Research Paper:
Relationship Between the Use of Mobile-based Social Networks and the General Health Among Employees in the South of Iran

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ABSTRACT

Background: One of the most challenging aspects of today's technology is mobile social networking, which has affected the health and social life of individuals. The goal of this study was to investigate the relationship between the use of mobile-based social networks and general health.

Methods: This analytical and cross-sectional correlation study was done on 295 staff of Bushehr University of Medical Sciences in 2018 -2019. The data were collected using the general health and social networking addiction questionnaires. A random sampling method was used to select the participants. Descriptive statistics, t-test, one-way ANOVA, and Pearson correlation coefficient were used for data analysis via the SPSS software, v. 24.

Results: Of two hundred ninety-five participants, 153 (51.7%) were male and 142 (48.3%) were female. The Mean±SD age of the participants was 36.32±6.61 years. There was a statistically significant relationship between the mean score of social network addiction and demographic characteristics of sex and marital status. There was also a significant relationship between the level of general health and marital status and the amount of daily use of social networking. There was a direct and significant relationship between the amount of use of social networks and general health ($P<0.05$).

Conclusion: It seems social networks use is often more in men and single individuals due to their tendency to receive information and news and to have much more leisure time. Given the positive impact of marriage on mental health in most studies, there is a need for more detailed research on the relationship between general health and marital status.

1. Introduction

Most studies in social media focus on the impact of social media use on health-related outcomes. Some studies have found that Facebook use is generally negatively associated with well-being [1]. Berryman et al. found that while overall social media use was not predictive of impaired mental health functioning, one particular activity, that is, "vaguebooking" (posting unclear but alarming posts to get attention), was found to be predictive of suicidal ideation among young adults [2].

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Some researchers have found that using WhatsApp and Facebook has led to insomnia, physical inactivity, and eye problems in the majority of adolescents. Depression and suicidal ideation have also been reported by users [3]. Other problems caused by the use of social networks in students are physical inactivity and obesity, along with symptoms, such as back pain and muscle aches [4].

On the other hand, mobile social network applications, present a means for people with disabilities to integrate into society, from which they can obtain information and enjoyment benefits without movement [5]. Also, social media use is positively related to social capital and subjective well-being among university students [6].

In some studies, no relationship was reported between the use of social networks and depression [7]. The results of inconsistent studies regarding the relationship between social network use and dimensions of public health, highlight the possible significance of exploring this relationship. Also, examining the issue of health and its related factors can be a solution to some uncertainties and complexities associated with factors threatening health status.

Considering the mentioned issues and the fact that the main studies in this field are related to the impact of social networks on students and adolescents and few studies have been done on adults, especially employees, the researchers sought to examine the relationship between mobile social networks and general health status in the staff of Bushehr University of Medical Sciences. The present study could be a guide for conducting further follow-up investigations and adopting appropriate preventive against damages in this domain. Accordingly, our research three hypotheses (H) were as follows:

(H1): There is a significant difference between demographic variables and the use of mobile social networks.

(H2): There is a significant difference between demographic variables and general health.

(H3): The use of social media is related to the general health of employees.

2. Methods

Participants

This analytical and cross-sectional study was conducted on 295 Bushehr University of Medical Sciences staff, South of Iran in 2018 -2019. After obtaining the ethical approval of the Ethics Committee of Shiraz University of Medical Sciences, the participants' written informed consent forms were gathered. The inclusion criteria were as follows: 1) All employees (formal, semi-formal, and contractual) with at least a high school diploma and 2) installing social networking software on mobile phones. The only exclusion criterion was the failure to complete the questionnaire completely.

Measures

The study questionnaires were completed by a trained person in the employees' workplaces. The participants were ensured in terms of ethical considerations and confidentiality of their information. The following three complementary questionnaires were used for data collection: a) a demographic information form, b) mobile social media addiction scale [8], and c) a standardized general health questionnaire [9].

Demographic characteristics information form

This was a researcher-made questionnaire developed with respect to demographic variables, including gender, age, marital status, household's average monthly income, and education level.

Mobile Social Media Addiction Scale

Development and Psychometricity of this questionnaire were done Khajeh-Ahmadi et al. (2016) in four phases according to Waltz's (2010) methodology [10]. Therefore, 24 items were examined after conducting the factor analysis of the internal consistency of the whole scale.

Cronbach's alpha coefficient for the whole questionnaire was equal to 0.927. The questionnaire was scored on a 5-point Likert scale ranging from "disagree" to "totally agree" (scores 1 to 5). Considering the minimum score of 1 and the maximum score of 5 for each item, the total score of the questionnaire could range from 23 to 115. Thus, the level of mobile social networks addiction was described on four levels, including a lower-than-usual user (23-46), a usual user (46-69), a user on the verge of addiction (69-92), and an addicted user (92-115) [11].

In this study, CVR and CVI were calculated as 0.88 and 0.82, respectively. Cronbach's alpha coefficient was 0.93 in a sample of 30 eligible employees in the study.

General Health Questionnaire

This standardized questionnaire was developed by Goldberg (1979) [9]. This 28-item questionnaire consisted of four subscales (somatic symptoms, anxiety/insomnia, so-

cial dysfunction, and severe depression) each containing seven items. The items were scored using a Likert scale.

Considering the minimum score of 0 and the maximum score of 3 for each item, the minimum and maximum scores of the questionnaire were 0 and 84, respectively. Accordingly, the scores were divided into four levels as follows: no or minimum (0-22), mild (23-40), moderate (41-60), and severe (61-84), with higher scores indicating the disease symptoms. Additionally, the scores on the no or minimum, mild, moderate, and severe subscales were 0-6, 7-11, 12-16, and 17-21, respectively. Finally, based on the cut-off point of 23, obtaining a score of 23 and above indicated a mental health disorder and a lower score showed good mental health status [12].

Noorbala et al. conducted a study in 2009 and reported the validity coefficient of the questionnaire to be 0.83 and its Cronbach's alpha coefficient to be 0.97 [13].

Sampling and statistical methods

A random sampling method was used to select the participants. Based on the literature review, no studies had been conducted on the issue. Thus, considering type 1 error of 5% and type 2 error of 20%, a sample size of 180 subjects was determined to find the relationship between general health and the use of social networks. However, regarding the number of administrative staff of the university under investigation (n=330), 295 questionnaires were finally included in the statistical analysis.

Data analytic strategy

Descriptive statistics (frequency/percentage, Mean±SD, and range), t-test, and one-way ANOVA were used. To determine the normality of the data, Kolmogorov-Smirnov (K-S) test was used. Considering the normal distribution of the data, Pearson parametric coefficient method was applied. The analyses were performed using the SPSS software, v. 24 at the significant level of P≤0/05.

3. Results

In total, 295 employees participated in the study. The Mean±SD age of the employees was 36.32±6.61 years. The study results showed that most of the samples were male and married and had Bachelor's degrees. The findings also indicated that most of the participants' monthly household income ranged from one to two million tomans. According to Table 1, nearly all participants had been using social networks 1-2 hours a day for more than four years. The first priority of the location of use was reported to be home followed by workplace by the majority of the participants (Table 1).

The results showed a significant difference between male and female participants in terms of the mean score of using social networks (P<0.017). However, there was no significant difference between the two groups with regard to the mean score of general health status (P=0.262).

Moreover, the results indicated a statistically significant difference between the single and married participants concerning the mean score of using social networks (P=0.033) and general health status (P<0.011) Besides, there was a significant difference among the individuals with different durations of social networks use per day regarding the mean scores of general health status and social networks addiction (P<0.001). The results support hypotheses 1 and 2 (Table 2).

There was also a direct and linear relationship between the extent of the use of social networks and general health status dimensions in employees (somatic symptoms, anxiety/insomnia, social dysfunction, and severe depression), which supports hypothesis 3 (Table 3).

Based on Table 4, most of the study samples were less-than-average users of mobile social networks. However, about 20% of the participants were on the verge of addiction or addicted to social networks. The mean scores of general health disorders were at the 'no or minimum level' both in general and in terms of somatic symptoms, social dysfunction, anxiety/insomnia, and severe depression (Table 5).

4. Discussion

The study findings showed that 20% of the participants were on the verge of addiction or addicted to mobile social networks. Likewise, the results of the research by Shaikhamadi et al. (2018) indicated that 28.7% of the students had Internet addiction [14]. Balci et al. (2013) also reported that 5.1% of the students were addicted and 22.6% were on the verge of addiction. As a whole, it was concluded that 27.7% of the students were at risk for addiction [15]. On the contrary, Pontes et al. (2015) conducted a study on 1057 Internet users aged 16-71 years and disclosed that 51% of the samples perceived themselves as addicted to the Internet, while 14.1% reported that their lives had improved without using the Internet [16]. Given the fact that the samples were within the age range of 16-71 years in that study, non-random sampling was done. In the study by Jafarkarimi (2016), the addiction rate was reported to be above 40% among the study participants [17]. The lower rate of Internet ad-

Table 1. The Frequency of demographic characteristics

Variables		No.(%)
Sex	Male	153(51.7)
	Female	142(48.3)
Marital status	Single	93(31.3)
	Marriage	202(68.7)
Education level	Diploma	52(17.7)
	Postgraduate	48(16.3)
	Bachelor	124(42.2)
	Master and higher	70(23.8)
Daily use of social networks	<1 hour	62(21.1)
	1- 2 hour	49(16.7)
	2 -3 hour	49(16.7)
	3-4 hour	47(16)
	>4 hour	87(29.6)
Duration of social networks use (y)	<1 year	96(32.7)
	1-2 years	103(35)
	2- 3 years	30(10.2)
	3-4 years	34(11.6)
	>4 years	31(10.5)
Most commonly used location for use	Home	231(78.6))
	Workplace	32(10.9)
	Friends' homes	4(1.4)
	Other locations	27(9.2)
Average family income (tomans)	1-2 million	134(45.6)
	2-4 million	124(42.2)
	>4 million	36(12.2)

Table 2. Mean of scores of social networks use and general health based on daily use duration, marital status, and sex

variables		Mean±SD		P
		Social Networks Use	General Health	
Daily use of social networks P<0.001	>1 hour	45.78±19.84	19.63±10.55	<0.001
	1-2 hours	48.39±17.26	19.99±11.18	
	2 -3 hours	54.37±21.58	20.97±10.24	
	2 -3 hours	64.97±20.97	22.68±10.92	
	< 4 hours	61.94±19.66	31.84±14.19	
Marital status P<0.033	Single	56.53±19.21	24.13±12.57	<0.011
	Married	49.30±20.60	20.18±10.97	
Sex P<0.017	Male	54.07±20.87	20.77±.10.84	0.262
	Female	48.44±19.25	22.31±12.63	

Table 3. The relationship between the general health and use of social networks

Variables		Use of social Networks	
		r	P
General Health	Physical health	0.28	<0.001
	Anxiety and sleep disorders	0.57	<0.001
	Social action	0.12	≤0.003
	Major depression	0.42	<0.001

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Table 4. The rate of using mobile social networks

Variables		No.(%)
The rate of using mobile social networks	Less than average	133(45.1)
	Normal	103(34.9)
	On the verge of addiction	48(16.3)
	Addicted user	11(3.7)

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diction in the given study compared to the cited investigations could be due to differences in sampling methods and study populations. As can be seen, students had been surveyed in most of the aforementioned investigations. Due to being away from their families, living in dormitories, facing life problems, and difficult academic courses, students could turn to virtual environments to meet their mental and psychological needs.

The results of the present study revealed that the mean score of using social networks was higher in males than in females, which is in line with the results of some studies in this domain [17, 18]. It seems that men turn to social networks and the Internet due to more work-related issues and in order to access information and news of the day. Hence, the use of social networks has been reported to be higher among men. However, these results were in contrast to those of the investigation on university students, in which no relationship was found between gender and Internet use [15, 19]. This contradiction could be due to differences in the type of study groups.

The current study findings showed a significant direct relationship between the use of social networks and marital status. In this respect, the rate of social networks use was higher among single individuals compared to married ones, which is consistent with the results of some studies conducted on the issue [15, 20, 21-23]. It seems that married people are less likely to turn to social networks due to their higher workloads, higher mental engagement, and inadequate time. Also, according to the results of this study, the scores of general health status in single people were higher than married people. This result was in agreement with the study by Kalmijn who demonstrated that what individuals could lose in their marriage was 2-3 times more than the benefits of marriage. Thus, it was argued that the general health status did not improve during marriage and even years after that [24].

Table 5. Mean and range of scores of general health dimensions

Variables		Range of Scores	Mean±SD
General Health	Somatic symptoms	0-21	5.40±3.84
	Anxiety/insomnia	0-21	7.91±4.14
	Social dysfunction	0-21	7.02±2.75
	Severe depression	0-21	2.92±2.88
	Total score	0-84	25.23±61.13

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In contrast, the results of some studies suggested that marriage could promote health through multiple factors, including social support, social control over health-related behaviors, and access to resources that could be used to protect and boost health status [25, 26]. Moreover, it is believed that married individuals are willing to live longer, feel lower levels of psychological disturbance, and suffer from less depression [27]. The results of this study could be partially justified by considering the significant impact of marriage on mental health compared to physical health and other health dimensions as well as by taking the limitations of examining the mental aspects into account. However, more detailed investigations should be conducted in this regard.

According to the results of the present study, general health status was favorable among the employees, which is in line with the findings of the investigation by Nodoushan et al. [28]. Additionally, there was a significant direct relationship between the duration of using social networks and mental health status. Similarly, David Meredith et al. (2017) reported that time spent on applications, including photos and videos was correlated with higher levels of depression and anxiety while using mobile-based books could reduce depression and anxiety and even lead to higher levels of mental well-being [29]. However, these results contradicted those of some investigations conducted in this regard. For instance, Choulhar et al. (2015) carried out research on 147 students in India and concluded that using mobile applications caused insomnia, physical inactivity, eye problems, depression, and suicidal thoughts in most users [3, 30].

The relationship between the use of online social networks and general health symptoms might be complicated and associated with psychological, social, and behavioral factors in individuals. In addition, the impact of online social networks on general health status may be positive or negative and reflect the need for further research in order to determine the effects of mediating factors on the heterogeneous results of evolving networks as well as the use of virtual networks.

One of the strengths of the present study was that the target group for most social media studies was adolescents, and few studies have been conducted for adults, especially employees while paying attention to the lifestyle of adults who are mostly parents. It can also affect the health and lifestyle of children. Also, in this study, unlike similar studies, an internal psychometric questionnaire for mobile social networks was used.

The current study had several limitations. First, the study participants were limited to the employees of Bushehr University of Medical Sciences. Thus, the results cannot be generalized to other working environments. Therefore, future studies are recommended to be conducted on different age and cultural groups as well as other sections of the society. Second, we utilized employees' self-reports to collect the data. Therefore, there is a need for future research to include diverse research methods, such as observations. Third, recent studies were cross-sectional. Thus, longitudinal studies are required to determine the causal relationships among addiction to virtual spaces, general health status, and other variables.

5. Conclusion

The results of the current study indicated that the use of mobile social networks affected employees' general health status. Considering the consequences of unlimited and uncontrolled use of social networks on individuals, such as neglecting their physical and mental health, avoiding important life activities, the occurrence of family problems, and financial problems caused by the Internet use costs, and given the importance of physical and mental health status and promotion of social skills in individuals, it is necessary to pay particular attention to the proper use of mobile social networks. Therefore, large-scale planning and community-based strategies should be at the foreground of the activities by politicians and community leaders to solve life problems in individuals and to promote the culture of the proper use of virtual spaces in educational departments, academic centers, and families. In this context, training and preventing the risks and costs of the unlimited use of virtual environments at family and community levels as well as holding workshops on time management and communication skills are of utmost importance.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Shiraz University of Medical Science (Code: 1397.400).

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

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