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The Role of Self-esteem, Five Personality Factors and Age in the Prediction of Nomophobia among Students

Zahra Amiri[1], Nooshin Thaghinejad[2]*

1. MA in Psychology, Department of Psychology, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran

2. Assistance Professor, Department of Psychology, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran

* Corresponding author's Email: nooshin.taghinejad@gmail.com

ABSTRACT: The purpose of this study was to investigate the role of self-esteem, five personality factors and age in the prediction of Nomophobia among students in Bandar Abbas city. In so doing, a correlational design was used. The statistical population consisted of all male and female students of Bandar Abbas universities in the academic year 2018. For this purpose, 378 students (250 females and 128 males) were selected from Bandar Abbas universities by stratified random sampling. The participants completed the questionnaire of Azadmanesh et al.'s Nomophobia Questionnaire, Five-Factor Personality Questionnaire, Short Version (BFI 10) and Rosenberg Self-Esteem Scale. Data were analyzed using descriptive statistics and regression analysis. The results showed that self-esteem with beta coefficient of 0.16, conscientiousness with beta coefficient of 0.18, and age with beta coefficient of 0.21 could negatively and significantly predict the students' nomophobia. The neuroticism with beta coefficient of 0.16 positively and significantly predicted the students' nomophobia. Also, the results indicated that 19% of students' nomophobia variance was explained by predictor variables.

Keywords: Nomophobia, Self-Esteem, Five Personality Factors, Age.

Introduction

The rapid advancement of technology has significantly changed human behaviors and activities. Mobile phones are a type of communication and information technology that have become an important part of people's lives due to their diversity and multiple capabilities (Gezgin & Çakır, 2016). For many people in this age, life without cell phone is unimaginable because not only it serves the functions of a normal telephone, but it is also utilized for other purposes such as computing, photography, filming, social networks connection and internet, using e-mail, and even new games. In addition, some daily tasks such as clock, daily planning, reminders, alerts, location as well as listening to music and radio or watching TV and satellite, and calculating exchange rates and stock exchanges are done by mobile phones (Azadmanesh, Ahadi, & Manshaee, 2016). Despite the mentioned advantages of mobile phones, its side and negative effects are also significant (Argumosa-Villar, Boada-Grau, & Vigil-Colet, 2017). Excessive use of mobile phones causes isolation and loneliness in people. Feeling lonely is associated with impulsivity, aggression, introversion, low self-esteem, embarrassment, shame and external imputation (Mansourian, Solhi, Adab, & Latifi, 2014), can lead to

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the formation of psychological and physical dependence in individuals, and has many behavioral consequences. Mobile phones can be considered as the greatest non-drug addiction of the 21st century. One of the new concepts in the literature on pathology of communication phenomena was the concept of nomophobia. Nomophobia refers to the fear of being disconnected from mobile phones or the unavailability of telephone calls, which was rapidly increasing in the world (Pavithra, Madhukumar, & TS, 2015). This complication was increased after the epidemic of mobile phones and social networks. As a result of mobile or social media addiction, this phobia was first defined in 2008 by the YouGov Research Institute (Yıldırım, 2017). It was a kind of modern phobia that was by-product of human interaction and new technology (King et al., 2013). Clinical psychologists believed that the symptoms of nomophobia were similar to other anxiety disorders and can cause panic, restlessness and failure. One of the cautionary signs of nomophobia is trying to hold the phone all times, or constantly checking it.

One of the effective factors in the occurrence of nomophobia is personality factors. Personality traits are considered as important variables in explaining behavior. Some psychological predictions that might lead to nomophobia include negative self-expression, low age, low self-esteem and self-efficacy, high introversion or extroversion, impulsivity and a sense of urgency and sensation seeking. According to many psychologists, personality was the main dimension and structure of human psychology. One of the most efficient and comprehensive theories of personality is the five-factor theory. These factors include neuroticism (the intensity of belonging of a person to a particular group and prejudice, resentment, impulsive behaviors, and vulnerability to stress), extroversion (sensation search and the desire of relationships with friends and outside world), openness to experience (tolerance for new ideas, new ways of doing things and accepting new experience), agreeableness (being positive and purposeful, with a sense of responsibility, being principled, being accurate in acting and adherence to ethical principles) and conscientiousness (high levels of thoughtfulness, good impulse control, and goal-directed behaviors, tend to be organized and mindful of details and mindful of deadlines) (McCrae & Costa Jr, 1996).

One of the characteristics of people who have a better response to stressors is self-esteem. Statistics showed that in American society, stress had a negative impact on the personal and professional life of 48% of people (of which 48% were surveyed for physical and psychological symptoms). Psychological factors involved in cell phone overuse have been identified as low self-esteem and extraversion, meaning that people with low self-esteem used cell phones to gain approval from others. Moreover, social people seek to build more relationships with people and therefore they referred more to mobile (Çelik İnce, 2021).

Students use mobile phones more for various reasons such as distance from family and loneliness, academic and professional activities (using of internet, dictionary and reference books) (Khazaee, Saadatjoo, Shabani, Senobari, & Baziyan, 2014). Perhaps what makes young people more dependent

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on mobile is the fact that young people who have less control over their behavior underestimate the risks of some of their behaviors, are weak in decision-making and planning, and strongly seek independence. In this way, mobile support them in the process of getting independent by facilitating social relations.

The results of the study by Argumosa-Villar et al. (2017) showed that extraversion is a positive and significant predictor of nomophobia. This is while consciousness is a negative and significant predictor of nomophobia. Furthermore, a negative correlation has been reported between nomophobia and psychosis (Celik, Hasan, & Başal, 2012). In their research, Celik et al. (2012) found a positive and mild relationship between the components of consensus and mobile addiction and cyberspace, and argued that since compatible people are often identified as introvert people, it is possible that they seek social support through cyberspace. Khatibzanjani and Agah Haris (2015) found that the three components of extroverted personality, agreement ability and conscientiousness were lower in people exposed to internet addiction than in people without internet addiction. People exposed to internet addiction seemed to agree less with others for being colder and less committed to ethics; extroverts tended to engage in close and face-to-face social interactions and in effective communication with others without the need for cyberspace. The study by Rashidi et al. (2015) showed that a significant positive correlation between dependence on mobile phones and openness, neuroticism, and loneliness. Likewise, extroversion, agreeableness, conscientiousness, and normative identity style were predictors of dependence on mobile phones. The results of the research by Zamani, Shariari Neistani, and Abedini (2012) indicated that among personality's traits, there was only significant relationship between the rate of mobile usage and neuroticism trait. The results of the study by Ramouz, Honari, Moradi, and Tabatabai (2013) showed that among personality traits, only neurotic trait has a significant and negative relationship with mobile phones, and none of the personality traits has a significant relationship with mobile phone use.

Gao, Fu, Xiang, Jia, and Wu (2021) indicated elf-esteem was negatively related to anxiety, which in turn was positively related to addictive smartphone use and moderated mediation analysis results indicated that high self-control improved the protective effect of self-esteem against anxiety. In a study in India, researchers found that 39.5% of young students suffered from nomophobia and the remaining 27% were at risk for nomophobia (Pavithra et al., 2015).

Findings of the research by Farooqui, Pore, and Gothankar (2018) indicated that mild nomophobia was found in 17.9% students whereas 60% had moderate and 22.1% had severe nomophobia. Amongst the males, 56.06% and 24.24% had moderate and severe nomophobia, respectively while in females, moderate and severe nomophobia was found to be 63.25% and 20.25%, respectively.

Due to the above research findings, the theoretical framework of psychological variables, and the unprecedented growth of nomophobia phenomenon, field research on the causes of this phenomenon seem necessary. If the research priorities in the world do not turn to the etiology of this phenomenon

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and this phenomenon is not seriously discussed, universities would soon face a tense psychological atmosphere among students. Addressing the issue of nomophobia could lead to mental health and personality cohesion in students. Therefore, the researchers sought to analyze the role of self-esteem, five personality factors and age in predicting nomophobia in students of Bandar Abbas.

Material and Methods

The present study was applied in terms of purpose and descriptive-correlational in terms of data collection method. The statistical population of this study consisted of all students of Bandar Abbas universities in the 2018-2019 academic year. The statistical sample size was estimated 378 people based on Morgan table, and the sample was selected using cluster random sampling method. In order to analyze the data in the descriptive statistics section, the mean, standard deviation and minimum and maximum scores, and in the inferential statistics section, Pearson correlation coefficient and multiple regressions were run. To analyze the data, the SPSS 24 software was used. In this study, the variables of self-esteem, five personality factors (extraversion, agreeableness, openness, conscientiousness, and neuroticism) and age had been considered as predictor variables and nomophobia variable as criterion variable.

In this research, three standard tests including the nomophobia questionnaire; the big Five Personality Factors questionnaire and the Rosenberg Self-Esteem Scale were used.

Azadmanesh et al.'s (2016) nomophobia Questionnaire: This questionnaire consists of 17 questions in Likert form (1=never, 2=almost never, 3=sometimes, 4=often, 5=almost always, and 6=always). The minimum and maximum scores are 17 and 102, respectively. The higher a person's score, the more likely he or she would be affected by nomophobia or having symptoms. This questionnaire, developed in three subscales including anxiety, depression and failure, enjoys good reliability and validity. In Azadmanesh et al. (2016) research, the reliability of this questionnaire was calculated by Cronbach's alpha method as .90. The validity of this questionnaire was obtained based on confirmatory factor's analysis as equal to .92. In the present study, the reliability coefficient of this scale was obtained by Cronbach's alpha method .88.

Five-Factor Personality Questionnaire, Short Version (BFI 10): The BFI-10 has five subscales with two bidirectional items for each of the big-five personality factors (Rammstedt & John, 2007). The items are rated on a five-point Likert scale wherein the subjects choose from responses ranging from "strongly disagree to strongly agree.". The five areas of personality, measured by this scale, include extroversion, agreeableness, openness, conscientiousness, and neuroticism. The retest reliabilities across six weeks averaged.75 for the BFI-10. In terms of discriminant validity the absolute inter correlations among the was .11 for the BFI-10 (Rammstedt & John, 2007). The reliability of this questionnaire in the present study was calculated as .67 by Cronbach's alpha method.

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Rosenberg Self-Esteem Scale (1965): This 10-item scale measures both positive and negative feelings about oneself has been developed by Rosenberg (1965). A score above zero indicates high self-esteem and a score below zero shows low self-esteem. So the higher the score, the higher the self-esteem level would be and vice versa. Cronbach's alpha coefficient in the initial study was .93 and in the final review of retest was .85 (Martín-Albo, Núñez, Navarro, & Grijalvo, 2007). The reliability coefficient of this scale by Cronbach's alpha method in the present study was .78.

Results

In this section, first, the results of descriptive statistics indicators such as mean, standard deviation, minimum and maximum scores are presented in Table 1.

Table 1. Descriptive statistics indicators of research variables

Variable	Minimum	Maximum	Mean	SD
Nomophobia	17	99	43.39	13.59
Self-esteem	-2	10	7.85	2.30
Extraversion	3	9	6.86	1.81
Agreeableness	3	10	6.98	1.67
Conscientiousness	3	10	7.10	1.83
Neuroticism	2	9	6.11	2.01
Openness	4	9	7.18	1.89
Age	18	40	22.39	4.06

The phenomenon of nomophobia was reported in Table 1, with the mean of 43.39 and the standard deviation of 13.59. Among personality factors, the variable of openness had a higher mean than the other variables. Also, the self-esteem variable with the mean of 7.85 and the standard deviation of 2.30 was reported in Table 1. To determine the type of appropriate statistical tests (parametric or non-parametric), the normality of research data should be examined. For this purpose, Kolmogorov-Smirnov test was used and the results are shown in Table 2.

Table 2. Results of Kolmogorov-Smirnov test

Variable	K-S Statistic	Sig	Result
Nomophobia	.15	.08	Normal data
Self-esteem	.13	.09	Normal data
Extraversion	.12	.09	Normal data
Agreeableness	.10	.09	Normal data
Conscientiousness	.10	.09	Normal data
Neuroticism	.10	.09	Normal data
Openness	.10	.09	Normal data
Age	.07	.12	Normal data

Based on the findings of Table 2, none of K-S values of research variables was acceptable at the significance level ($p > 0.05$). Based on this, the assumption of data normality was confirmed and parametric tests should be used in the inferential statistics section. Pearson correlation parametric test

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was used to show the presence or absence of a relationship between research variables. The results of this test are reported in Table 3.

Table 3. Pearson zero-order correlation matrix for research variables

Variable	1	2	3	4	5	6	7	8
1. Nomophobia	1							
2. Self-esteem	-.28**	1						
3. Extraversion	-.10*	-.34**	1					
4. Agreeableness	-.18**	.46**	-.17**	1				
5. Conscientiousness	-.30**	.42**	-.11*	.13**	1			
6. Neuroticism	.24**	-.12*	.27**	-016**	-.14**	1		
7. Openness	-.11*	.31**	-.14**	.12*	-.31**	-.11*	1	
8. Age	-0.21**	.19**	-.08	.15**	-.19**	-.06	.09*	1

As it can be seen in the Table 3, the variable of self-esteem at a very high level of significance had an inverse relationship with nomophobia. The variables of self-esteem, extroversion, agreeableness, openness and conscientiousness, had a negative and significant relationship with nomophobia. The neuroticism had a positive and significant relationship with the variable of nomophobia. Also, age variable had a negative and significant relationship with nomophobia variable. The multiple regression analysis was used to show the prediction status of criterion variable (nomophobia) based on predictor variables. To run the regression analysis, the assumptions were checked and confirmed. The results of multiple regression analysis are reported in Table 4.

Table 4. Results of multiple regression analysis

Predictor variable	β	t	*p*	R	R^2	F	*p*
Self-esteem	-.16	-2.94	.003	.44	.19	11.43	.001
Extraversion	-.01	-.09	.92				
Agreeableness	-.03	-.56	.57				
Conscientiousness	-.18	-3.45	.001				
Neuroticism	.16	3.25	.001				
Openness	-.08	-1.65	.09				
Age	-.21	-4.34	.001				

As it can be seen in Table 4, the prediction of students' nomophobia based on self-esteem variables, self-esteem conscientiousness, neuroticism and age were significant ($p<.001$). Also, the value of R^2 showed that 19% of the variance of students' nomophobia was explained by the mentioned variables. The above results showed the significance of the whole model. However, just self-esteem ($\beta = -.16$ & $p = .003$), conscientiousness ($\beta = -.18$ & $p = .001$), neuroticism ($\beta = .16$ & $p = .001$) and age ($\beta = -.21$ & $p = .001$) predicted nomophobia, significantly.

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Discussion

The aim of this study was to investigate the role of self-esteem, five factors of personality and age in predicting nomophobia in students in Bandar Abbas, Iran. Based on the results, it was found that there was a significant negative relationship between self-esteem and nomophobia in students. The results of this finding are consistent with the findings of earlier studies (Argumosa-Villar et al., 2017; Khazaee et al., 2014; King et al., 2013; Yıldırım, 2017). According to these researchers, people with low self-esteem were more likely involved with nomophobia. Explaining this finding, it could be said that self-esteem was an important and effective psychological factor on health and quality of life with the effects on thoughts, perceptions, emotions, desires, values and goals of a person. As self-esteem increases, a person develops a sense of empowerment, and positive changes such as academic achievement, striving for success, high self-esteem, and a desire for higher health reduced feelings of loneliness and addictive behaviors such as nomophobia.

Another finding of the present study was the significant relationship between conscientiousness and nomophobia in students. This is consistent with the findings of some earlier studies (Argumosa-Villar et al., 2017; Khazaee et al., 2014; Rashidi et al., 2015; Zamani et al., 2012). A possible explanation could be that the open, unstructured climate without rules and policies that mobile phones enjoy because of their relation with the Internet may attract those young people with less sense of responsibility. The conservative people, often known as introverts and shy people, might prefer the desire for social support through mobile phones and cyberspace to real life. People with mental disorders (such as loneliness) consider their skills very weak in social capabilities and this in turn leads to excessive tendency to the smartphone and its excessive use.

Moreover, it was shown that there is a significant positive relationship between neuroticism and nomophobia in students. This result is consistent with the findings of Argumosa-Villar et al. (2017), Rashidi et al. (2015) and Zamani et al. (2012). This finding is explained by the fact that these people prefer to express themselves in a written style, avoid meeting face-to-face, and have more conversation over the phone.

The neuroticism people are reactive individuals who experience more negative emotions than others. These individuals respond to any stimulus. In general, the tendency to experience negative emotions such as fear and sadness, confusion, anger, shyness, guilt and hatred constitutes the set of neurotic domains. They have a weaker adaptation level, are emotionally unstable, anxious and stressful. These features cause mobile-dependent people change their direction more efficiently and actively due to some of the mentioned features and the inability to deal with the challenges and problems and consequently the tendency towards using mobile phone.

Furthermore, it was indicated that there is a significant negative relationship between age and nomophobia of students. In other words, as students get older, their nomophobia decreases. This is in line with the findings of Yıldırım (2017) and Pavithra et al. (2015) but inconsistent with the results of

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Argumosa-Villar et al. (2017) which showed that there is no relationship between age and nomophobia. Explaining this finding, it is worth noting that nomophobia decreases in students with age. This means that nomophobia is more common in younger people. One of the most critical periods in a person's life is entering adolescence. During this period, physical, cognitive, social, psychological and sexual changes take place. Adolescents in this period have conflicting tendencies and desires that are influenced by biological and social factors and new technologies can have useful and beneficial uses or inappropriate and destructive uses (Uguz & Bacaksiz, 2022).

In this study, we encountered limitations such as lack of relevant background, length of questionnaires, conducting research with geographical limitations and specific socio-cultural characteristics. Thus, generalizing the results to other communities should be done with much caution. It is suggested that in future research, instead of self-esteem, the role of self-efficacy and self-concept as well as the role of other psychological constructs such as impulsivity in predicting nomophobia using other tools such as interviews, other questionnaires and tests. Moreover, replicating the present study in setting other than universities and with students of lower levels of education is recommended.

Totally, our findings revealed there is the relationship between nomophobia and some five-factor personality traits in students and between nomophobia and self-esteem and age. It is determined that in students, high conscientiousness and self-esteem have a negative relationship with nomophobia levels and neuroticism has a positive relationship with nomophobia levels. Based on our results, to prevent this type of phobia, it should especially be focused on the younger age people and necessary precautions should be taken; the underlying factors of addiction to the virtual world should be examined, and especially studies about how emotional factors affect addiction behaviors should be given importance. Smart devices, which have become an essential part of our life, are used by almost every student. The studies to be carried out on this subject need to focus more on the field of academic and affective outputs. Within the study to be conducted about nomophobia, there should be focus on the effect of the smartphone usage levels on the academic achievement and emotional outputs of students during studying hours as well as on their performance in exams.

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