

The Effect of Excessive Use of Virtual Social Networks on the Academic Performance of Bamyan University Students: The Mediating Role of Quality of Sleep



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ABSTRACT: Background: The social networks are used today as one of the important tools in establishing communication between people. In addition to the advantages, it can also have several disadvantages and problems, the negative effects of which can be seen on the academic performance of students.

Objective: This study was designed to investigate the role of excessive use of virtual social networks on the academic performance of Bamyan University students with a mediating role of quality of sleep.

Methodology: The present study has a descriptive-correlational design. A total of 180 Bamyan University students (90 male and 90 female) were selected by convenience sampling method and responded to the Pittsburgh Sleep Quality Questionnaire (Buysee et al., 1989), Yang Internet and Social Network Addiction Questionnaire, Demographic Questions, and GPA of last semester. Data were analyzed using Pearson correlation test and hierarchical regression analysis by means of SPSS-24.

Results: The results showed that the excessive use of social networks had a significant negative correlation with academic performance and predicts it inversely ($T = -9.338$, $\beta = -.730$) and There is also a significant relationship between excessive use of social networks and quality of sleep ($T = 15.726$, $\beta = .763$). There was a significant relationship between social and sleep quality ($T = 15.726$, $\beta = .763$). But sleep quality could not play a mediating role between excessive use of social networks and students' academic achievement and showed that this relationship is not significant ($T = -.174$, $\beta = -.014$).

Conclusion: Excessive use of social networks has negative effects on students' academic achievement and quality of sleep. For this purpose, it is necessary to manage the use of social networks for optimal use in order to achieve high academic achievement and good quality of sleep.

KEYWORDS: Excessive use, social networks, academic achievement, quality of sleep

INTRODUCTION

Due to the rapid advancement of technology in the contemporary world, tools like the Internet, social networks such as Facebook, YouTube, Viber, as well as smartphones that have provided the use of the above tools, have profoundly affected people's normal lives[1]. On the one hand, these tools and instruments have caused speed and accuracy in work and expansion of communication, in such a way that the globe has become a global village [2]. On the other hand, it has profoundly affected the normal life and daily functioning of individuals (Jupta, Garg and Aurora, 2016).

Social networks such as Facebook, YouTube, Twitter, Skype, Viber, We chat, etc. are among the most widely used social networks in recent years in Afghanistan, although they do not have a very long life, but have been able to have a tremendous impact on different communities[3]. The Arab Spring and the overthrow of several powerful Middle Eastern governments are good examples, that were of origing like Facebook, making friends around the world, meeting new people, staying up to date on any events are things that raised optimism about the network[4].

Others disagree, focusing more on the vulnerable parts of the networks, which they say both alienate people from reading books and create panic among the people about Afghanistan's future. However, communication experts say that the issues raised on social media are related to the perceptions and culture of each community and are very useful for Afghanistan. On the other hand, new research shows that social media are addictive and hundreds of patients addicted to these networks refer to specialized clinics for treatment every year [5].

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Usually, people who spend more than 5 hours on social networks, this action somehow leads them to become addicted to these social networks. Children and adolescents, and even adults over the age of 35, rely too much on game nets or the Internet, which can eventually lead to addiction. According to doctors, most girls are addicted due to high competition with their peers[6].

Social networks are made up of individuals or organizations, each of which is present in the network as an individual or group and can have direct or indirect contact with a number of other individuals and groups. These networks have been used by many users due to the multiplicity and variety of content and various software and internet capabilities. At the same time, social networks create an emotional-cognitive channel by creating a sense of trust, which has a high impact on the relationships between users of these networks and such websites. The formation of trust is very important due to its pervasiveness, since in this way, it causes the tendency to expand social networks to a wide range of people in the community and is constantly increasing[7].

Research shows that excessive use of mobile phones causes a kind of dependence and in severe cases causes users to go about their daily lives. This dependence gradually becomes a habit, thus leading to a kind of addiction in users[8]. One of the problems that may arise for students as the most talented and intelligent sections of society as a result of high employment with this device is poor academic performance[9].

Given that students have an important role in the future and excellence of the country, explaining the factors related to students' academic success is a significant research issue in the field of research related to higher education. Academic success is an important dimension for university studies[10]. Excessive use of mobile phones by students paves the ground for creating an emotional dependence on mobile phones, and in this way, in addition to creating high mental employment and loss of concentration, ultimately leads to a decline in academic performance[10].

Research results indicate that excessive use of information and communication technology and mobile phones has a negative impact on academic achievement of high school students[11].

Although mobile internet can be used as an educational tool due to its numerous capabilities, unfortunately, instead of doing educational activities, students often visit irrelevant sites and have less time to study, which leads to their academic decline. Leap, Barkley & Karpinski in a study aimed at investigating the effect of cell phone use and text messaging on academic performance, anxiety and life satisfaction in 143 general mobile user students and 140 text users, showed that students frequent use of cell phones is associated with lower GPA, higher anxiety, and lower life satisfaction compared to peers who use cell phones less frequently[12].

Fore In a study entitled "The Impact of Social Networking Sites on the Academic Achievement of Engineering Students at the University of Maiduguri, Brno, Nigeria", concluded that social networking sites have no effect on academic performance[13]. But in a study conducted by Madaiah et al. On medical students, they concluded that medical students who used virtual social networks had poorer academic performance than others who did not use them[14].

On the other hand, excessive cell phone use is associated with certain behavioral patterns such as waking up at night, engaging in text messaging, and emotional attachment. Adolescents who spend more time using technology spend less time sleeping and experience lower levels of academic achievement[15].

The Sleep Disorders Research Center emphasizes that adequate sleep is essential for healthy functioning. Inadequate sleep and unhealthy sleep patterns are especially common among adolescents[16]. Reducing sleep time causes nursing students to feel drowsy during the day[17]. Lack of sleep, increased sleep fragmentation, waking up early and late sleep seriously affect learning capacity, academic performance and neuro-behavioral performance[18]. The National Sleep Foundation USA states that in adults, 8 to 4 hours of sleep are necessary for useful alertness, memory, and problem solving and overall health, as well as reducing the risk of accidents[19]. Sleep is defined as an active, operational, reversible, and cyclical phenomenon with behaviors such as relative immobility and a decrease in the threshold for responding to external stimuli that cause biological and psychological changes[20]. Sleep is a basic human need for health and a physical regeneration to protect the individual against natural erosion during waking hours[21]. However, college students often have irregular sleep. A very high percentage of undergraduate students in the late stages of adolescence suffer from sleep problems due to staying up late at night and sleeping late into the morning or irregular sleep patterns[22]. These behaviors lead to circadian rhythm disturbances and decreased quality of life, including reduced productivity due to daytime sleepiness.

In general, the results of numerous studies have shown that excessive cell phone use is associated with physical and mental problems and poor sleep patterns[23]. Sleep deprivation leads to excessive daily fatigue and drowsiness and consequently reduces cognitive function and academic achievement[24].

The results of Mohammadbeigi research showed that mobile phone addiction affects the quality of medical students' sleep due to the high use of social networks. Excessive use of technology by students, including mobile phones, seems to have a negative effect on their attention, which is manifested by a lack of sleep[25].

As it was observed, the studies conducted in this field have focused on the use of social networks and the use of widely used social networks such as WhatsApp and Telegram has been less studied today. Therefore, considering the above, the present study aims to investigate the effect of addiction to virtual social networks on students' academic achievement. We mean the virtual social networks like Facebook, WhatsApp, Telegram and Instagram.

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PROCEDURE

The research method in this research is descriptive with correlation design. The statistical population of the present study included all students studying at Bamyan University in the academic year 2020. Based on the Cochran's formula, 180 students (including 90 male and 90 female) studying at Bamyan University were selected using stratified random sampling method (gender appropriate) and responded to a researcher-made questionnaire based on the Yang Internet and Social Network Addiction Questionnaire, Pittsburgh Quality of Sleep, Demographic Questions and Total GPA by the end of the previous semester.

The researcher-made questionnaire consists of 20 items, each of which is scored on a Likert scale from 1 to 5. Finally, the scores of the whole person are added together and according to that, the person is placed in one of these three categories. The normal user of virtual networks is the person who gets a score of 20 to 39. And the user with mild virtual network addiction is the person who gets a score of 49 to 69, and the user with severe virtual network addiction is the person who gets a score of 70 to 100. In order to confirm the validity, the questionnaire was given to 6 faculty members of Bamyan University and its validity was confirmed. In order to determine its reliability, it was first provided to 25 students and using the retest method, its reliability coefficient was calculated to be about 93%. The Pittsburgh Sleep Quality Questionnaire was developed by Buysse et al. To measure the quality and patterns of sleep in adults[14]. This questionnaire differentiates the quality of bad sleep from good one. The Quality of Sleep Questionnaire has seven subscales: 1. Quality of Sleep 2. Delayed Sleep 3. Sleep Duration 4. Useful (Real) Sleep 5. Sleep Disorder 6. Sleeping Medications and 7. Daily Dysfunction. This questionnaire consists of 18 items. The first four items relate to bedtime, hours spent in bed, waking time, and actual sleep time. The next 14 items are scored in a range of 0 to 3, with scores of 0, 1, 2, and 3 on each scale indicating normal status, mild, moderate, and severe problems, respectively, and the total score of the questionnaire varies from 0 to 21. A total score greater than 5 indicates that the participant is a person with poor sleep quality and severe problems in at least two areas or moderate problems in more than 3 areas. The higher the sleep quality scores, the poorer is the sleep quality. In other words, a score of 21 indicates the worst sleep quality and zero indicates the best sleep quality.

The authors of this questionnaire obtained the internal consistency of the questionnaire as 0.83 through Cronbach's alpha[18]. In the study, Afkham Ebrahimi et al. First translated the Pittsburgh Sleep Quality Scale by a psychiatrist and a clinical psychologist who were fluent in English and then edited and modified by a language translator with a master's degree, and the final questionnaire was prepared [22]. To define the reliability of the Pittsburgh questionnaire in the study sample, Cronbach's alpha obtained equal to 0.79 by the responses of 30 patients, which accounted for 10% of the total sample. In the present study, the validity coefficient of this questionnaire using internal consistency coefficient through Cronbach's alpha was equal to 0.80. Students' GPA of previous semester used to measure their academic achievement.

The questionnaires were administered individually and the verbal consent of all participants was obtained and they were assured that the questionnaires were anonymous and confidential and the data would be analyzed in groups. The appropriate time for the implementation of the questionnaires was considered. Data were collected over two weeks and analyzed using Pearson correlation test and hierarchical regression analysis using SPSS software.

INSTRUMENTS

The instruments used in this study are a researcher-made questionnaire based on the Yang Internet and Social Network Addiction Questionnaire and the Pittsburgh Sleep Quality Questionnaire. In addition to the two questionnaires, the total GPA of the student up to the end of the previous semester and demographic questions were also used.

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RESEARCH DATA ANALYSIS

In this study, data collected from 180 people (90 male and 90 female) were analyzed with SPSS24 software. Table 1 shows the results of descriptive statistics on demographic variables.

Table 1. Demographic variables

Variable	levels	F	percent
Father's education	Diploma	25	13.9
	middle	50	27.8
	No education	105	58.3
Mother's education	Diploma	5	2.8
	middle	52	28.9
	No education	123	68.3
Residential place	Dormitory	138	76.7
	Family	42	23.3
media	Facebook	136	75.6
	telegram	26	14.4
	WhatsApp	14	7.8
	messenger	4	2.2
Marital status	single	149	82.8
	married	31	17.2
Family economical status	high	8	4.4
	middle	107	59.4
	low	65	36.1

Table 2 shows the mean, standard deviation and also the correlation matrix of the research model variables.

Table2. Medium, Standard Variation and Inter-Item Correlation Matrix

	M	SD	1	2	3
Total educational score	75.8889	9.54664	1.000		
Internet Addiction score	69.1389	21.64461	-.740**	1.000	
Sleep problems score	69.6578	31.72554	-.570**	.763**	1.000

In this matrix, it was shown that there is a significant relationships between all three research variables and the research hypotheses presuming a significant relationship between Internet addiction and academic score, a significant relationship between quality of sleep and academic score, and a significant relationship between internet addiction and sleep quality was confirmed. Figure 1 is assumed as a structural model. In the following, by examining the direct relationships of variables, we will examine this assumption..

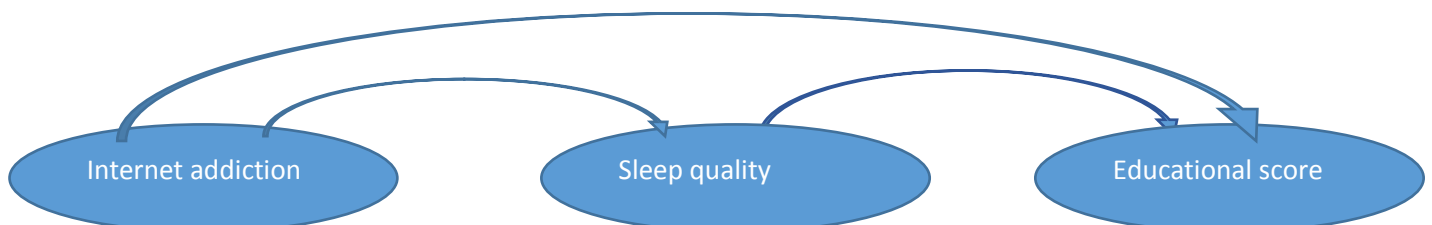


Figure 1. Presumed structural model of the research

Table 3. Investigating the direct relationships of variables

predictor	Dependent variable	Unstandardized Coefficients	Standardized Coefficients (β)	T	P
Internet Addiction score	Total educational score	-.322	-.730	-9.338	.000
Sleep problems score	Total educational score	-.004	-.014	-.174	.862
Internet Addiction score	Sleep problems score	1.118	.763	15.726	.000

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Table 3 shows that the direct path to Internet addiction and academic score is significant.

($T = -9.338$, $\beta = -.730$)

And this linear relationship has a negative direction, and with the increase of Internet addiction, the academic score decreases.

The direct link between Internet addiction and sleep problems is also significant.

($T = 15.726$, $\beta = .763$)

And this linear relationship has a positive direction, and with the increase of Internet addiction, sleep problems also increase.

Although, a significant linear relationship between academic score and sleep problems, shows a negative direction, this linear relationship was not confirmed.

($T = -.174$, $\beta = -.014$)

The following figure shows the final structural model obtained from the present study.

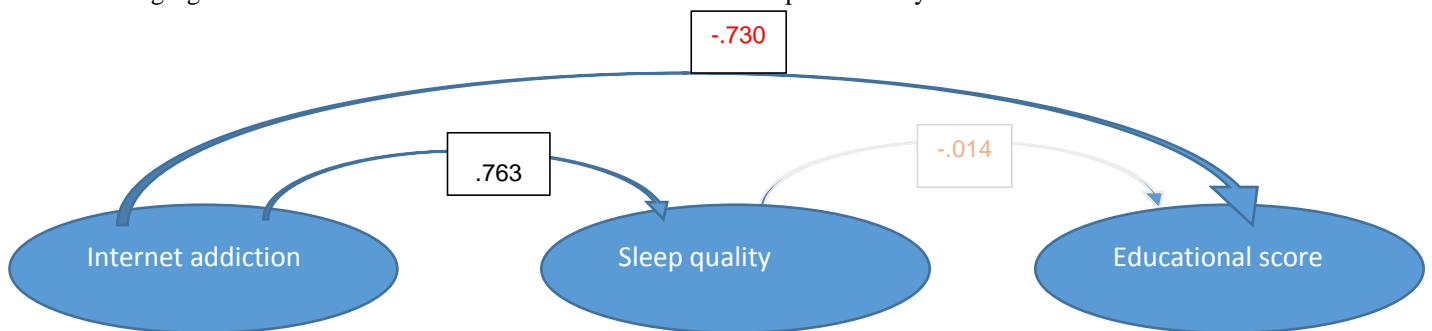


Figure 2. final structural model of the research

DISCUSSION

According to statistical indicators related to the main hypothesis of the study, quality of sleep can not play a mediating role in the relationship between Internet addiction and academic score. In the structural model (Figure 2) we see that the direct effect of Internet addiction on academic score, and the direct effect of Internet addiction on sleep quality is significant. But the direct effect of sleep quality on academic score is not significant. As a result, sleep quality can not indirectly affect academic score, but the relationship between excessive use of social networks and reduced academic achievement and the relationship between excessive use of social networks and sleep quality is significant.

The results of this study showed that there is an inverse and significant relationship between excessive use of the Internet and social networks with students' academic achievement. These findings are in line with the results of research by Atadokht et al., Saxena et al., And Li J et al. The present study is also in line with the findings of Madih, Samaha, and Stollak et al. Their research showed that students who are members of virtual networks study less hours, and Kirschner & Karpinski stated that students who use social networks spend less time studying and have lower academic performance, and by studying Javadinia et al. Which showed that students with lower academic performance are more likely to use Facebook[14].

In general, the Internet and virtual networks can be used as educational tools, but sometimes they are misused by students, so they have less time for their academic activities. As a result, Lepp, Karpinski, and Barkley conducted a study to investigate the effects of cell phone use and text messaging on academic performance, anxiety, and life satisfaction among 496 cellphone general users and 490 SMS users, showed that students use mobile phones more often than their peers who use mobile phones less is associated with low GPA, high anxiety and lower life satisfaction[21]. It can be explicitly claimed that the present study is consistent with these findings.

A study by Stollak et al. Found that students who regularly use Facebook read one to five hours a week, while students who are not members of virtual networks read 11 to 15 hours a week. Javadinia et al. Conducted a study on the effect of social networks on the academic performance of students of Birjand University of Medical Sciences and concluded that students with lower GPA and academic performance use Facebook more than students with higher GPA and performance[4]. This study seems to be almost in line with the present findings, because these findings also indicate that students who use more social networks have poorer academic performance.

The findings of this study also show that excessive use of social networks reduces the students' quality of sleep. These findings are consistent with research findings by Oz F et al., Tomee S et al., And Mohammadbeeigi et al. Their findings show that excessive use of social networks has reduced the quality of sleep in students, for example, increased cell phone use is associated with poor sleep quality of medical students [9]. Excessive use of mobile phones and social networks leads to delayed sleep time, which is the biggest reason for poor sleep quality and leads to negative effects on students' daily activities[18]. This finding seems to be in line with the

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findings of the present study in many ways. Because in the present study, it was clearly observed that students who use social networks and mobile phones more, fall asleep later, and this causes the normal sleep order to be disturbed.

The results of Saxena Singh and Shrivastava also showed that using mobile phone for more than two hours a day may deprive medical students of sleep and drowsiness on a daily basis, which affects their cognitive and learning abilities [16]. These findings are in line with the findings of the present study because the findings of the present study showed that students who used social networks too much had a lower quality of sleep.

CONCLUSION

Many students, due to the attractiveness and various applications of social networks, do not pay attention to its negative aspects such as wasting time, occupying cognitive and psychological capacity and losing useful study time, dependence on social networks and the resulting anxiety. In addition to direct negative effects, excessive use of social networks has indirect negative effects on academic performance. The results of the present study show that the harmful and extreme use of social networks is a strong risk factor for the quality of students' sleep. Therefore, in order to reduce the negative effects of excessive use of social networks on students' sleep and academic performance, it is necessary to inform students about the direct and indirect negative effects of excessive use of social networks on academic performance.

REFERENCES

- 1) Öz F, Arslantaş D, Buğrul N, Koyuncu T, Ünsal A. Evaluation of problematic use of mobile phones and quality of sleep among high school students. *JHS*, 2015. 12(1): 226-235.
- 2) Falahi A, Atif K, Elnaffar Y. International conference on green computing and communications. Proceedings of the IEEE/ACM International Conference on Cyber, Physical and Social Computing (CPSCom 2010); 2010 Oct30-Nov 1;
- 3) Gupta N, Garg S, Arora K. Pattern of mobile phone usage and its effects on psychological health, sleep, and academic performance in students of a medical university. *Natl J Physiol Pharm Pharmacol*, 2016. 6(2): 132-139.
- 4) Saadat, Mohammad Hadi. The effective of Social Networks on students' academic achievement. *Journal of students voice* , 2010. 3(1): 25-26.
- 5) Saidi, Ahmad Reza. Social Networks and political changes. *Journal of day information*, 2014. 12(4): 5-7.
- 6) Mohammadi, Hassan, Yaqobi, Mohammad, Karimi, Hamid. The effective of Social Networks on students' academic achievement. *Journal of Faryad - e – Mahroman*, 1391. 2(3): 9-10.
- 7) Akbari, Jafar, Taheri, Ahmad, Talib, Ehsan. Social Network online and addiction. *Journal of Soroush – e – Mellat*, 1398. 4(2): 14-17.
- 8) Lee, J, Lee H. "The Computer- Mediated Communication Network: Exploring the Linkage between the Online Community and Social Capital", *New Media and So*.2010; (5): 12.
- 9) Kamibeppu K, Sugiura H. Impact of the mobile phone on junior high-school students' friendships in the Tokyo metropolitan area. *Cyberpsychol Behav*, 2005. 8(2): 121-130.
- 10) Dibajnia P. Comparative investigation of self-concept between the freshman and senior students. *J Res Med*, 2005. 29(3): 231-234. [Persian].
- 11) Kongsomboon K. Academic achievement correlated to stress, depression, and sleep deprivation in medical students. *Srinagarind Med J (SMJ)*.2010; 25(2): 109-114.
- 12) Ishii K. Examining the adverse effects of mobile phone use among Japanese adolescents. *Keio Communication Review*, 2011. 33: 66-83.
- 13) Dehmler K. Adolescent technology usage during sleep-time: does it influence their quality of sleep, attention difficulties and academic performance? *RIT*. 2009.(15): 1-58.
- 14) Li J, Lepp A, Barkley JE. Locus of control and cell phone use: Implications for sleep quality, academic performance, and subjective well-being. *Comput Human Behav*, 2015. 52: 450-457.
- 15) Kolek EA, Saunders D. Online disclosure: An empirical examination of undergraduate Facebook profiles. *NASPA Journal*, 2008;45(1): 1-25.
- 16) Javadinia S A, Erfanian M, Abedini MR, Bijari B, The effects of social on Academic Achievement of Students, a Study in Birjand University of Medical Sciences. *Iranian Journal of Medical Education*.2012; 12(8): 606.
- 17) Samaha M, Hawi N.Relationships among smart phone addiction, stress, academic performance, and satisfaction with life. *Comput Hum Behav*.2016;57:321-325.
- 18) Judd T. Making sense of multitasking: The role of Facebook. *Comput Educ*, 2014.31 (70): 194-202.
- 19) Tembo AC, Parker V. Factors that impact on sleep in intensive care patients. *Intensive Crit Care Nurs*, 2009. 25(6): 314-322.
- 20) Okamura H, Anno N, Tsuda A, Inokuchi T, Uchimura N, Inanaga K. *Personalized Medicine Universe*. 2015.

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- 21) Silva M, Chaves C, Duarte J, Amaral O, Ferreira M . Sleep quality determinants among nursing students. *Procedia Soc Behav Sci*, 2016. 217(5): 999-1007
- 22) Munezawa T, Kaneita Y, Osaki Y, Kanda H, Minowa M, Suzuki K, Higuchi S, Mori J, Yamamoto R, Ohida T . The association between use of mobile phones after lights out and sleep disturbances among Japanese adolescents: a nationwide cross-sectional survey. *Sleep*, 2011. 34(8): 1013-1020.
- 23) Mohammadbeigi A, Valizadeh F, Saadati M, Sharifimoghadam S, Ahmadi A, Mokhtari M, Ansari H . Sleep Quality in Medical Students; the Impact of Over-Use of Mobile Cell-Phone and Social Networks. *J Res Health Sci*, 2016. 16(1): 46-50.
- 24) Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ . The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Res*, 1989. 28(2): 193-213.
- 25) Afkham Ebrahimi A, Bandi G, Salehi M, Tafti K, Vakili Y, Farsi . Sleep parameters and the factors affecting the quality of sleep in patients attending selected clinics of Rasoul-e-Akram hospital. *RJMS*, 2008. 15(58): 31-38. [Persian].
- 26) Sudoqi, Majid, Mohammad Salihi, Zahra. The relationship between harmful cell phone use and students' academic performance: The mediating role of sleep quality.1396. 10(2): 123- 132.