



## Research Paper: Comparison of Mental Health in Students with Problematic Use of Mobile Phones and Normal Students



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### Abstract

The mobile phone has caused extensive changes in human' life; however, it sometimes causes problems as well. It seems that people using mobile phones in a problematic way are vulnerable to psychological damage. According to the existing research, the purpose of this study was to compare the general health of students using of mobile phones problematically and normal users. In this cross-sectional study, the population were all students of Ardebil universities in the academic year 2013, out of which 116 were chosen using convenience sampling method. For collecting data, the Cell-Phone Over-Use Scale (COS) and General Health Questionnaire (GHQ) were used. Data were analyzed using SPSS16 software. There was a positive and significant relationship between problematic use of mobile phones and general health ( $p < 0.01$ ). Moreover, there was a significant difference between two groups of problematic users and normal users of mobile phones in terms of general health ( $p < 0.01$ ). According to the results, students with problematic use of mobile phones had a lower general health level. Therefore, interventions to improve their health and reduce their problematic use of mobile phones should be considered.

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## 1. Introduction

Nowadays, the mobile phone can be considered to be one of the most basic components of human life; is very difficult to imagine the world without it. The number of mobile phone users in the world has grown surprisingly high. For example, according to the Minister of Communications and Information Technology (2011 as cited in Bakhsipoor, 2017) the number of mobile phone numbers in the country reached 89 million, which represents a 130% penetration rate of it. These statistics are a source of concern because the use of this device has a problematic effect. For instance, the use of mobile phones reduces sperm quality in men (Agarwal et al., 2008) and increases the risk of detecting a cancerous tumor in the head (Hardell et al., 2006; Khurana et al., 2009). In addition to physical damage, mobile phones also cause many psychological damages. As an example, in female students, there is a significant relationship between mobile phones use and academic failure. With increasing use of mobile phones, emotional communication with the family decreases. An increase in receiving useless and unethical information causes the tendency to use mobile phones to increase. With an increasing fashion, the tendency of students to the use mobile phones is also increasing (Babran & Akhavan Tabatabaee, 2011). Correspondingly, the young people's tendency to use the internet and mobile phones is effective in changing individual identity, group identity, family values, cultural values and religious values (Noobakhsh et al., 2009). It can be said that this change can be positive or negative, but it seems to have more negative effects.

Therefore, all factors being considered, it is necessary to recognize the people who use this device problematically and extremely.

The problematic use of mobile phone can be considered to be one of the forms of technology-dependent addiction (Yen et al., 2009). Technology-dependent addiction can also be considered to be a subset of behavioral addictions (Young & De Abreu, 2010). One type of technology related addiction is the Internet addiction defined as a kind of Internet use that can cause psychological, social, educational or occupational problems in a person's life (Shayegh et al., 2009). In some texts, it is referred to as mobile phone obsessive-compulsive disorder (OCD), in which some people use cell phones to call others excessively (Sadock et al., 2003). In general, the problematic use of mobile phones is a situation in which the use of mobile phones is extreme and causes a lot of mental activity (rumination) (Jenaro et al., 2007). Certain factors may play a role in this kind of problematic mobile use. For example, research has found that impulsiveness can predict the amount of mobile phone use (Naderi & Haghshenas, 2009). Although enough research has not yet been done to identify the underlying causes of problematic mobile phones use, it may be the result of factors such as dependent personality characteristics of shyness, depression and low self-esteem (Yang & Tung, 2007), or loneliness (Morahan-Martin & Schumacher, 2003) which would result in Internet addiction in these cases. The problematic use of mobile phones can be associated with problems for people. It should be noted that

there is a positive relationship between problematic use of mobile phone and aggression, smoking, insomnia, suicidal tendencies and low self-esteem (Yang et al., 2010). In Yen et al.'s (2009) study, it is found that adolescents who have each of the symptoms of pathologic use of mobile phones are more likely to report at least one aspect of functional disorder. Thomée et al (2011) find in a one-year follow up high mobile phones use is associated with sleep disturbances as well as depression symptoms in men and women. There is also a positive and significant relationship between the subscales and the general score of general health and excessive use of mobile phones (Yassiminejad et al., 2012). Therefore, it seems that people who use mobile phones problematically are more prone to mental health problems; however, since there are few researches to compare mental health in problematic users of mobile phones with other people, the purpose of this research is to investigate this issue.

## 2. Method

### 2.1. Population, sample and research design

In this cross-sectional study, the population consisted of all students of Ardebil universities in the academic year 2013 among which 116 were selected using convenience sampling method to select them to complete the research questionnaires.

### 2.2. Research Tools

**Cell-Phone Over-Use Scale (COS):** This questionnaire was developed by Jenaro et al. (2007). This questionnaire has 23 items, with a six-option Likert scale and without a sub-scale. Participants with scores above 75 were identified as overly users and below 25 as low

users. Considering Iran's population, scholars obtained the reliability of the test through Cronbach's alpha and the test-retest reliability of the scale of  $r=0.714$ . Besides, their results showed that 21 questions of the questionnaire had a desirable validity and, in this study, the 21-question version was used (Golmohammadian & Yassiminejad, 2011).

### General Health Questionnaire (GHQ):

This questionnaire was developed by Goldberg (1972), and is the most widely used tool for detecting non-psychotic psychiatric issues (Abaspour et al., 2014). The main advantage of GHQ is that it is easy for a performer as it is short and objective. There are several versions of the GHQ available: There is its 60-item version and the shorter ones (containing 30, 28 and 12 items). The 28-item version of this tool (GHQ-28) was developed by Goldberg and Hiller (1979 as cited in Molina et al., 2006). This questionnaire has a four-option Likert scale. Finally, a general score and four sub-scales were obtained (Physical symptoms, anxiety and insomnia, social dysfunction as well as depression). In a study on 80 psychiatric patients and 80 normal individuals, the criterion validity coefficient was 0.78, the split-half reliability coefficient was 0.90 and Cronbach's alpha value was 0.97 (Ebrahimi et al., 2007).

### 2.3. Data analysis

After collecting the completed questionnaires, the data were analyzed using descriptive statistics (mean and standard deviation) as well as inferential statistical methods of independent t-test. The software SPSS16 was run to conduct the data analysis.

### 3. Results

The sample consisted of 42 male students (36.2%) and 74 female students (63.8%) among which, 86 participants (74.1%) were undergraduate students and 30 (25.9%) postgraduate ones. Correspondingly, the mean age of the subjects was 21.98 with a standard deviation of 3.62. The mean score of

Table 1

*The relationship between problematic use of mobile phone and general health*

Variable	Problematic use of mobile phone	
	R	
Physical symptoms	-0.110	
Anxiety and insomnia	0.493**	
Social dysfunction	0.366**	
Depression	0.420**	
General health	0.409**	

P<0.01 \*\*    P<0.05 \*

The results in [table 1](#) presented a significant and positive correlation between the problematic use of mobile phones and general health total score ( $r=0.409$ ,  $p<0.01$ ). Moreover, there was a positive and significant correlation between subscales of anxiety, insomnia, social dysfunction as well as depression of GHQ and problematic use of

Table 2

*Comparison of mental health in two groups of normal and problematic users of mobile phones*

Variable		Mean	SD	T
Physical symptoms	Ordinary user	8.41	3.99	0.87
	Problematic user	9.55	5.07	
Anxiety and insomnia	Ordinary user	4.97	3.69	3.10**
	Problematic user	10.38	5.64	
Social dysfunction	Ordinary user	7.51	3.06	4.11**
	Problematic user	11.45	2.66	
Depression	Ordinary user	3.89	3.92	4.59**
	Problematic user	9.82	5.30	
General health	Ordinary user	24.83	10.91	4.47**
	Problematic user	41.18	16.47	

P<0.01 \*\*    P<0.05 \*

participants on the Cell-Phone Over-Use Scale was 48.48 with a standard deviation of 18.22.

Pearson correlation coefficient was used to investigate the relationship between problematic use of mobile phones and general health ([Table 1](#)).

mobile phones ( $p<0.01$ ). However, the relationship between physical symptoms and problematic use of mobile phones was not significant. In order to compare the mental health in two groups of problematic users of mobile phones and ordinary user, an independent t-test was run ([Table 2](#)).

As seen in the [table 2](#), compared to normal users of mobile phones, problematic users of mobile phone had a higher score in the total score of general health ( $p < 0.01$ ) and general health subscales including depression ( $p < 0.01$ ), social dysfunction ( $p < 0.01$ ) and anxiety and insomnia ( $p < 0.01$ ); this means that they had lower mental health. There was no significant difference between the two groups in the physical symptoms' subscale.

#### 4. Discussion

Mobile phones that have recently entered the lives of humans can cause problems for people if it is used extremely and in troublesome ways.

The first finding of this study was that there was a positive and significant correlation between problematic use of mobile phones and general health including its three subscales. This finding is consistent with existing research in this area. [Beranuy et al. \(2009\)](#) found that psychological distress was associated with the non-adaptive use of the Internet and mobile phones. [Yassiminejad et al. \(2012\)](#) also highlighted a significant positive relationship between overuse of mobile phones and general health.

Additionally, the results of this study revealed that there was a significant difference between the general health of the two groups of normal users and problematic users of mobile phones. People who used cell phones in a problematic way suffered higher levels of anxiety and insomnia, with more social dysfunction, they may develop depression. These results have been repeated in other studies. In a study on 595 adolescents, people who were extreme cell

phone users reported more depression and interpersonal anxiety as well as less self-esteem ([Ha et al., 2008](#)). There was a positive correlation between problematic use of mobile phones and insomnia ([Yang et al., 2010](#)). In a one-year follow up, extreme use of mobile phone has been associated with sleep disturbances and depression symptoms in men and women ([Thomé et al., 2011](#)).

In explaining these findings, it can be said that people who used mobile phones, could ignore their sleep schedule, stay away from their daily work, isolate themselves from friends as well as other people around them, and even develop a kind of Internet addiction through mobile phones, and the total of these factors can endanger the general health of these people. However, on the other hand, it could be possible that extreme use of mobile phones would result from some personality and psychological features of individuals. For example, personality characteristics of dependence, shyness, depression and low self-esteem ([Yang & Tung, 2007](#)) are involved in tendency to Internet addiction and those who feel lonely ([Morahan-Martin & Schumacher, 2003](#)), may be more likely to get addicted to Internet.

#### 5. Conclusion

Although the generalization of online addiction related to the extreme use of mobile phones should be treated with caution, if these factors also apply to the tendency to pathologic use of mobile phones, it can be concluded that perhaps in some cases, the mental health and social functions of individuals would result in problematic use of the cell phone. Considering the knowledge

in this field, a causal conclusion can't be made, and this issue should be considered in future researches.

Nevertheless, in the present study, there was not a significant relationship between the problematic use of mobile phone and the subscale of the physical symptoms of the general health questionnaire. On the other hand, there was not a significant difference between the subscale of the physical symptoms of the General Health Questionnaire in two groups of ordinary and problematic users of mobile phones, contradicting the above findings. This finding could indicate that the psychological effects of use of mobile phones are greater than physical effects although it is possible in the long term to cause severe physical problems, such as cancerous tumors in the brain (Khurana et al., 2009). Therefore, paying attention to psychological problems associated with excessive use of mobile phones in students seems necessary.

Considering the sample of this study which was limited to students in Ardebil and the small sample size, it is suggested that this research could be conducted with more sample groups and in other geographical and cultural environments.

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### Conflict of interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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