



## Research Article

# Netlessphobia based on personality traits in university students

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### Article Info

Received: 24 April 2023

Accepted: 15 June 2023

Online: 30 June 2023

### Keywords:

Conscientiousness

Digital Addiction

Netlessphobia

Neuroticism

Personality Traits

### Abstract

Netlessphobia, also known as the fear of being without the Internet, is one of the new and important behavioral disorders of the digital age. The relationship between netlessphobia and similar behavioral disorders and personality traits of individuals has been intensively studied in recent decades. The study aim to determine the relationship between personality traits and netlessphobia. The crosssectional study was completed by 770 university students. The study data were obtained by face-to-face data collection using the Firat Netlessphobia Scale, the Big Five Personality Inventory, an 11-question questionnaire prepared by the researchers, and examining the sociodemographic characteristics and internet usage habits of the participants. Descriptive (number, percentage, mean, standard deviation) analyses, Pearson correlation analysis and hierarchical regression analysis were performed. A statistically significant positive correlation between netlessphobia and neuroticism, and a negative correlation with conscientiousness was found. There was no significant relationship between other personality types and netlessphobia. A negative correlation was determined between neuroticism and other personality types. As a consequence of hierarchical regression analysis, it was observed that neuroticism increased the netlessphobia score while conscientiousness decreased. There was no significant relationship between other personality types and netlessphobia. Social and mental health support programs for students with a high level of neuroticism will also benefit from controlling their netlessphobia level. The positive effect of neuroticism and the negative effect of conscientiousness with the level of netlessphobia should be taken into account in social and mental health support programs.

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### To cite this article

Onal, O., Coban, B., Dogan, E., Akyol, M.H., Yalcinkaya, F.E., Kisioglu, A.N., & Uskun, E. (2023). Netlessphobia based on personality traits in university students. *Psychology Research on Education and Social Sciences*, 4(2), 28-38.

## Introduction

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The invention of the computer and the internet is an essential milestone of the information age. According to the Digital 2021 report, there are 5.22 billion mobile phones and 4.66 billion internet users worldwide (Social, 2021). Additionally, there are 4.20 billion active social media users. In favor of these technological developments advancing at an incredible pace in the 21<sup>st</sup> century, computers have become an irreplaceable part of our lives in many fields, including health, education, transportation, industry, culture, and art. The digital world has become portable in our pockets; as computers, tablets, and smartphones have become portable in size, their numbers and quality have increased, and the communication network has become widespread. People have started to efficiently carry out activities such as shopping, bank transactions, online classes, e-mails, and ticket reservation activities while sitting. As a result of all the conveniences mentioned above, the daily internet usage time (6H 54Minute) with all devices has now become more than twice the television time (3H 24 Minutes). In the Digital 2021 report, it was also stated that the increase in internet usage in 2020 was approximately four times higher than the increase in mobile phone usage (Social, 2021). With the internet entering every pocket and becoming an essential part of our lives, a new phenomenon "netlessphobia" has been introduced to users' lives.

Netlessphobia is one of the diseases caused by technology; generally, it can be expressed as the fear of not having access to the internet (Guney, 2017). Today, in parallel with excessive use of social networks that people perceive as socialization, individuals want to spend a long time on the internet for reasons such as; the desire to be constantly in the virtual environment, hiding their identity, and avoiding face-to-face communication (Guney, 2017). Thus, individuals look out for not having internet access and are careful not to be in an internetless environment. Netlessphobia, rather than excessive use of the internet, is defined as the inability of a person to stay in an environment where there is no internet and being worried about internet deprivation (Ozturk, 2015). In the assessment of netlessphobia; in addition to the fear of not having internet access, factors such as individuals using more than three smart devices with internet connection all at once, being online for at least 8 hours a day and making at least 20 social interactions a day are taken into account. Personality traits of individuals may affect susceptibility to netlessphobia.

Personality can be described as qualities that express individuals' thoughts, attitudes and behaviors in the face of events and distinguish them from others (Sallquist et al, 2009). Personality traits affect behaviors and attitudes; in this respect, these traits can be associated with many aspects. The "big five personality model" is frequently used to describe personality traits owing to its broad framework and measurement complexity. It has limited personality traits under the following five topics: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (McCrae & Costa, 1997). While extraversion is defined as being talkative, active, social and good (Barrick & Mount, 1991), conscientiousness; tendency to control impulses, exhibiting socially acceptable behaviors (McCrae & Costa, 2003), openness; willingness to explore new things and acquire different skills (McCrae & Costa, 1997), and agreeableness can be described as compassion, emotional support, and the ability to find common ground with others (Digman, 1990). Neuroticism, the last topic of the five-factor personality model, can be explained as not being emotionally balanced and more fragile (Costa et al, 1995).

Personality traits have an impact on technology dependent behavioral disorders and addiction. In the literature, It is stated that neuroticism increases facebook and social media addiction (Nikbin et al, 2021; Tang et al, 2016), fear of missing out (Alt & Boniel-Nissim, 2018; Rozgonjuk et al, 2021), cyberloafing behaviors (Sheikh et al, 2019), nomophobia (Uguz & Bacaksiz, 2022), smart phone addiction (Cho et al, 2017), phubbing (Erzen et al, 2021; Chi et al, 2022; Cikrikci et al, 2019), internet addiction (Kuss et al, 2013). However, in a meta-analysis it was stated that neuroticism is not ubiquitously associated with online gaming addiction (Akbari et al, 2021). The information obtained from the literature on the other 4 personality traits has been reported with different results. There are studies showing that these personality traits increase (Sheikh et al, 2019; Tang et al, 2016; Azucar et al, 2018), decrease (Uguz & Bacaksiz, 2022; Morsunbul, 2014) and do not affect technology-dependent behavioral disorders (Sahin et al, 2022; Erzen et al, 2021; Cikrikci et al, 2019).

### Problem of Study

At the time of this study, we could not find any published research in the literature examining personality traits with netlessphobia. In this respect, considering that the study will contribute to the literature, the following hypotheses were formed, and the relationship between netlessphobia and personality traits was examined in parallel with these hypotheses:

Hypothesis 1: Neuroticism traits positively predict netlessphobia.

Hypothesis 2: Other Personality traits negatively predict netlessphobia.

Hypothesis 3: Personality traits are associated with each other.

## Method

### Research Model

This is an analytical cross-sectional study conducted on Suleyman Demirel University students in Turkiye. The dependent variable netlessphobia was taken as the independent variable personality traits subgroups. After the correlation analysis, hierarchical regression analysis was applied to the variables found to be significant. Hierarchical linear modeling is a type of multilevel modeling that is used when data is hierarchically structured, meaning that observations are nested within higher-level units, such as personality traits within groups (Hox et al, 2017) .

### Participant

The research population consists of 33315 undergraduate students. While the participants were included in the study, faculty-based weighting were made. The minimum sample size for the study, 50% frequency, 5% margin of error and a 95% confidence interval were calculated as 768 by taking the pattern effect as 2. The study was completed by 770 students who voluntarily participated in the study. The study was carried out with the participation of 770 students. 54.3% of the participants were women, 82.7% had a nuclear family, 26.9% were in their second year of college, 38.4% of mothers were primary school graduates, 33.2% of fathers were high school graduates, 61.4% had a moderate level of family income and spent an average of 5.7 hours on the internet. While 79.6% were high-level social media users, 64% had low-level online gaming time (Table 1).

**Table 1.** Descriptive characteristics of the research population

Variable	Category	N	%
Age (year)	<20	148	19.2
	20	150	19.5
	21	166	21.6
	22	118	15.3
	23	81	10.5
	≥24	107	13.9
Gender	Female	418	54.3
	Male	352	45.7
Family	Nuclear family	637	82.7
	Extended family	103	13.4
	Broken family	30	3.9
Educational stage	Prep Class	9	1.2
	1. Year	153	19.9
	2. Year	207	26.9
	3. Year	149	19.4
	≥4. Year	252	32.7

Maternal education level	Primary school	296	38.4
	Middle school	144	18.7
	High school	221	28.7
	University	109	14.2
Paternal education level	Primary school	183	23.8
	Middle school	120	15.6
	High school	256	33.2
	University	211	27.4
Family income level	Low	64	8.3
	Moderate	473	61.4
	High	233	30.2
Time spent on the internet (mean SD)	<4 hour	182	23.6
	4-5 hour	277	36.0
	6-7 hour	131	17.0
	≥8 hour	180	23.4
Frequency of social media use	Low	43	5.6
	Moderate	114	14.8
	High	613	79.6
Frequency of online gaming	Low	493	64.0
	Moderate	132	17.1
	High	145	18.9
Electronic device	Telephone	768	99.7
	Laptop	631	81.9
	Tablet	152	19.7
	e-book	14	1.8

## Research Instruments

### Firat Netlessphobia Scale

It was developed by Kanbay et al. in 2021 and is a 12-item scale. It has a one-dimensional and 5-point-Likert rating. There is no reverse-scored item on the scale. Evaluation of the scale is based on the total score, and an increase in the score indicates an increase in the level of netlessphobia. In the scale development study, Cronbach's alpha value was found to be 0.93 (Kanbay et al, 2021). In this study, Cronbach's alpha value was 0.90.

### Big Five Personality Inventory

Benet-Martinez and John developed it as the "Five Factor Inventory" (Benet-Martinez & John, 1998). The scale consists of 44 items. It evaluates the personality of individuals through the dimensions of "neuroticism", "extraversion", "openness", "agreeableness" and "conscientiousness". In the scale, each dimension consists of items as follows: "neuroticism" 8 items; "extraversion" 8 items; "agreeableness" 9 items; "conscientiousness" 9 items and "openness" 10 items. High scores from the subscales indicate that the individual has a high level of personality traits measured by that subscale. The Turkish adaptation of the scale was made in Turkey as part of an international study (Schmitt et al, 2007). The reliability coefficients for the sub-dimensions of the Five Factor Personality Traits Scale range from 0.64 to 0.77 (Sumer et al, 2005). In the current study, values varying between 0.63 and 0.74 were obtained.

### Data Analysis

Data were analyzed with SPSS.22. Descriptive (number, percentage, mean, standard deviation) analyses, Pearson correlation analysis and hierarchical regression analysis were performed. Before analysis, skewness-kurtosis values were checked and found to be normally distributed. A p-value of <0.05 was considered statistically significant.

### Procedure

The study data were obtained by face-to-face data collection method using the Firat Netlessphobia Scale, the Big Five Personality Inventory, an 11-question questionnaire prepared by the researchers and examining the sociodemographic characteristics and internet usage habits of the participants. Ethics committee approval was obtained from the Suleyman Demirel University Faculty of Medicine Clinical Research Ethics Committee for the study (Date: 23/12/2021, Decision Number: 345). The questionnaire was applied to the students between March and April in the 2021-2022 university spring term.

## Results

Pearson correlation analysis was performed to analyze the participants' personality traits with netlessphobia. A statistically significant positive correlation between netlessphobia and neuroticism, and a negative correlation with conscientiousness was found. There was no significant relationship between other personality types and netlessphobia. A negative correlation was determined between neuroticism and other personality types. And a positive correlation has been found between personality types except for neuroticism (Table 2).

**Table 2.** Correlations between personality traits and netlessphobia

	M	SD	1	2	3	4	5	6
1. Netlessphobia	34.22	10.64	-					
2. Extraversion	26.90	5.57	-.043	-				
3. Agreeableness	32.00	5.23	-.050	.178**	-			
4. Conscientiousness	30.90	5.64	-.162**	.305**	.256**	-		
5. Neuroticism	24.66	5.26	.205**	-.291**	-.164**	-.306**	-	
6. Openness	35.54	6.07	-.039	.348**	.187**	.273**	-.111**	-

Note. N: 770. \*p < .05. \*\*p < .01.

Neuroticism and conscientiousness, which were detected to be significantly associated with netlessphobia in the correlation analysis, were also included in the hierarchical regression analysis. The VIF value used to identify multicollinearity was 1.10 among the items in the scale, and it was determined that there was no multicollinearity problem. In the hierarchical regression analysis, neuroticism was included in the model first and was statistically significant. Conscientiousness was put in the second step. As a consequence of regression analysis, it was observed that neuroticism increased the netlessphobia score while conscientiousness decreased (Table 3).

**Table 3.** Predictive role of big personality traits on netlessphobia

Variable	Model 1				Model 2			
	b	SE	$\beta$	t	b	SE	$\beta$	t
Neuroticism	.41	.07	.21	5.80**	.35	.08	.17	4.64**
Conscientiousness	-	-	-	-	-.21	.07	-.11	-2.98
Constant	24.01	1.80	-	13.33	32.08	3.25	-	9.87
$R^2$	.04				.05			
Adj. $R^2$	.04				.05			
Durbin Watson	-				.90			
$F(df_n, df_d)$	33.58 (1,768)				21.39 (1,767)			
AIC	5798.59				5791.70			
BIC	5812.53				5810.34			

Note. AIC: Akaike's Information Criterion, BIC: Bayesian Information Criterion, \*\*p < .01.

## Discussion and Conclusion

This study investigated the relationship between the five-factor personality traits and their effects on netlessphobia. After performing correlation analysis, it was observed that all factors except neuroticism showed a positive correlation

and a negative correlation with neuroticism. Another important finding is that, as determined by the results of hierarchical regression analysis, conscientiousness has a negative impact on netlesophobia, and neuroticism has a positive one.

The lack of studies on netlesophobia and personality traits has been noticed in the literature. However, the results of this study are supported by other studies on digital addictions and personality scales. The hypothesis that neurotic personality trait positively affects netlesophobia was confirmed by this study. Neurotic individuals have feelings such as being nervous, anxious, insecure, withdrawn, depressed, and worthless (Buckley & Doyle, 2017; Erdheim et al, 2006). Internal traits that make up the neurotic personality are impulsivity, depressiveness, anxiety, aggression, self-consciousness and vulnerability (Diener & Lucas, 2022). Since neurotic individuals are introverted, prone to depression and have feelings of social exclusion, they may have an excessive desire to use smart devices due to efforts to show their presence on the internet with social media tools. They want to separate themselves from online or offline games from the real world, which is an uncomfortable place for neurotic people (Lee et al, 2019; Gao et al, 2017). The difficulty of controlling desires that neurotic individuals face can facilitate this situation (McCrae & Costa, 2003). It has also been observed that there is a positive relationship between phone addiction (Gutiérrez et al, 2016), problematic internet use (Tsai et al, 2009) and game addiction (Weng et al, 2013) in people who cannot control their impulses. In environments without the internet, neurotic people may fear exclusion since they will not be able to express themselves comfortably, and they will miss the latest developments in social media or online games. When we examined the literature, it was observed that netlesophobia and personality scales had not been studied. Our findings are corroborated by other published research on digital addictions and personality scales. Neurotic individuals are more prone to digital addiction (Parmaksiz, 2022) and internet addiction (Kayis et al, 2016). Additionally, neurotic individuals may need digital tools to cope with feelings of depression. There is a positive relationship between, another similar digital disorder, phubbing and depression (Davey et al, 2017; Wang et al, 2017).

Neurotic individuals also consider themselves worthless, and individuals with phubbing behavior have a positive relationship with the feeling of worthlessness (Błachnio & Przepiorka, 2019). Since these individuals do not wish for face-to-face interaction with other people, they can easily share their posts via the internet and cope with these feelings thanks to all kinds of positive reactions and likes they receive. Again, in environments without the internet, these individuals may fear exclusion because they will not be able to express themselves comfortably and may miss out on the latest developments in social media or online games.

The hypothesis that conscientiousness, openness, extraversion, and agreeableness personality traits negatively affect netlesophobia was partially confirmed in this study. The hierarchical regression analysis was performed, and there was a negative relationship between conscientiousness and netlesophobia, no significant relationship was identified between openness, extraversion, agreeableness and netlesophobia. Conscientious people are talented, organized, success-oriented, responsible, disciplined, and planned individuals (Diener & Lucas, 2022). They can control their internet usage purposes and durations because they deal with their responsibilities in a planned and disciplined manner and are success-oriented (Servidio, 2019; Kayis et al, 2016). Conscientious individuals are also able to manage their impulses, unlike neurotic individuals. It has been observed that a positive relationship exists between people who cannot control their impulses and phone addiction (Gutiérrez et al, 2016). In a study on this subject, individuals with high conscientiousness and self-esteem are less likely to have an internet addiction. In contrast, individuals with low self-esteem and conscientiousness are more likely to have internet addiction (Servidio, 2019). In a meta-analysis study, extraversion, agreeableness, conscientiousness, and openness were found to have a protective effect on internet addiction (Kayis et al, 2016). The research results indicate a positive relationship between phubbing and depression, individuals with conscientiousness, openness, extraversion, and agreeableness personality traits negatively correlated with depression are also likely to be protected from netlesophobia (Davey et al, 2017; Wang et al, 2017).

Another conclusion drawn from this study was that agreeableness, openness, and extraversion did not affect the susceptibility to netlessphobia. In the literature, there are some results from studies such as; one on smartphone addiction in adults, it has been shown that conscientiousness, openness to experience, and agreeableness did not have an effect on phone addiction (Cho et al, 2017), and in another study investigating personality traits and internet addiction in university students, characteristics other than neuroticism did not have a predictive effect (Kuss. et al, 2013), seem to support this finding. However, some studies do not support this finding. In a study investigating internet addiction among university students, extraversion and agreeableness had a negative effect on internet addiction, and openness had a positive effect (Servidio, 2019). And in another study in the same population, it was concluded that extraversion negatively predicted internet addiction (Morsunbul, 2014). The fact that there are different results in the literature on this subject may be due to the level of consciousness, cultural differences, social and economic opportunities of the participants, stress dimensions in their lives, differences in their opportunities to cope with this stress and age group and gender characteristics of the individuals of those countries where the studies were conducted. Specific to this study, it is thought that neuroticism is predominant in increasing susceptibility to netlessphobia, and conscientiousness in its decrease is more dominant than other personality traits.

In addition, this study shows that personality traits affect each other; in particular, it was concluded that neuroticism was negatively correlated with other personality traits, and this data supports almost all of the studies in the literature. The literature shows that there are studies describing that neuroticism has a negative correlation with conscientiousness, agreeableness, extroversion (Erzen et al, 2021); and a negative correlation with all other personality traits (Par maksiz, 2022). Cognitive behavioral therapies for individuals with predominant neurotic personality traits or problems in coping with anxiety and stress management contribute to the reduction in neuroticism level of neuroticism. In addition, personality traits such as conscientiousness and agreeableness are positively affected. This way, the tendency to problematic behaviors and habits such as netlessphobia, internet addiction, and phubbing can be pared down. The study has some limitations. Since the study was designed in a cross-sectional type, it may not be sufficient to draw a direct cause-effect relationship between netlessphobia and personality traits. Further longitudinal studies on this will be useful for a better and more precise evaluation of the cause-effect relationship.

The survey respondents might have exaggerated or underestimated their distress associated with not having an internet connection, possibly because they had access to the internet at the time the survey was administered. This should be taken into account in the assessment of the results. These results can be strengthened with further data obtained by studies that will be designed in the case-control type among individuals with and without internet access.

### **Recommendations**

This study examines the relationship between netlessphobia, which is one of the inevitable problems of today, and personality traits, some causes that have a predictive effect on this have been revealed. There is a need to develop projects to prevent the concept of netlessphobia, which is likely to continue to be a problem in the future. In particular, raising people's awareness on this issue and making society mindful of the aspects and seriousness of netlessphobia and other technological addictions can help to progress in this regard. Interventions to reduce neuroticism, one of the undeniable factors in the susceptibility to netlessphobia, will also be effective.

### **Disclosure Statement**

No potential conflict of interest was reported by the author(s).

### **Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article

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