

Pathology of Cyberspace: A Study of the Detrimental Effects of Mobile Phones on Students' Psychological Well-being

Marzieh Kaboudi¹, Manoj Sharma², Arash Ziapour³, Fateme Dehghan⁴, *Parvin Abbasi⁴

¹Department of Reproductive Health, Nursing and Midwifery Faculty, Kermanshah University of Medical Sciences, Kermanshah, Iran.

²Behavioral and Environmental Health, School of Public Health, Jackson State University, Jackson, MS, USA.

³PhD Student, Health Education and Health Promotion, Health Institute, Kermanshah University of Medical Sciences, Kermanshah, Iran.

⁴Students Research Committee, Kermanshah University of Medical Sciences, Kermanshah, Iran.

Abstract

Background

In addition to their widespread applications in various fields, cellular phones have some inappropriate social consequences, including psychosocial addiction, degradation of values, reduced social interactions, early maturity and endangering the psychological well-being of users. Therefore, the present study aimed to investigate detrimental effects of Mobile phones on the psychological well-being of second grade students.

Materials and Methods

In this cross-sectional study, the sample population included 269 second grade students (107 boys and 162 girls) in Kermanshah, Iran in 2018 and being in the 10-18 age-range who were selected using cluster sampling. As for data collection, the Jenaro's Cell-Phone Over-Use scale and Ryff's psychological well-being scale were utilized, which were filled out by the students themselves.

Results

The results of the present study demonstrated that the means of the deleterious use of mobile phones and psychological well-being measured 44.71 ± 16.45 (total score=126), and 63.86 ± 14.43 (total score=84), respectively. The results also indicated that the observed F ($F=10.12$) was significant at $p < 0.005$, and the predictor variables together explained 0.33 of the variance of psychological well-being. Moreover, it was shown that the deleterious use of mobile phones and psychological well-being significantly and negatively correlated at $p < 0.005$, $r=0.49$.

Conclusion

According to this study, it was revealed that the deleterious overuse of mobile phones and psychological well-being were significantly and negatively correlated; which means that the higher the use of mobile phones, the more vulnerable the psychological well-being becomes.

Key Words: Effects, Mobile Phone, Students, Well-being.

*Please cite this article as: Kaboudi M, Sharma M, Ziapour A, Dehghan F, Abbasi P. Pathology of Cyberspace: A Study of the Detrimental Effects of Mobile Phones on Students' Psychological Well-being. Int J Pediatr 2019; 7(9): 10077-85. DOI: **10.22038/ijp.2019.39704.3381**

*Corresponding Author:

Parvin Abbasi, Department of Nursing, School of Nursing and Midwifery, Kermanshah University of Medical Sciences, Kermanshah, Iran

Email: p_abasi2003@yahoo.com

Received date: Feb.23, 2019; Accepted date: Mar.22, 2019

1- INTRODUCTION

Mobile Phones, as a telecommunication device, are highly capable of increasing the diversity of information and entertainments available to individuals and organizations around the world (1). Nowadays, with the emergence of new technologies in the field of Information and Communications Technology (ICT), a myriad of problems related to communication and information have been resolved, the path to reaching the latest news and information in the shortest time is now available, and cyberspace has created new frontiers in social communication (2). One of these technologies is Mobile Phones, which is a rapidly growing phenomenon in the world, so that the number of its subscribers in some countries has exceeded their populations (3). Moreover, this technology is nowadays a concept far beyond communication and is an inseparable part of human life (4).

Given the rapid advancement of this technology and the expansion of the capabilities of mobile phones (5), as well as the growing services of telecommunication companies (6), the way this communication device is used has changed and even in some cases, its overuse (7), and obsessive-compulsive application (8) have led to some deleterious consequences. Research has it that the use of cellular phones while driving raises the rate of driving accidents tenfold (9). The mobile phones growing capabilities have also deteriorated the situation since they allow their users to use them at any time and place for communication, entertainment, or other purposes (10). Such benefits have made mobile phones popular, thereby increasing the extreme use of this technology. Any excessive and compulsory use of mobile phones is regarded by researchers as one of the symptoms of non-drug addiction (11). Additionally, non-drug addiction and

its resultant health problems are nowadays seen as a global concern, which threatens the health of adolescents and the youth. Such behaviors are rooted in childhood and adolescence and are considered health problems. Therefore, more attention should be paid to them, and the decisive factors in displaying such behaviors need to be addressed. Walsh et al. (2011) reported that the use of mobile phones is seen as a cognitive and behavioral problem (12), and numerous studies have examined the detrimental use of this technology and its addiction from different perspectives (13, 14). Some researchers have expressed that such behaviors have negative effects on the mental health and well-being of children. The clinical dimensions and exactly how the excessive use of mobile phones can lead to psychological incompatibility are still matters of debate. For the most part, Mobile Phones are a vital device for facilitating communication and their overuse is one of the behavioral issues associated with the internet addictive capacity (15, 16).

It should be noted that limited studies have been conducted in this respect. Nevertheless, evidence suggests that the excessive use of Mobile Phones is associated with other behavioral patterns such as staying up late at night as well as affective affiliation, which is created in the minds of users, so that they believe they cannot live without Mobile Phones. These findings support the negative effects of excessive use of Mobile Phones and their deleterious impacts on students' physical and psychological health (17). Today, conducting research on the psychological well-being of students is rising. Psychological well-being refers to assessing the satisfaction of people from various aspects of life (18). The individuals who have high levels of well-being have great experiences of life satisfaction and frequent joy and rarely experience unpleasant feelings like anger

and sadness, and vice versa (19). Well-being leads to the balanced development and well-being of human beings and paves the way for the proper growth of talents. Moreover, one's growth and quality of relationships depend on how much this issue is valued (20, 21). When you have a high sense of well-being in life, more positive emotions are experienced, you have a positive assessment of yourself, others and the surrounding events, which are described as pleasant. While those with low levels of well-being evaluate the above items as undesirable and experience negative emotions such as anxiety and depression in their relationships (22).

The expansion of urbanization has led to the introduction of mobile phones as a symbol of all-inclusive communication in the present age, thereby bringing this technology closer to the concept of widespread virtual community. On the other hand, mobile phones, as a charismatic technology, have received a cultural embodiment compared to other technologies such as laptops and have widely entered the social life of people (23). Therefore, given that the mental health of children is regarded as one of the prominent subjects in psychological and sociological debates, and the fact that many students of today have access to cellular phones and use them for various goals, this situation results in their academic failure and reduced educational performance. Therefore, the present study aimed to investigate detrimental effects of mobile phones on the psychological well-being of second graders in Kermanshah, Iran.

2- MATERIALS AND METHODS

2-1. Study design and population

In a cross-sectional study, the detrimental effects of mobile phones on the psychological well-being of second graders in Kermanshah, Iran, were investigated. Besides, the statistical

population of the present study included all second grade students in the academic year 2017-2018.

2-2. Methods

In this research, having used the cluster sampling, of the three districts in the education department of Kermanshah, the third district was chosen, and of the schools in this district, two girls' schools and two boys' schools were randomly selected. Then, nine classes (five girls' classes and four boys' classes) were selected from the total classes. Finally, 269 subjects entered the study and responded to the questionnaires. The inclusion criteria were consent to participate in the study, having a personal cellular phone, and being in the 10-18 year age-range, studying in second grade. However, the subjects who were younger than 10 or older than 18 years were excluded from the study.

2-3. Measuring tools: validity and reliability

2-3-1. Cell-Phone Over-Use Scale (COS) (22)

This scale was developed by Jenaro et al. (2007), and the reliability of the scale through internal consistency measured 0.85 among male and female Spanish students (24). This scale consists of 10 psychological indices from the diagnostic manual and classification of mental disorders. This scale is a 23-item questionnaire designed to measure the deleterious use of mobile phones. This scale is based on ten psychological indices of DSM-5 (23). Furthermore, it has no subscales and is scored on a six-point Likert scale (1-never, 2-almost never, 3-sometimes, 4-often, 5-almost always, and 6-always). In a research that was performed to assess the validity and reliability of the Persian version of this questionnaire, 21 items had proper validity. As mentioned earlier, the English

and Persian versions of the scale have 23 and 21 questions, respectively. Each question is scored from 1 to 6, and the total score of 21 questions shows the total score of the subject (Minimum score=21, Maximum score=126). Yasmine Nejad et al. (2011) reported the reliability of this questionnaire using the test-retest reliability ($\alpha=0.90$) (25). However, in the present study, the Cronbach's alpha measured 0.83.

2-3-2. Ryff's Psychological Well-Being (PWB) Scale (24)

This 42-item scale, that encompasses 6 distinct dimensions of wellness (Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, Self-Acceptance), was developed by Ryff et al. (26). Moreover, the questions are scored on a six-point Likert scale (ranging from strongly disagree=1 to strongly agree=6), minimum score= 14, maximum score= 84. As for the validity of the tool, the correlation between this tool and each of Bradburn's Scale of Psychological Well-being, Newgerton's Life Satisfaction and Rosenberg's Self-Respect was examined, and the results were acceptable. The test-retest reliability coefficient of this scale was 0.82. Furthermore, the Cronbach's alpha values for each of the subscales in Ryff's scale were as follows: self-acceptance (0.93), relationships with the others (0.91), autonomy (0.86), dominance over environment (0.90), goal in life (0.90), and personal growth (0.87) (24). In a study performed by Kalantarkousheh and Navarbafi (2012), the Cronbach's alpha for Ryff's Psychological Well-Being scale in a sample of 860 subjects measured 0.92 (25). According to Kalantar Kousheh and Navarbafi's study (2012), the scale possessed a suitable validity and reliability (27). In addition, in the present study, the Cronbach's alpha for Ryff's Psychological Well-Being scale measured 0.91.

2-4. Procedure

First, the necessary permits were received from the education department of Kermanshah to perform the study. Then, some letters of introduction were issued by the department, in which the researchers were referred to the selected boys' and girls' schools to make the preparations and conduct the research.

2-5. Ethical consideration

To this end, the objectives of the present study were explained to the parent/guardian and they were assured of the confidentiality of the collected information. Moreover, they had the right to freely accept or reject participation in the research. So we obtained parental/guardian consent for students to take part.

2-6. Data analysis

For data analysis, the descriptive and inferential statistics were employed using SPSS software version 22.0. For data analysis, the descriptive statistics of frequency distribution, Minimum, Maximum, Mean and Standard Deviation (SD) were used, and to examine the relationship between Detrimental Use of Cellular Phones and Psychological Well-being, the Pearson correlation coefficient was employed and simultaneous regression analysis was used to predict the psychological well-being. Statistical level of $P<0.05$.

3- RESULTS

Of the total of 269 students in the present study, 162 students (64%) were girls and 107 (36%) were boys. The results demonstrated that the mean and standard deviations of the deleterious use of mobile phones and psychological well-being measured 44.71 ± 16.45 (of total score 126), and 63.86 ± 14.43 (of total score 84), respectively. Moreover, the mean and standard deviations of subscales were as

follows: self-acceptance (10.19±3.24), the goal in life (13.44±4.75), dominance over relationships (12.34±3.67), relationship

with the others (11.21±2.11), personal growth (14.01±5.08), and autonomy (11.78±4.53) (**Table.1**).

Table-1: Mean of the Detrimental use of Mobile Phones and Psychological Well-being.

Variables	Frequency	Minimum	Maximum	Mean	Standard Deviation
Mobile-phone over-use	269	21	126	44.71	16.45
Self-acceptance	269	4	17	10.19	3.24
Goal in life	269	7	22	13.44	4.75
Dominance over relationships	269	8	19	12.34	3.67
Relationships with the others	269	5	23	11.21	2.11
Personal growth	269	6	19	14.01	5.08
Autonomy	269	9	18	11.78	4.53
Total well-being	269	1	84	63.86	14.43

Moreover, it was shown that the deleterious use of mobile phones and the total score of psychological well-being significantly and positively correlated at $r=0.49$ and $p<0.005$. In addition, there was a positive and significant correlation between the score of the deleterious use of Mobile Phones with each of self-acceptance, dominance over the environment, and personal growth at $p<0.005$. However, the deleterious use of mobile phones significantly and negatively correlated with relationship with the others. The results also revealed that there was no relationship between the psychological well-being and each of goal in life and autonomy (**Table.2**). Further, the simultaneous regression analysis was

used to predict the psychological well-being of students, and the results demonstrated that the observed F ($F=10.12$) was significant at $p<0.005$, and the predictor variables together explained 0.33 of the variance of psychological well-being. Therefore, the regression coefficients of the predictor variables indicated that the subscales could predict the psychological well-being with the β and t values as follows: self-acceptance ($\beta=-0.33$ and $t=3.09$), and dominance over relationships ($\beta=-0.31$ and $t=-2.89$), interpersonal relationships ($\beta=-0.67$ and $t=-5.66$) and the total score of psychological well-being ($\beta=2.78$ and $t=4.76$) could predict the psychological well-being (**Table.3**).

Table-2: The Correlation between the Detrimental Use of Mobile Phones and Psychological Well-being in participants ($n=269$).

Variables	1	2	3	4	5	6	7	8
Detrimental use of Mobile Phones	1	0.31**	0.08	0.28**	-0.20**	0.42**	0.18	0.30**
Self-acceptance	0.25**	1	0.26**	0.38**	-0.07	0.29**	-0.06	0.51**
Goal in life	0.09	0.27**	1	0.08	0.09	0.24**	0.27**	0.53**
Dominance over the environment	0.26**	0.37**	0.008	1	0.04	0.38**	0.15	0.8**
Relationships with the others	-0.22**	-0.04	0.09	0.03	1	0.14	-0.27**	0.33**
Personal growth	0.41**	0.31**	0.22**	0.37**	0.12	1	0.23**	0.67**

Autonomy	0.14	-0.08	0.27**	0.14	-0.22**	0.22**	1	0.29**
Total well-being	-0.27**	0.50**	0.52**	0.7**	0.30**	0.68**	0.30**	1

* P<0.05, ** P<0.01.

Table-3: The Results of Enter Method Regression Analysis for the Prediction of Psychological Well-being Based on the Detrimental use of Mobile Phones in participants (n=269).

Criterion Variable	R	R ²	F	Predictor variable	B	SE	β	T	P-value
Mobile phone over-use	0.49	0.33	10.12	Self-Acceptance	-2.01	0.7	-0.33	-3.09	0.004
				Domination over relationships	-2.11	0.5	-0.31	-2.89	0.002
				Interpersonal relationships	-2.33	0.56	-0.67	-5.66	0.001
				Total Score of Well-being	3.45	0.44	2.78	4.76	0.001

R: Correlation; R²: R Square: The coefficient of determination; F: Variance Inflation Factor; B: Beta; SE: Error of the Estimate; β: Beta standardized regression coefficients; T: Tolerance.

4- DISCUSSION

The present study aimed to investigate the detrimental effects of mobile phones on the psychological well-being of second graders in Kermanshah, Iran. The results revealed that the deleterious use of mobile phones and psychological well-being were significantly and negatively correlated. This finding was concurrent with the results of previous studies (5, 15). To further explicate the matter, it can be expressed that mobile phones are one of the devices that are highly applied in human communications. Moreover, with the passage of time, the need for using mobile phones in life, which play vital roles in the socialization process, becomes greater. The intrinsic nature of collective life in human beings necessitates the relationship with the others as an inevitable issue. Today, people are more dependent on mobile phones for communication purposes than in the past. In fact, mobile phones is a technology that has gained popularity among the younger generation in the short term, because using mobile phones is a social behavior and since the youth are at a stage of life in which their communications and social networks actively develop, they overuse

this technology, thereby leading to addiction to cellular phones. In this regard, Carbonell et al. (2018) believes that the excessive use of something should be regarded as an addictive behavior (28). According to the American Psychological Association, if someone uses something excessively without knowing about the passage of time and not meeting his/her basic needs, his/her behavior should be seen as one of the three major signs of non-drug addiction (15). Therefore, such behaviors are considered the public health problems, which endanger the health of individuals, and the psychological well-being is not limited to either the negative aspects or the elimination of the negative effects of human beings. According to World Health Organization (WHO), a healthy person is one who has proper biological, social and psychological conditions. As a result, the psychological well-being denotes one's optimal psychological functioning and performance. Well-being is defined in terms of the quality and quantity of components whereby people find their lives enjoyable. In other words, how you evaluate your life is related to well-being (29-31). In effect, psychological well-

being is the emotional and cognitive responses to understanding personal abilities and characteristics, efficient and effective equilibrium with the world in a proper relationship with the community, and positive development over time, which includes satisfaction with life, energy, and positive mood (32). Accordingly, the deleterious use of mobile phones results in reduced child psychological well-being. Hence, it seems that paying attention to the effective social aspects of cellular phones is the only way in which, in addition to showing respect for students' self-esteem, adequate control and supervision can be given to the communication issues. It is hoped that the right culture of using mobile phones will fit into the community through adopting appropriate plans. In this context, cultural institutions (educational centers, mass media and education department) play key roles in the correct education of this technology.

Not to mention, the present study was faced with some demographic limitations, so that the participants were all students in the 7-12 age range, thereby reducing the generalizability of the results. Therefore, doing research on non-academic samples would be beneficial. Given the effects of using this technology on friendly relationships, spending leisure time, and the intergenerational relationships between children and parents, it should be taken into account in educational programs. Besides, since mobile phones are considered a key tool for children and adolescents in managing their activities, experts and planners can adopt, design and implement some educational measures to shape their leisure time based on their capabilities. The study also utilized self-reports by students which are subject to dishonesty, exaggeration of responses and other such biases and is a limitation of the study. Finally, use of descriptive-correlational design fails to establish

causal linkages and more studies are needed.

5- CONCLUSION

According to this study, it was revealed that the deleterious over use of mobile phones and psychological well-being were significantly and negatively correlated. This means that the higher the use of mobile phones, the psychological well-being becomes more vulnerable.

6- CONFLICT OF INTEREST: None.

7-ACKNOWLEDGEMENTS

This project has been approved by the Ethics committee of Kermanshah University of Medical Sciences (Ethics Code. IR.KUMS.REC 1397.035). The authors of this article are grateful to the deputy of research and technology of Kermanshah University of Medical Sciences for funding this project (Grant number: 97056). In this way, we appreciate all the students and Kermanshah education districts that helped us with this research.

8- REFERENCES

1. Çagan O, Unsal A, Celik N. Evaluation of college students' the level of addiction to cellular phone and investigation on the relationship between the addiction and the level of depression. *Procedia-Social and Behavioral Sciences*. 2014;114:831-9.
2. Hardell L. Effects of mobile phones on children's and adolescents' health: A commentary. *Child development*. 2018;89(1):137-40.
3. Fowler J, Noyes J. A study of the health implications of mobile phone use in 8-14s. *Dyna*. 2017;84(200):228-33.
4. Hakoama M, Hakoyama S. The impact of cell phone use on social networking and development among college students. *The American Association of Behavioral and Social Sciences Journal*. 2011;15(1):20-7.

5. Lopez-Fernandez O, Kuss DJ, Romo L, Morvan Y, Kern L, Graziani P, et al. Self-reported dependence on mobile phones in young adults: A European cross-cultural empirical survey. *Journal of behavioral addictions*. 2017;6(2):168-77.
6. Alavi SS, Mohammadi MR, Jannatifard F, Kalhori SM, Sepahbodi G, BabaReisi M, et al. Assessment of Semi-Structured Clinical Interview for Mobile Phone Addiction Disorder. *Iranian journal of psychiatry*. 2016;11(2):115-9.
7. Kamran S. Mobile phone: Calling and texting patterns of college students in Pakistan. *International journal of business and management*. 2010;5(4):26-32.
8. Chen L, Yan Z, Tang W, Yang F, Xie X, He J. Mobile phone addiction levels and negative emotions among Chinese young adults: The mediating role of interpersonal problems. *Computers in Human behavior*. 2016;55:856-66.
9. Burnell K, Kuther TL. Predictors of mobile phone and social networking site dependency in adulthood. *Cyberpsychology, Behavior, and Social Networking*. 2016;19(10):621-7.
10. Mazaheri MA, Najarkolaei FR. Cell phone and internet addiction among students in Isfahan university of medical sciences-Iran. *Journal of Health Policy and Sustainable Health*. 2014;1(3): 101-5.
11. McEvoy SP, Stevenson MR, McCart AT, Woodward M, Haworth C, Palamara P, et al. Role of mobile phones in motor vehicle crashes resulting in hospital attendance: a case-crossover study. *BMJ*. 2005;331(7514):428-34.
12. Walsh SP, White KM, Cox S, Young RM. Keeping in constant touch: The predictors of young Australians' mobile phone involvement. *Computers in Human Behavior*. 2011;27(1):333-42.
13. Cholz M. Mobile phone addiction: a point of issue. *Addiction*. 2010;105(2):373-4.
14. Kaboudi M, Kianipour N, Ziapour A, Dehghan F. A Study of Health Literacy Components and their Relationships with Health-Promoting Behaviors in Students at Kermanshah University of Medical Sciences. *International Journal of Pediatrics*. 2017;5(12):6721-29.
15. Tangmunkongvorakul A, Musumari PM, Thongpibul K, Sriphanavichien K, Techasrivichien T, Suguimoto SP, et al. Association of excessive smartphone use with psychological well-being among university students in Chiang Mai, Thailand. *PloS one*. 2019;14(1):1-13.
16. Thomée S. Mobile phone use and mental health. A review of the research that takes a psychological perspective on exposure. *International journal of environmental research and public health*. 2018;15(12):2692-712.
17. Kamibeppu K, Sugiura H. Impact of the mobile phone on junior high-school students' friendships in the Tokyo metropolitan area. *Cyberpsychology & Behavior*. 2005;8(2):121-30.
18. Rotondi V, Stanca L, Tomasuolo M. Connecting alone: Smartphone use, quality of social interactions and well-being. *Journal of Economic Psychology*. 2017;63:17-26.
19. Kumcagiz H, Gündüz Y. Relationship between Psychological Well-Being and Smartphone Addiction of University Students. *International Journal of Higher Education*. 2016;5(4):144-56.
20. Steger MF. Experiencing meaning in life: Optimal functioning at the nexus of well-being, psychopathology, and spirituality. *The human quest for meaning: Routledge*; 2013. p. 211-30.
21. Nazari B, Bakhshi S, Kaboudi M, Dehghan F, Ziapour A, Montazeri N. A Comparison of Quality of Life, Anxiety and Depression in Children with Cancer and Healthy Children, Kermanshah-Iran. *International Journal of Pediatrics*. 2017;5(7):5305-14.
22. Ochsner KN, Ray RD, Cooper JC, Robertson ER, Chopra S, Gabrieli JD, et al. For better or for worse: neural systems supporting the cognitive down-and up-regulation of negative emotion. *Neuroimage*. 2004;23(2):483-99.

23. Cha S-S, Seo B-K. Smartphone use and smartphone addiction in middle school students in Korea: Prevalence, social networking service, and game use. *Health psychology open*. 2018;5(1):1-15.
24. Jenaro C, Flores N, Gómez-Vela M, González-Gil F, Caballo C. Problematic internet and cell-phone use: Psychological, behavioral, and health correlates. *Addiction research & theory*. 2007;15(3):309-20.
25. Yasmine Nejad P, M G. Investigating the Relationship between Five Predictive Factors of Personality and Traumatic Use of Mobile Phones in Dezful Islamic Azad University Students. *Social psychosocial research*. 2011;1(2):79-105.
26. Ryff CD, Keyes CLM. The structure of psychological well-being revisited. *Journal of personality and social psychology*. 1995;69(4):719-24.
27. Kalantarkousheh SM, Navarbafi F. Reliability and Exploratory Factor Analysis of Psychological Well-being in a Persian Sample. *Science Series Data Report*. 2012;4(1): 11-27.
28. Carbonell X, Chamarro A, Oberst U, Rodrigo B, Prades M. Problematic use of the internet and smartphones in university students: 2006–2017. *International journal of environmental research and public health*. 2018;15(3):1-13.
29. Diener E, Suh EM, Lucas RE, Smith HL. Subjective well-being: Three decades of progress. *Psychological bulletin*. 1999;125(2):276-83.
30. Narimani M, Yosefi F, Kazemi R. The role of attachment styles and quality of life in predicting psychological well-being in adolescents with learning disabilities. 2014.
31. Montazeri N, Kianipour N, Nazari B, Ziapour A, Bakhshi S. Health Promoting Behaviors among University Students: A Case-Sectional Study of Kermanshah University of Medical Sciences. *International Journal of Pediatrics*. 2017;5(6):5091-9.
32. Munderia R, Singh R. Mobile Phone Dependence and Psychological Well-Being among Young Adults. *Indian Journal of Community Psychology*. 2018;14(2):321-29.