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### **The Distribution of Variables that Affect Nomophobia in Adults' Profiles**

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## The Distribution of Variables that Affect Nomophobia in Adults' Profiles

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### Abstract

This study focused on the effects of variables related to nomophobia levels of youths for adults; and exhibited a nomophobia profile of an adult by means of the significant variables about adults. Two hundred-ten adults from 30 different occupational groups participated in the research. The relational research design was used in the research. Data after collecting through scales were subjected to logistic regression analysis and two-step clustering analysis. As a result of the analysis, it was determined that while the nomophobia scores of the participated adults who were married, had children, were 30 years and older, have higher life satisfaction scores and lower social media addiction scores were low. On the other hand, it was determined that the adult in high nomophobia scores were clustered in the group who were single and did not have children, were between the ages of 24-29, had low life satisfaction scores and high social media addiction.

### Introduction

In today's world, which the contribution of the smartphones to the society has increased, it is notable that this increase has brought the concept of nomophobia to the literature (Bianchi & Phillips, 2005). Nomophobia, expressed as a disease of the 21<sup>st</sup> century, is defined as the fear of becoming technologically incommunicable, distant from the mobile phone or not connected to the Web (King, Valenca & Nardi, 2010). Nomophobia is the fear of leaving the house without a mobile and being out of mobile phone contact and affects different areas of a person's life, especially in terms of social, work and academic relationships due to a dependence on the use of smartphones (Gutiérrez-Puertas et.al., 2019). The most common symptoms of nomophobia include not being able spend time without the smartphone, fear of losing the smartphone, constantly checking the phone, keeping the phone available for communication, sleeping with the phone and having difficulties in face to face communication (Bragazzi & Del Puente, 2014).

Nomophobia emerges as a result of new technologies in the twenty-first century (King, Valenca & Nardi, 2010) and is considered as the disorder of the 21<sup>st</sup> century (Asensio Chico, Diaz Maldonado & Garrote Moreno 2018). Nomofobia affects the mental status of smartphone users and it is diagnosed as a mental disorder (Bragazzi & Del Puente, 2014). The studies show that the percentages of smartphone addiction are 37% for adults and 60% for young people (Sarwar & Soomro, 2013). The riskiest group for nomophobia is the group of the ages between 18-24, and the groups of 25 to 34 and 55 and 55 above follows this group respectively (SecurEnvoy, 2012). Although the risk group mostly includes the young people, there are also adults in this group.

### The Studies on Nomophobia in Different Countries

The related literature shows that there are many studies in different countries on nomophobia and accepted it as a problem; however, the samples of these studies mostly include the young people. The studies on the nomophobia tendencies of the adults and explaining these tendencies are very limited. The studies mostly focus on adolescents. For instance; in the study of Shin (2014), the mobile phone addiction of Korean and American mobile phone users and the factors affecting their addiction were examined. The results of this study show that the addiction level of Korean users is higher than the American users'; and also, the tendency of young and unemployed people to be addicted is higher than the others. In addition, it was found that the addiction level scores of female Korean users are higher than the others too. Felix, Mena, Ostoso and Acosta (2017) conducted a study with a student of Computer Engineering in Mexico and found that most of the students are addicted to smartphones and this is resulted as a concentration lost during lectures. The relationship between nomophobia,

self-esteem, loneliness and self-happiness with respect to gender and year of study are examined in the study of Ozdemir, Cakir and Hussain (2018) conducted to 729 undergraduate students studied in Pakistan and Turkey. The results of the study indicated that there are significant differences between nomophobia, loneliness and self-happiness levels of Turkish and Pakistani students; while the results did not show any significant difference between the levels of self-esteem by means of countries. The study of Oliveira (2018) on examining nomophobia and conducted with the participation of 377 students studied in Brazil, pointed that most of the students do not have heard the term of nomophobia before. Gutiérrez-Puertas and colleagues (2018) compared the levels of nomophobia of the nursery students studied in two different universities in Spain and Portugal in their study. The results show that the nomophobia levels of both students in Spain and Portugal are above the average; and also, it was found that the Portuguese students (54.7 %) are more worried about battery low than the Spanish students (35.4 %). In another study, Lee, Kim, Mendoza and McDonough (2018) investigated the relation between obsession and nomophobia for 397 undergraduate students studied at the universities of Southeastern Arkansas and Alabama. According to the results of this study, it was found that there is a relationship between the scores gathered from the Obsessiveness Content Scale and the scores of the four factors of Nomophobia Scale. In their study about medical sciences, students from a public university in Tehran, Darvishi, Noori, Nazer, Sheikholeslami, and Karimi (2019) mentioned that nomophobia levels of younger people are higher than the others, and instead of the low scores of female participants, the difference is not statistically significant. Moreover, Veerapu and colleagues (2019) explained that most of the students (64%) have mid-level nomophobia and there is a low-level positive relationship between nomophobia, sleeping difficulty and anxiety in their study conducted with 364 medical students from India.

### The Most Researched Variables Related to Nomophobia

As mentioned before, there are many studies on nomophobia conducted in different countries and these studies generally focused on young people. In addition to this, the related literature shows that these studies generally studied on common variables. The question of whether the results of the studies focus on young people are valid for adults or not come to mind. Table 1 summarizes the studies and significant variables focus on adolescents' levels of nomophobia and smartphone addiction.

Table 1. The Studies on Smartphone Addiction and Nomophobia

The significant independent variables	Sample	References
<b>Gender</b>	Undergraduate	Kanmani, Bhavani, & Maragatham (2017); Lee, Chang & Cheng (2014); Tavolacci, Meyrignac, Devhelotte, Richard & Ladner (2015); Augner & Hacker (2012); Turan & Becit-Isciturk, (2018); Turen, Erdem, & Kalkin, (2017); Burucuoglu, (2017); Adnan & Gezgin (2016); Gezgin, Sumuer, Arslan & Yildirim (2017).
<b>Daily usage of mobile phones</b>	Undergraduate	Tavolacci, Meyrignac, Devhelotte, Richard & Ladner (2015); Sirakaya, (2018); Turen, Erdem & Kalkin (2017); Hosgor, Tandogan & Hosgor (2017); Erdem, Kalkin, Turen & Deniz (2016)
	Facebook Users	Gezgin, Sahin & Yildirim (2017)
<b>Social media usage</b>	Adolescents	Savci & Aysan (2017), Akturk, Emlek & Celik (2017); Sirakaya, (2018); Salehan & Negahban (2013)
	Secondary School	Yildiz-Durak (2018)
	Age between 18 to 24	Kanmani, Bhavani & Maragatham (2017)
	Age between 15 to 35	Karatay (2018)
<b>Depression or loneliness or self-happiness</b>	Undergraduate	Augner & Hacker (2012); Kim, Seo & David (2015); Ozdemir, Cakir & Hussein (2018); Park & Lee (2012);
	Young Adult	Augner & Hacker (2012)
	7th and 8th grades	Yildiz-Durak (2018)
<b>Education level</b>	High School Student	Sarioglu, (2019); Gezgin, Cakir & Yildirim (2018)
	Undergraduate	Sarioglu, (2019); Gezgin & Cakir (2016)

Table 1 firstly illustrates that the studies are mostly focus on young people. The studies on the groups of early-ages and adults are limited. However, the studies indicate that nomophobia is not an addiction affected the adolescents only but also an addiction affected the adults (SecurEnvoy, 2012). The most commonly used variables on the studies are gender, daily usage of mobile phone, usage of social media or social media addiction, depression or happiness, and education level.

The most commonly analyzed variable is gender at first. It was seen in the studies on young people that generally the nomophobia levels of females are higher than the males (Kanmani, Bhavani, & Maragatham, 2017; Tavolacci, Meyrignac, Devhelotte, Richard & Ladner, 2015; Turen, Erdem & Kalkin, 2017). In a very few studies, significant difference by means of gender cannot be detected (Adnan & Gezgin, 2016; Dixit et. al., 2010). Moreover, the studies pointed the relation between the frequency of the daily usage of mobile phones and nomophobia. The studies of Gezgin, Sahin, Yildirim (2017) on the users of Facebook, Turen, Erdem and Kalkin (2017) on civil servants and undergraduate students, and Kalaskar (2015) on undergraduate students indicates that frequency of the daily usage of mobile phones and nomophobia has a significant positive relationship. In other words, the increase in the frequency of the daily usage of mobile phones increases the level of nomophobia of the students.

The other variable that is commonly analyzed in the studies is the social media usage and its relation with nomophobia. Yildiz-Durak (2018) found a significant positive relationship between social media addiction and nomophobia levels of the secondary school students; while Ayar and colleagues (2018) found a positive relationship between social media usage and nomophobia levels of the undergraduate students. The related literature also includes studies on explaining the relationship between moods and nomophobia. For example, while the significant relationship between nomophobia and loneliness is mentioned as the result of Gezgin, Hamutoglu, Sezen-Gultekin and Ayas's (2018) study on adolescents, the study of Ozdemir, Cakir and Hussain (2018) conducted by the participation of undergraduate students indicates that loneliness and self-happiness has a significant relationship with nomophobia. In another study conducted by Darvishi, Noori, Nazer, Sheikholeslami and Karimi (2019) with students, it was found that nomophobia and depression have significant relationship. Augner and Hacker (2012) studied with the participants between the ages of 17 and 35, and founded that the problematic usage of mobile phone has significant positive relation with depression. At last, the other variable related with nomophobia in the literature is the education level. The result of the study of Darvishi, Noori, Nazer, Sheikholeslami and Karimi (2019) shows that for the students with higher educational status the nomophobia was recorded to be more frequent. The studies of Gezgin, Cakir and Yildirim (2018), and Gezgin and Cakir (2016) compared the class level and the level of nomophobia of the students and founded a significant relationship.

The related literature shows that the studies on nomophobia mostly focus on the groups of adolescents and the most commonly studied variables are gender, frequency of mobile phone usage, social media usage, depression or loneliness and education level.

### **Adults and Mobile Phone**

It can be seen that there are many different definitions of the term of adult in the literature that points some different norms. For example, while Piaget defines adult as a person who completes his/her cognitive development, Arnett (2003) defines being adult as completing the education process and starting a full-time job, to be married and having children. Miser (1999) defined adults by means of the age range and suggested that the person who turns the age of 15 can be accepted as adult; while Knowles (1980) define adult as the person who perceive his/her life as his/her own responsibility and exhibit social roles and behaviors in line with this responsibility. From this point of view, it can be seen that the term adult is defined in many different ways by different cultures. Today's scientists define the adulthood by dividing into three periods as young, middle and late adulthood. While the ages of 30s defined as young adulthood; the 40s and 50s defined as middle adulthood; and the 60s and later defined as the late adulthood (Santrock, 2011; Boyd & Bee, 2015). The United Nations (UN) prescribe the age range of youth as 12 to 24 while UNESCO defined this age range as 15 to 25. In contrast to some of the studies proved that the individuals in their late adulthood use their mobile phones very limited as emergency calls and messaging (Kurniawan, Mahmud & Nugroho, 2006), there are studies which proved that some individuals in late adulthood use computers above the average (Morrell, Park, Mayhorn, & Kelley, 2000), and confirmed that the late adults are interested in mobile technology and they use the mobile phones efficiently as much as the young people (Ziefle & Bay, 2005). Akanfer, Aziale, and Asampama (2014) founded that the young adults frequently use their mobile phones for calling, internet surfing, messaging and listening music. As being problematic for youths, related to misuseage mobile phones can be harmful for adults too. For example, in

their study conducted with individuals between the ages of 18 to 80 Fennell, Barkley and Lepp (2019) founded that the mobile phone usage is positively related by sedentary behavior and physical activities, while negatively related with age. Sola, Talledo, Fonseca and Runio (2017) predicted that age, gender, educational level and the daily usage of mobile phones are the predictors of problematic usage of mobile phone in their study conducted to 16 to 65 age individuals. Moreover, Vallay and Hichami's (2019) study mentioned that one third of the participated young adults have problematic mobile phone usage habits, and the over usage of mobile phones increases some symptoms of depression for female participants.

## Research Problem

The studies of the relationships between individuals and new technologies are relevant because the new technologies produce behavioral changes as well as feelings and symptoms that should be studied and monitored continuously in a modern society (King, Valenca & Nardi, 2014) Ultimately, nomophobia affects different areas of a person's life, especially in terms of social, work and academic relationships due to a dependence on the use of smartphones (Argumosa-Villar, Boada-Grau, & Vigil-Colet, 2017). These studies show that there are many studies on nomophobia conducted in many different countries but these studies mostly subjected to first risky group included youths. The studies about the second risky group included adults are very limited. However, nomophobia is not a disorder that affects only one group and differs related to same characteristics at each group. It can be changed by the effects of different variables in each group. This study focused on the effects of variables related to nomophobia levels of youths for adults; and exhibited a nomophobia profile of an adult by means of the significant variables about adults.

The variables were selected in the light of the studies in related literature and generally, the significant variables of the studies focused on youths were included. From this point of view, the research questions are:

1. What is the distribution of the scores of nomophobia levels of the adults who participated to study?
2. Are the scores of nomophobia levels of adults predicted by gender, education level, life satisfaction, level of social media addiction, marital status, having children or not, age and the duration of daily usage of mobile phones?
3. What is the pattern of the distribution of the dependent variables according to the groups of adults by means of nomophobia level scores as low and high?

## Method

### Research Design

The design of the study is correlational research design that is one of a quantitative research method. The correlational studies analyses the changes of the variables in their natural environment (Simon, 2011). It was decided to conduct the study as a correlational design because it was aimed to determine the independent variables which affect the nomophobia level by not to conduct any experiment.

### Study Group

Two hundred-ten adults participated to the study. The 48.75% of the participants are female and the 51.25% of the participants are males. The participants of the study were selected by the purposive sampling method. The aim of the purposive sampling is to select the information-rich cases for the most effective answers of the questions (Patton, 2002). The criteria for selecting the participants were age, education level, and frequency of using mobile phone in order to have a heterogeneous group. The frequency distribution of the participants according to these criteria is shown in Table 2. Table 2 illustrates that the adults participated to the study are the graduates of university (41 %), high school (31%), primary school (15.7%), secondary school (10.5 %), master degree (1%) and PhD (1%). The ages of the participants range between the ages of 24 to 60 and over. While many of the participants (48.1%) are between the ages of 24-29, 23.3% of the participants are between the ages of 30 to 35. The number of participants who are 60 or older is the lowest. While 21.4% of the participants use their mobile phones 1-2 hours daily, 19% of them use 2-3 hours, 14.3% of them use 3-4 hours, 12.9% of them use 15 minutes to 1 hour, 10.5% of them use less than 1 hour, 9% of them use 5-6 hours, 7.6% of them use 4-5 hours and 5.2% of them use mobile phones more than 6 hours daily. Moreover, another criterion of defining the study group is the different occupation groups. The distribution of the participants according the occupation groups of the participants are shown in Table 3.

Table 2. The Frequency Distribution of the Participants according to their Age, Education Level and the Frequency of Using Mobile Phone

Variable	Category	n	%
Education Level	University Graduate	86	41.0
	Primary School Graduate	33	15.7
	High School Graduate	65	31.0
	Secondary School Graduate	22	10.5
	PhD Graduate	2	1.0
	Master Degree Graduate	2	1.0
Age	24-29	101	48.1
	30-35	49	23.3
	36-40	24	11.4
	41-45	12	5.7
	46-50	13	6.2
	52-55	4	1.9
	56-60	6	2.9
	60 and over	1	.5
The Frequency of the daily usage of smart phone	3-4 hours	30	14.3
	More than 6 hours	11	5.2
	Between 15 minutes to 1 hour	27	12.9
	1-2 hours	45	21.4
	5-6 hours	19	9.0
	4-5 hours	16	7.6
	2-3 hours	40	19.0
	Less than 1 hour	22	10.5

Table 3. Occupation Groups of the Participants

Occupations	n	%
Retired	25	11.9
Factory Laborer and Operator	20	9.52
Teacher and Educators	18	8.57
Student	18	8.57
Housewife	15	7.14
Officer	10	4.76
Unemployed	10	4.76
Manager	9	4.29
IT Specialist	9	4.29
Engineer (such as computer and mechanical)	8	3.81
Accountant	8	3.81
Executive	6	2.86
Doctor	6	2.86
Paramedic	5	2.38
Academician	5	2.38
Secretary	5	2.38
Soldier- Security	4	1.9
Nurse	4	1.9
Chemist	3	1.43
Guide	3	1.43
Food Technician	3	1.43
Public Relation Specialist	3	1.43
Real Estate Consultant	3	1.43
Logistic Specialist	3	1.43
Chef	2	0.95
Shepherd	1	0.48
Forklift Operator	1	0.48
Assembly Personnel	1	0.48
CNC Operator	1	0.48
Knitting Operator	1	0.48

Table 3 shows that there are 30 different occupation groups that the participants included. These occupation groups are from different branches like shepherd, housewife, factory laborer, academician, and medical doctor. The 44.7% of the adult participants (n=92) are not married, and 55.3% of the participants (n=114) are married. Moreover, 57.3% of the participants (n=118) have not children while 42.7% of the participants (n=88) have children. All of the adults participated to the study has smart phones.

### Data Collection Tools

The data gathered for the study were collected by the “Questionnaire of Technological and Psychological Variables for Adults” constructed by experts. The questionnaire has four parts. The first part includes eight multiple-choice questions and one open-ended question for gathering demographic information. The second part includes the “Nomophobia Questionnaire (NMP-Q)” constructed by Yildirim and Correia (2015) and adapted to Turkish by Yildirim, Sumuer, Adnan and Yildirim (2016). The questionnaire has four dimensions as Not Being able to Access Information (4 items), Loosing Connectedness (5 items), Not Being able to Communicate (6 items), and Giving up Convenience (5 items). The reliability coefficient of Turkish version of the questionnaire is .92. The reliability coefficients of the dimensions of the questionnaire are .94, .87, .83 and .81 respectively. The reliability coefficients of the dimensions of the Turkish version of the questionnaire is reported as .90, .74, .94 and .91 respectively. The third part includes the “Scale of Social Media Addiction – Adult Form” constructed by Sahin and Yagci (2017). The factor loadings of the scale are .61 and .87. The Cronbach Alpha internal consistency for the scale is .94; and for the sub dimension of virtual tolerance Cronbach Alpha, internal consistency is .92 and for the virtual communication, it is .91. The scale has two sub dimensions as virtual tolerance and virtual communication. The last part includes the “Adult Life Satisfaction Scale” constructed by Kaba, Erol and Guc (2017). This scale has five factors as life satisfaction, relationship satisfaction, self-satisfaction, social environment satisfaction and job satisfaction. The item total correlations of the scale are between .41 and .67; and the reliability coefficient is equal to .89.

### Data Collection and Analysis

The data were collected by the participation of the adults educated in different subjects in Public Education Centers in Turkey with paper-based questionnaires during 3 months at the beginning of 2019. The data analysis procedure and the methods of the analysis are summarized in Figure 1.

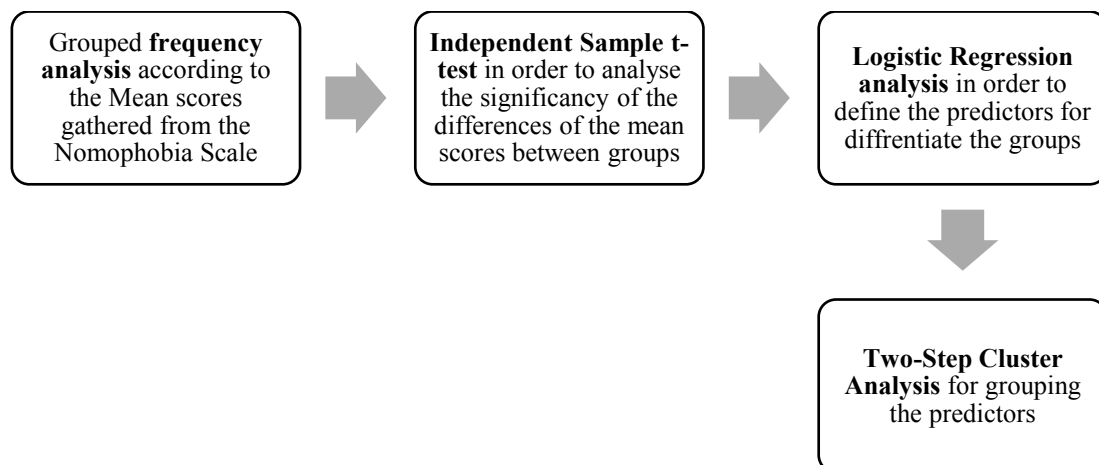


Figure 1. The Data Analysis Procedure

In the first stage of the study (see Figure 1), the participants were divided into groups according to the scores obtained from the Nomophobia scale. In order to determine whether the mean score differences between the groups were significant or not, t-test was performed. The t-test conducted in this study is very important for labelling the groups. Logistic regression was used to determine the independent variables predicting the dependent variable according to the defined groups. The most important reasons for performing logistic regression analysis are to determine the characteristics and predictive variables of dependent and independent variables. The characteristics of dependent and independent variables is summarized in Table 4.

Table 4. The Characteristics of Dependent and Independent Variables

Variable	Variable type	Number of Variables	Description	Status
Marital Status	Categorical	2	Single (1) / Married (2)	Independent Variable
Age	Categorical	6	24-29 (1) / 30-35 (2) 36-40 (3) / 41-45 (4) 46-50 (5) / 52-55 (6) 56-60 (7) / 60 and more (8)	Independent Variable
Having A Child	Categorical	2	No (1) / Yes (2)	Independent Variable
Gender	Categorical	2	Male (1) / Female (2)	Independent Variable
Education level	Categorical	6	University Graduate (1) Primary School Graduate (2) High School Graduate (3) Secondary School Graduate (4) PhD Graduate (5) Master Degree Graduate (6)	Independent Variable
Daily Mobile Phone Usage	Categorical	8	3-4 hours (1), More than 6 hours (2), Between 15 minutes to 1 hour (3), 1-2 hours (4), 5-6 hours (5), 4-5 hours (6), 2-3 hours (7), Less than 1 hour (8)	Independent Variable
Social Media Addiction Score	Continuous		Scores between 20 to 100	Independent Variable
Life Satisfaction Score	Continuous		Scores between 21 to 105	Independent Variable
Nomophobia scores	Continuous		Scores between 20 to 97	Dependent Variable

As stated in the Table 4, some of the independent variables have categorical and 2+ categories, while some independent variables take quantitative values. Therefore, it was decided that the most appropriate analysis was logistic regression analysis. After logistic regression was used to determine the variables that were significant, variable assignment was made for the high and low classes with nomophobia scores by clustering analysis and the nomophobia profiles of the adults were determined according to the significant variables. Assumption tests performed to determine whether the data meet the assumptions before the tests are given below.

1. *Missing data and outliers.* Mahalanobis distances in the regression of each data were examined in order to determine the outliers (see Table 5). As a result of the examination, four data showing the highest and lowest extreme values were extracted from the data set.

Table 5. Outliers

		Case Number	Value
Mahalanobis Distance	Highest	1	28.88969
	Lowest	1	6.79670
	Highest	2	16.78624
	Lowest	2	3.31182



2. *Sample size.* Discriminant analysis has different recommendations on sample size. Poulsen and French (2008) claim that the sample size should be 4 or 5 times the independent variable, while Diekhoff (1992) states that the sample size should be 10 times the smallest group. Since there are eight (8x5, 8x4, 8x10) independent variables in the study, the minimum value of the sample size is expected to be eighty and it provides this assumption.

3. *Normal distribution and variance - homogeneity of covariance matrices:* As a result of the Box-M test conducted to test the homogeneity of the covariance matrices of the data, the result is not significant [F (36, 102019.582) = 1.271,  $p > .05$ ] that is, the covariance matrices are homogeneous. It has been identified according to the scattering diagram results for both groups that the data meet the assumption of normality. In addition, kurtosis and skewness coefficients were calculated to test whether the data set showed normal distribution.

As a result of the analysis, the kurtosis coefficient and skewness coefficient of the dataset were determined as .168 and .334 according to the values obtained from the nomophobia scale. It is expected that the kurtosis and skewness coefficient should be between -1 and +1 in order to provide the assumption of normality of the data set (Tabachnick and Fidell, 2012). In addition, Kolmogorov-Smirnov test (McKillup, 2012), which is used to test the assumption of normality in samples larger than 35, found that p value was greater than  $\alpha = .05$ . A p value greater than  $\alpha = .05$  calculated as a result of the test is considered as evidence that the scores show normal distribution (Mertler and Vannatta, 2005).

4. *Multicollinearity:* In order to test multicollinearity, the Condition Index (CI condition index) and Variance Inflation Factor (VIF) were calculated. While CI values are expected to be less than 10 in order not to show multicollinearity, values between 10 and 30 are known to be “intermediate” multicollinearity indicators (Gujarati, 1995). As a result of the data analysis, only CI values ranging from 11.383 to 17.846 were found in the last three models. In order to determine the problem more clearly, VIF values were examined and it was found that VIF values were below 10 while tolerance values were higher than 10 (Field, 2005). This shows that the data does not have problems about multicollinearity. In general, it can be said that the data are suitable for the predicted tests after the outliers have been discarded.

## Findings

The data obtained as a result of the research are detailed under sub-headings of the purpose of the study.

### 1. How many groups of adults are divided into nomophobia scores?

When the total scores of the adults on the nomophobia scale are examined, it is seen that the scores vary between 20 and 100. Yildirim and Correia (2015) divided the scores obtained from the nomophobia scale into four groups according to their score ranges. The distribution and categories of these scores are given below.

Score of Nomophobia	Level
NMP-Q Score = 2	n/a
21 ≤ NMP-Q Score < 60	Low
60 ≤ NMP-Q Score < 100	Middle
100 ≤ NMP-Q Score ≤ 140	High

When the distribution of the scores of the adults participating in the study was examined, this grading system was used and the frequency analysis (see Table 6) was performed.

Table 6. The Distribution of Lack Of Nomophobia Scores

Level	n	%
Low Level	125	60.7
Middle Level	81	39.3
Total	206	100

When Table 6 is examined, it is seen that the majority of the adults who participated in the study were clustered as low-level group (n = 125.60.7%) and this group was followed by the middle level with 39.3%. The t-test (see Table 7) was used for independent samples t-test the significance of the difference between the mean scores of these two categories.

Table 7. Test of Significance of Group Mean Scores according to Nomophobia Scale Profiles

Nomophobia Scale profiles	N	S	sd	t	p
Low Level	125	55.4800	17.98682	204	.007
Middle Level	81	73.4074	17.84221		.000

When the average scores of the adults according to nomophobia profiles were examined, the difference between the scores was significant ( $t(204) = .007$ ,  $p < .001$ ) and the mean scores of the adults in the second group ( $\bar{X} = 73.40$ ) compared to the first group ( $\bar{X} = 55.48$ ); it was determined that the second group has higher scores. According to this result, it was low for the first group and high for the second group, and according to this labeling, the following sections were presented.

2. *Is gender, education level, life satisfaction, social media dependency level, marital status, having children, age, and daily mobile phone usage predictors of nomophobia scores of adults?*

Logistic regression analysis was performed to determine the percentage of dependent variable classification of independent variables and to determine significant variables in the classification. Before the variables have been included in the model, the initial model (Step 0) -2Log likelihood value is 276.955 and 50% of the first classification percentage. When the predictive variables were included in the model, it was found that the likelihood value of -2Log decreased to 82.705 for the produced model and the percentage of correct classification of the variables increased to 86.8212%. However, when the predictive variables analysis was included, it was found that the model chi-square value was significant ( $t_{(104)} = 150.116$ ,  $p < .001$ ). It was observed that the variables explained 40.48% of the variance in the predicted variable and 52.61% according to Nagelkerke R<sup>2</sup> value according to Cox & Snell R<sup>2</sup> value examined in order to determine the percentage of explaining the variance in the dependent variable. According to Hosmer and Lemeshow test, when the predictor variables analysis was entered, the test result was not significant ( $p > .05$ ). If this value is not meaningful, it means that the model has acceptable fit, ie the data-model fit is sufficient. The results obtained so far show that the predictive variables (gender, education level, marital status, having a child, life satisfaction, social media dependency level and daily mobile phone usage) are successful in classifying the nomophobia profiles of adults. However, the information needed before clustering analysis is to determine the variables that make a significant contribution to the classification. The coefficients of the model variables were examined for the determination of significant predictors (see Table 8).

Table 8. Significant Predictors

Predictors	B	S.E.	Wald	df	Sig.	Exp(B)
Social Media Dependency Level	2.412	.849	8.069	1	.000	11.156
Life Satisfaction	-.442	1.564	.080	1	.037	.643
Gender	-1.384	2.364	.343	1	.653	.251
Education Level	3.572	5.324	.450	1	.165	35.580
Age	-.126	.565	.050	1	.007	.881
Marital Status	.001	.651	.000	1	.000	1.001
Having A Child	-.428	.362	1.399	1	.000	.652
Daily Mobile Phone Usage	2.412	.849	8.069	1	.745	.000
<b>Constant</b>	-119.234	43.158	7.633	1	.006	.000

When the table is examined, there are five predictor variables which contribute to the model significantly. These variables were social media addiction scores, life satisfaction scores, age, marital status, and having children ( $p < .05$ ). The variables that did not contribute significantly to the model were gender, educational status and frequency of daily usage of smartphone. In the next step, the clustering of variables determined to have a significant contribution on the nomophobia profiles of adults and identification of the relationships between clusters were performed.

3. *What is the pattern of the distributions of dependent variables in clusters of adults with low and high nomophobia scores?*

Two-step cluster analysis was used to cluster the data in the study. The most important features of this algorithm are; operating categorical and continuous variables, automatically determine the optimal number of clusters, and subjects that do not comply with the clusters can be extracted from the data if desired. The results of two-step clustering analysis conducted to examine the classes in which the significant predictive variables (social media dependency scores, life satisfaction scores, age, marital status, having children) determined at the result of the logistic regression were illustrated in Figure 2 and Figure 3.

When Figure 2 and Figure 3 are examined, it can be seen that clustering analysis for six independent variables was performed in two clusters and cluster quality was at the desired level. In the cluster which is bigger than two clusters, there are 118 members with 57.3% and in the second small cluster there are 88 members with 42.7%. In addition, the order of importance of variables in clustering was investigated and the results were given in figure.

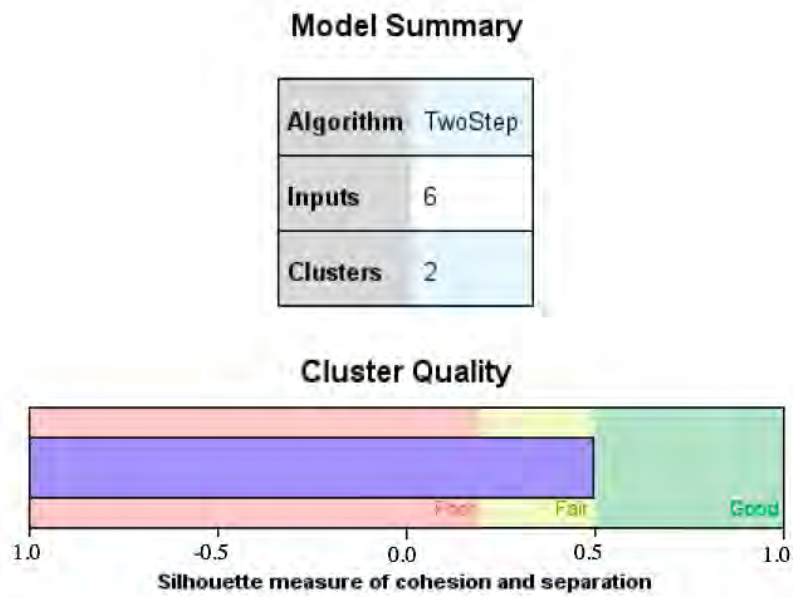
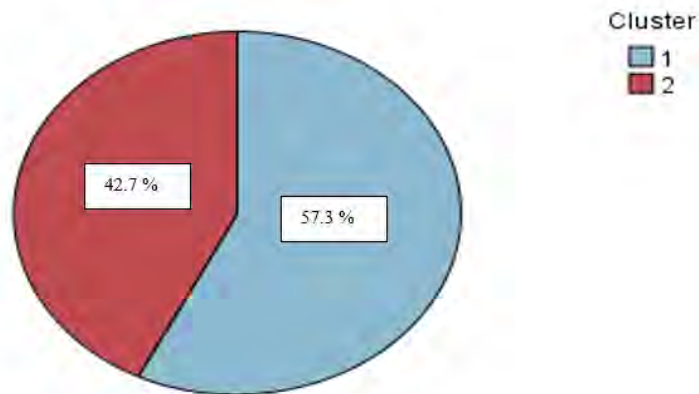


Figure 2. Model Summary and Cluster Quality



<b>Size of Smallest Cluster</b>	88 (42.7%)
<b>Size of Largest Cluster</b>	118 (57.3%)
<b>Ratio of Sizes: Largest Cluster to Smallest Cluster</b>	1.34

Figure 3. Cluster Size

When the order of importance of the variables are considered (see Figure 4), it is seen that the most important variable in clustering is marital status, followed by having children, age, social media addiction and life satisfaction, respectively. According to all the data obtained, the tree diagram showing (see Figure 5) the profiles of adults according to their nomophobia scores is given below.

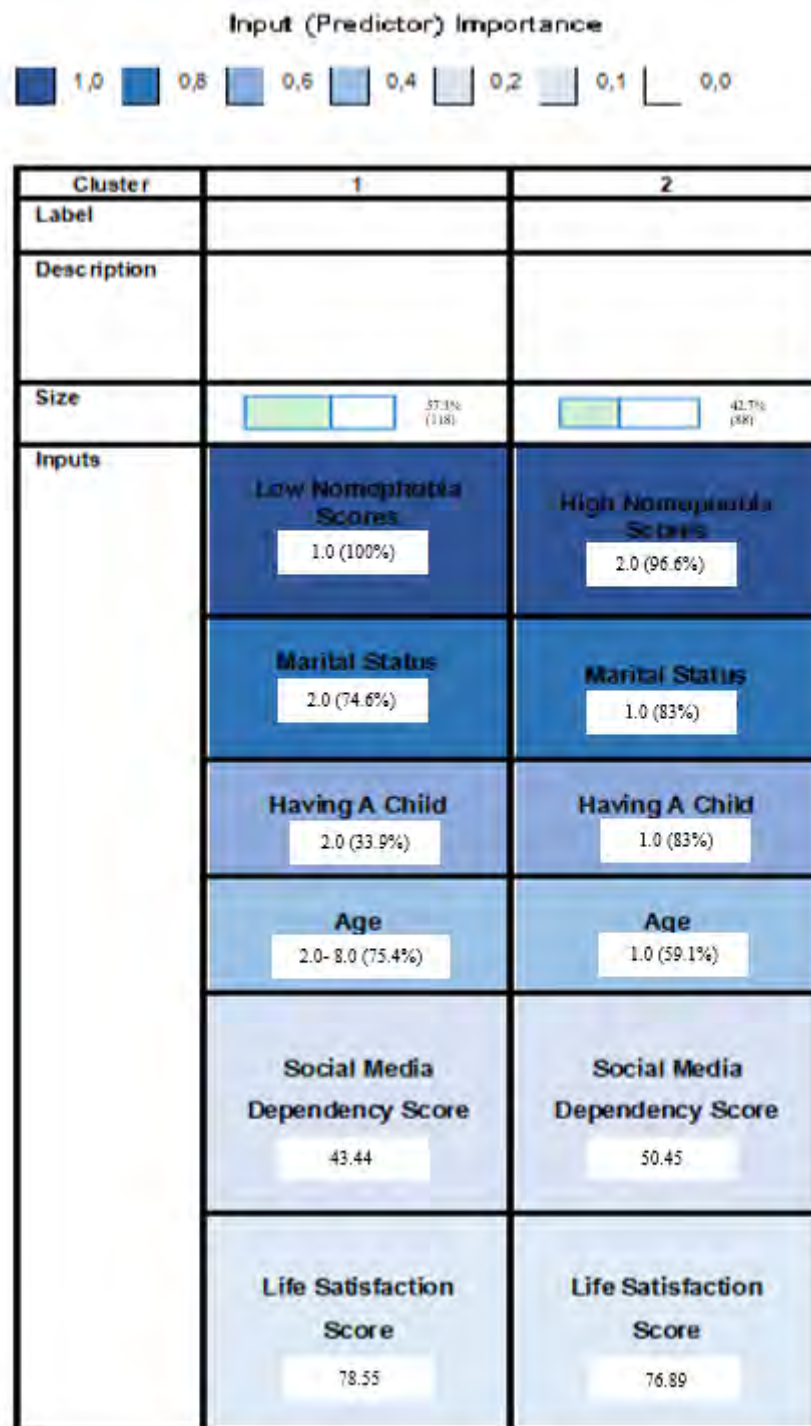


Figure 4. The Order of Importance of Variables in Clustering

When the branched tree is examined, it can be inferred that the nomophobia scores of adults are as follows.

1. While the nomophobia scores of the participated adults who are married, have children, are 30 years and older, have higher life satisfaction scores and lower social media addiction scores are low,
2. Nomophobia scores are high among those who are single and do not have children, are between the ages of 24-29, have low life satisfaction scores and high social media addiction.

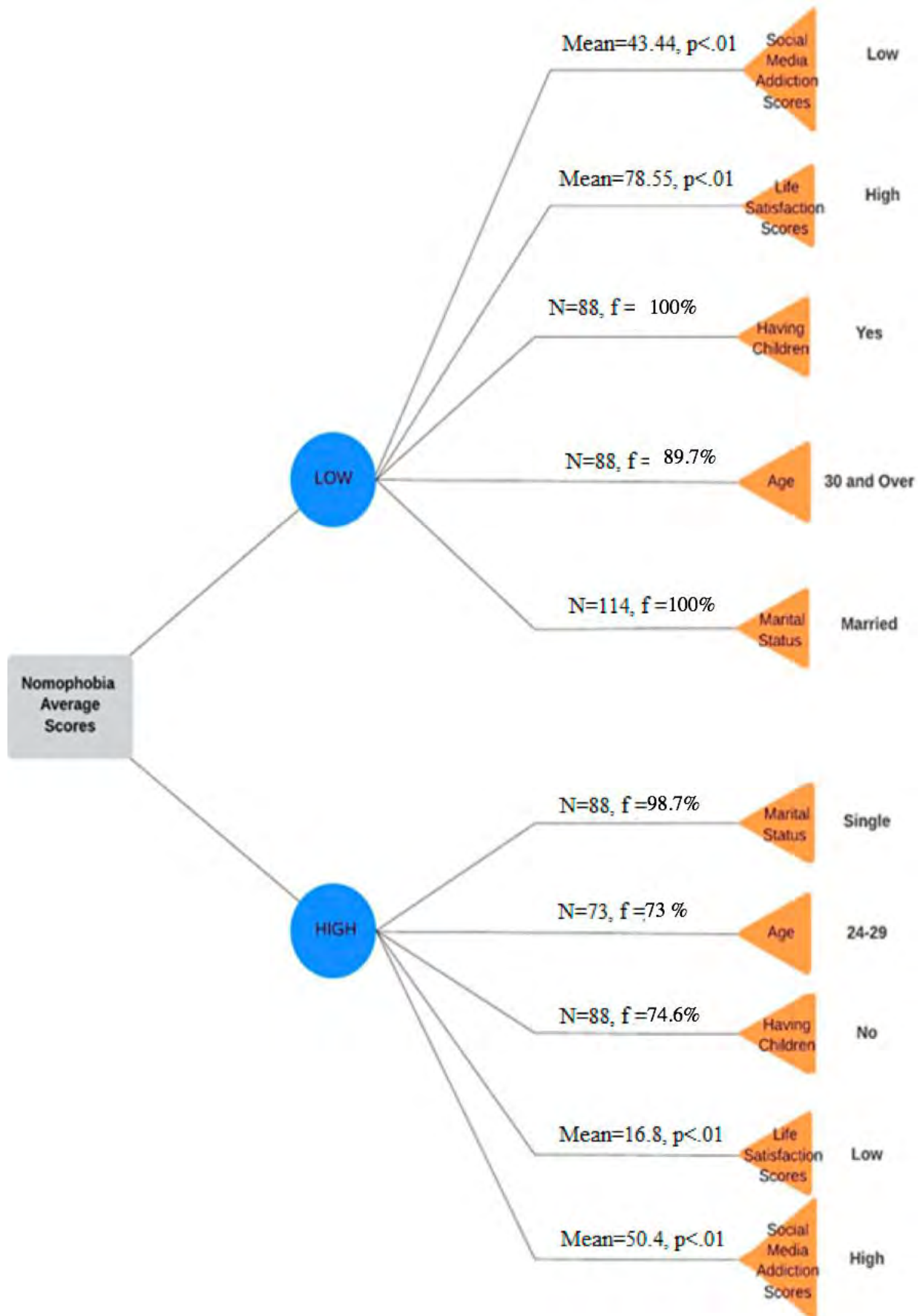


Figure 5. The Tree Diagram

## Discussion

The rapid technological developments and their becoming to an inseparable part of daily life bring some problems. One of these problems, mobile phone deprivation, refers to the discomfort, anxiety and irritability experienced by people who cannot contact with mobile phones (Pavithra, Madhukumar & Mahadeva, 2015). In the studies conducted especially among young people, it can be seen that this situation affects many individuals (SecurEnvoy, 2012) from the age of eighteen to 55 years. In this study, the causes of mobile phone deprivation phobia for adults in the risk group were examined. In this context, the variables that were found to be significant in the nomophobia research conducted for young people in the literature were predicted.

As a result of the study, it was determined that the majority of the adults who participated in the study had very low or moderate fear of mobile phone deprivation. When the effect of independent variables on the nomophobia scores of adults is examined, it can be seen that the variables explain 40.48% of mobile phone deprivation phobia in adults. Although it was determined that the variables affect nomophobia as a whole, some data were found to be contradictory with literature.

According to the obtained data, one of the significant predictors of the nomophobia scores of adults is social media addiction scores. Similarly, there is a positive significant relationship between nomophobia scores and social media usage of young people (Ayar, Ozalp-Gerceker, Ozdemir & Bektas, 2018; Yildiz-Durak, 2018). The same result is also valid for the adults. It is seen that those who have high social network addiction score in adults clustered in high nomophobia group and those who have low social network addiction score clustered in low nomophobia group. The use of social networks increases nomophobia. Therefore, more detailed studies are needed to investigate the effect of each variable on the degree of dependence of both variables in both adult and young groups.

In addition, there is a significant relationship between the increase in adult's life satisfaction scores and nomophobia scores. In similar studies in the literature, it can be seen that loneliness (Gezgin, Hamutoglu, Sezen-Gultekin & Ayas, 2018; Ozdemir, Cakir & Hussain, 2018); depression (Darvishi et al., 2019), self-happiness (Ozdemir, Cakir & Hussain, 2018) and nomophobia have significant relationships. This shows that life satisfaction variable is a common variable affecting nomophobia both in adults and adolescents. When the distribution of adults in terms of life satisfaction was examined, it was found that adults with high life satisfaction scores were in the low nomophobia group and adults with low life satisfaction scores were in the high nomophobia group.

The other three variables that were not previously studied in adolescents and which were significant in adults were age, having children and marital status. According to the importance level, respectively the marital status, having children and age affect nomophobia. Among these variables, it is determined that adults who are married and have children and over 30 years of age are in the low nomophobia group. Opposite to this group, the single, non-child and under-30 adults have a high nomophobia score. This significant difference in age may be related to the fact that under the age of 30 is more prone to technology. This can be inferred from the fact that the nomophobia tendency of young people is higher than other groups.

The results contrast to the findings of this study can be seen in other variables. In studies conducted on adolescents, there is a significant relationship between nomophobia and gender and in many studies, it is in favor of women (Augner & Hacker, 2012; Burucuoglu, 2017; Kanmani, Bhavani & Maragatham, 2017; Lee, Chang & Cheng, 2014; Tavalacci, Meyrignac, Devhelotte, Richard & Ladner, 2015; Turan & Becit-Iscitürk, 2018; Turen, Erdem & Kalkin, 2017;). Similarly, the frequency/duration of daily mobile device use in the literature is also significant among the adolescents (Tavalacci, Meyrignac, Devhelotte, Richard & Ladner, 2015; Sirakaya, 2018; Turen, Erdem & Kalkin, 2017; Hosgor, Tandogan & Hosgor, 2017). However, in this study, no significant relationship was found between nomophobia and gender and frequency of mobile telephone use in adult groups. Therefore, it can be said that there are differences between the variables affecting the nomophobia between adults and young people. This situation reveals that these two groups should be examined separately on nomophobia.

## Conclusion

As a result, it can be said that the profiles of individuals with a high tendency to nomophobia from adults consist of individuals who are single, not having children, under 30 years of age, having low life satisfaction and high social media addiction score. The other group, whose nomophobia tendencies are low, consists of married,

having children, over 30 years of age, having high life satisfaction and low social network addiction scores. The results of the study revealed that there were significant differences in nomophobia between adults and adolescents. This situation reveals that different methods should be used in young and adult groups when taking precautions on nomophobia. In order to reveal these differences, a more detailed study comparing young people and adults should be conducted in the following studies.

In addition, this study finds that the reasons for nomophobia and the precautions to be taken should be done according to age characteristics rather than similar classifications for each age group. In further studies, case studies can be conducted in groups involving adults only and detailed studies can be performed on precautions. In addition to these, considering that social networks are one of the important predictors, studies should be carried out with larger samples that determine the relationship by taking social networks into focus and taking precautions.

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