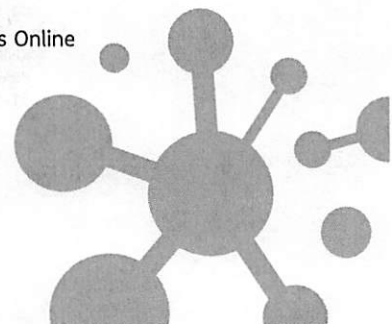


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