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### Brief Report

# Relationship between smart phone addiction and mental health in nursing students of Abadan University of Medical Sciences

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## Abstract

**Introduction:** Students are a large group of cell phone users who are exposed to psychological damages due to excessive use of this device. Reducing social and isolation, increasing loneliness, impulsivity and depression are the most likely consequences among excessive uses. The purpose of this study was to investigate the relationship between addiction to smart phones and mental health in nursing students of Abadan University of Medical Sciences.

**Materials and Methods:** This descriptive-analytical study was conducted on 200 nursing students of Abadan University of Medical Sciences in 2016. The research instrument consisted of demographic information questionnaire, general health questionnaire and cell phone use questionnaire. Data were analyzed by SPSS software version 17 and Spearman correlation coefficient and independent t-test.

**Results:** The results indicated that with increasing excessive use of smart phone, general health was reduced. There was significant correlation between mental health dimensions and smart phone addiction ( $P < 0.05$ ).

**Conclusion:** Given the negative impact of smart phone addiction on general health, this relationship can have a damaging effect on other aspects of student's life, including quality of life and academic achievement.

**Keywords:** Addiction, Mental health, Nursing students, Smart phone

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## Introduction

Excessive use of smart phone is one of the behavioral problems that can lead to issues such as reduced social relationships, social isolation and increased sense of loneliness, and depression (1-3). Loneliness due to smart phone addiction is associated with some psychological characteristics such as impulsivity, aggression, introversion, low self-esteem, embarrassment and shame (1,3-5). The results of medical research on the physical effects of smart phone show that it causes changes in gene regulation, visual and auditory problems, increased intra optic pressure, headache, sensation of ear heat, loss of memory and fatigue (4,6,7). In addition, students may also be at risk of suffering from excessive use of this device, including educational problems, cultural and social changes. These factors are associated with issues such as depression, stress and anxiety, substance abuse, suicide, and even negative effects on economic indicators (such as per capita income) (3,8). In this study, we aimed to study the effect of extreme use of smart phone on the mental health among nursing students of Abadan University of Medical Sciences during 2015-16.

## Materials and Methods

This cross-sectional descriptive-analytic study was conducted to investigate the relationship between smart phone addiction and mental health in 200 nursing students of Abadan University of Medical Sciences by random stratified sampling during 2015-16. To determine the sample size, the sample size formula has been used based on the average mobile phone usage time so the sample size is considered as 200 cases (3). Students entered the study with informed consent. Questionnaires were completed confidentially and without name.

Research instrument

*A) Cell-Phone Over-Use Scale (COS):* COS is based on the ten psychological indicators of the Diagnostic and Statistical Manual of Mental Disorders (DSM) and has 21 items. This scale is based on Likert five options: very low (1), low (2), somewhat (3), frequently (4) and very frequently (5). Subjects with scores above 75 are considered as the excessive user and lower than 25 are considered as low users. Yasminejad and Golmohammadian have reported the reliability of this questionnaire (0.90%) using the Cronbach's alpha and test-retest method (6).

*B) General Health Questionnaire (GHQ):* GHQ-28 provided by Goldberg and Hiller (1979) is a 28-item measure that has 4 subscales and each scale consists of 7 questions. These subscales include somatic symptoms (items 1-7), anxiety symptoms and insomnia (items 8-14), social dysfunction (items 15-21), and severe depression (items 22-28) for scoring we used the Likert method to indicate symptom severity, which scores the item response between 0-3 (0-1-2-3). The scores above 6 in each subscale and above 22 in total number express pathological symptoms. The scores of subscales in the questionnaire, the score (0-6) indicates low general health, mild (7-11), moderate (12-16), and severe (17-21). In total scores of the questionnaire, the score (0-22) indicates low general health, (23-40) mild, (41-60) moderate and (84-61) high general health (4,9).

Data were analyzed by SPSS 17 using descriptive statistics (mean, and percentage) and analytical tests (analysis of variance, t-test, chi-square and Spearman correlation coefficient).

## Results

In term of demographic characteristics, 65% of the participants were female and 85% were single. The mean age of participants was  $23.77 \pm 4.55$  years (range of 17-37

years). Based on the results of independent t-test, the mean of health scores and mobile phone addiction in both male and female groups, as well as in both single and married groups, did not show a significant difference (Table1). The average of health scores in the two groups of male and female students is almost the same, while the average of this score by marital status is reported in married individuals (21.67%) less than single (25.45%). The mean of smart phone

addiction was similar in both genders, but the mean score of smart phone addiction in single women (33.32%) was slightly higher than married women (28.48%) (Table 1). According to the classification of mental health scores, 43% had the lowest mental health, 44% had mild mental health and 13% had moderate mental health. In the sample, 41% were used in low numbers and 59% were used as ordinary cell phones (Table 2).

**Table 1.** Mean of mental health and mobile addiction based on demographic characteristics

Variable		Group	Mean±standard deviation	t-test	P
Mental health	Sex	Female	24.82±11.01	0.030	0.976
		Male	24.89±11.59		
	Marital status	Single	25.49±11.35	1.197	0.234
		Married	21.67±9.73		
Smart phone addiction	Sex	Female	32.18±16.37	0.328	0.744
		Male	33.31±16.59		
	Marital status	Single	33.32±16.14	1.073	0.286
		Married	66.84±16.36		

**Table 2.** Distribution of the frequency and severity of mobile addiction and mental health

Variable	Level	Percentage
Mental health	Low	43
	Mild	44
	Moderate	13
Smart phone addiction	Low	41
	Normal	59

Results of Spearman correlation test showed that there is a negative relationship between mental health scores and smart phone addiction, but not significant (P= 0.352). Also, There was an negative correlation

between the score of addiction to smart phone and age, so that as the age increased, the rate addiction to the smart phone was reduced, but this relationship was not statistically significant (P= 0.214) (Tables 3 and 4).

**Table 3.** Correlation between mental health scores and smart phone addiction with age

Variable	Mental heath	Smart phone addiction	Age
Mental heath	1	-	-
Smartphone addiction	0.094	1	-
Age	0.069	-0.125	1

**Table 4.** Relationship between smart phone addiction and mental health dimensions

		Smart phone addiction	Mental health
R	Smartphone addiction	1	0.094
P-Value			0.352
R	Mental heath	0.094	1
P-Value		0.352	
R	Somatic dimension	0.059	0.667
P-Value		0.559	0.000
R	Anxiety and insomnia	0.099	0.776
P-Value		0.328	0.000
R	Social function	0.054	0.754
P-Value		0.591	0.000
R	depression	0.044	0.783
P-Value		0.000	0.000

Spearman's correlation coefficient showed that there is a significant relationship between smart phone addiction and mental health dimensions.

### Discussion

The aim of this study was to investigate the relationship between smart phone addiction and mental health of nursing students in Abadan University of Medical Sciences. The results of the study showed that there is no significant difference between the mean scores of mental health and smart phone addiction in both genders, single and married groups. However, this score in terms of marital status in married people is lower than that of single people. There is also a negative relationship between mental health scores and smart phone addiction, although this relationship is not significant. Indeed, mental health is decreased with increasing scores of smart phone addiction. Also, the findings of this study showed that there is a correlation between mobile phone addiction and mental health dimensions, which is consistent with the study of Pur Akbaran (10) and Boumosleh (11). It seems that social aspects of mobile phone through education and awareness are the only way in

which, in addition to respecting students' self-esteem, we can have sufficient control and supervision over their communication issues (9).

The limitations of this study include the cross-sectional nature of the study, the low sample size and the possibility of inadequately responding to the questionnaires. So doing other research with more sample size and addressing factors such as lifestyle and family culture is suggested.

### Conclusion

Given the negative impact of smart phone addiction on general health, this relationship can have a damaging effect on other aspects of student life, including quality of life and academic achievement. Therefore, further research is recommended in this regard.

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