

# The Relationship between Mental Health and Addiction to Mobile Phones among University Students of Shahrekord, Iran

**Zahra Babadi-Akashe MSc<sup>1</sup>, Bibi Eshrat Zamani PhD<sup>2</sup>, Yasamin Abedini PhD<sup>3</sup>,  
Hojaetolah Akbari<sup>4</sup>, Nasim Hedayati PhD<sup>5</sup>**

## Original Article

### Abstract

**Background:** The risk of cell phone addiction is a social and psychological problem which has been proposed by psychologists, psychiatrists, and educational supervisors. The present study aimed to investigate the behavior of mobile phone addicts and mental health of university students of Shahrekord, Iran.

**Methods:** This study was an applied research survey for the purposes of this study. The study population consisted of all the students of Payame Noor University, Islamic Azad University, and University of Medical Sciences. The study population consisted of 296 students who were randomly selected from the target population. To collect data, two types of questionnaires were used, the Symptom Checklist-90-R (SCL-90-R) questionnaire, and the 32-point scale questionnaire of behavior associated with mobile phone use (Hooper and Zhou, 2007). Data analysis was performed using SPSS software, statistical analysis, frequency distribution, mean, one-way ANOVA, chi-square, and LSD (Least significance difference).

**Findings:** The results showed that university students of Shahrekord, based on the six categories of mobile addiction behaviors, were mostly placed in habitual behaviors (21.49%), addiction (21.49%), and intentional (21.49%) categories. By reviewing mental health indicators, it was found that students were affected with depressive disorder (17.30%), obsessive compulsive disorder (14.20%), and interpersonal sensitivity (13.80%). The results showed that there was a significant inverse relationship between mental health and habitual behaviors ( $r = -0.417$ ), dependence ( $r = -0.317$ ), addiction ( $r = -0.330$ ), and incontinence ( $r = -0.309$ ) in using mobile phone ( $P < 0.001$ ).

**Conclusion:** Survey results showed that with increased and improved mental health, the student's rate of cell phone addiction reduced.

**Keywords:** Mental health, Cell phone, Addiction, Behavior, University

**Citation:** Babadi-Akashe Z, Zamani BE, Abedini Y, Akbari H, Hedayati N. **The Relationship between Mental Health and Addiction to Mobile Phones among University Students of Shahrekord, Iran.** *Addict Health* 2014; 6(3-4): 93-9.

**Received:** 02.04.2014

**Accepted:** 19.06.2014

1- Lecturer, Faculty Member, Department of Educational Sciences and Psychology, Payam Noor University of Shahreza, Isfahan, Iran

2- Associate Professor, Department of Educational Sciences, School of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran

3- Assistant Professor, Department of Educational Sciences, School of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran

4- Department of Educational Sciences, Payame Noor University of Farrokshahr, Shahrekord, Iran

5- Assistant Professor, Department of Pediatric Dentistry, School of Dentistry, Rafsanjan University of Medical Sciences, Rafsanjan, Iran

Correspondence to: Zahra Babadi-Akashe MSc, Email: zakashe@yahoo.com

## Introduction

The current era can be known as a combination of information and communication. Today, in possession of advanced information and communication technology, we are able to establish connections and exchange information faster than before.<sup>1</sup> The most dominant type of information and communication technology is the mobile phone, the use of which in the past few years, due to social impact, has grown substantially. Mobile phone addiction, as a mental impairment resulting from modern technology, has come to the attention of psychologists, sociologists, and scholars of education. Troubled mobile phone use can be accounted a form of technological addiction.

Many mobile phone addicts are people with low self-esteem and poor social relationships; thus, they think they should be in constant contact with others. Mobile phone silence can lead to anxiety, irritability, sleep disturbances, shaking, insomnia, and digestive problems.<sup>2</sup> From the perspective of Thomee et al. problematic and overuse of mobile phones is associated with anxiety, insomnia, depression, psychological distress, and unhealthy lifestyle.<sup>3</sup> The emotional attachment to mobile phones for their users is in a way that makes them believe they cannot live without a cell phone. Researches have presented the negative impact of excessive use of mobile phones on physical and mental health of students.<sup>4</sup> Medical research on the effects of mobile phone indicates that this means of communication does not act in order to maintain the health of its users. For example, results of a number of studies show that mobile phone radiation causes changes in gene regulation, auditory and visual problems, increased pressure of acid on the cornea and lens tissue, headache, heat sensation in the ears, memory loss, and fatigue.<sup>5-9</sup> Studies also showed that prolonged use of cell phones cause brain tumors.<sup>10</sup> In terms of psychology, communication technology reduces social relations and the welfare of the individual due to loneliness, depression, and isolation. Beydokhti et al. found that among adults and young people, the use of information and communication technology can lead to social anxiety and sleep disorders.<sup>11</sup>

From these contents it can be concluded that

there is a relationship between addiction to mobile phones and physical and psychological health. In fact mental health includes behaving in harmony with the community, acceptance of social reality and the ability to cope with them, and satisfying one's needs moderately.<sup>12</sup> Mental health according to the World Health Organization is a health condition in which a person knows their own abilities, can cope with the normal stresses of life, is fruitful for the community, and is able to make decisions and collective participation. Therefore, mental health is the base for welfare and health for individuals and society.

Hooper and Zhou, psychologists from Staffordshire University, studied 106 people who had used mobile phones, and found that 16.00% of them have behavioral problems. Their research concluded that behavioral problems followed by the addiction to cell phone use causes stress.<sup>12</sup> Despite the importance of mobile phones in everyday life, research indicated that some people use this device uncontrollably and this has affected their personal lives.<sup>13</sup> Review of research literature on the subject indicated that excessive use of mobile phones is a form of technology addiction. Results of the study by Hooper and Zhou showed that the rate of mobile phone use among university students is very high.<sup>12</sup> There is a relatively high number of evidence for mandatory, voluntary, or dependent use of cell phones; however, habitual, compulsive, and addictive behaviors of mobile phone use are relatively less observed.

The findings of Shambare et al. showed that mobile phone use was mostly addictive, habitual, and dependent.<sup>14</sup> The study of Ahmed et al. showed that a small number, less than 18.50%, of Pakistani students displayed mobile-related addictive behaviors. In this study the targeted subjects used mobile phones under reasonable conditions, and thus, did not have the tendency for addictive behaviors in mobile phone use.<sup>15</sup> The results of several studies showed that addiction to text messages has a relationship with students' social anxiety and nervousness, and personality traits of extraversion and neuroticism. Furthermore, the rate of addiction to text messages in different educational groups of students were different.<sup>1,11,16</sup>

Moreover, other studies showed a positive correlation between depression and anxiety and the amount of sent text messages in a day, and

loss of control and social anxiety.<sup>17,18</sup> Chen examined the relationship between depression and mobile phone addiction on 519 American students and concluded that there was a significant association between mobile phone addiction symptoms (distraction, withdrawal, and escape) and depression. In addition, he stated that women had significantly higher rates of mobile phone addiction symptoms compared to men.<sup>19</sup>

Technology addiction in general and dependency on cell phones in particular are important for several reasons. Despite the advantages and necessity of technologies for human society, due to their stimulating factors, they result in excessive use and lead to addiction. Young people are more vulnerable to excessive phone use, and thus, become phone dependent.<sup>20</sup> Young people's mental health, addiction to mobile phones, as a driving force, and an active community are major topics that are discussed in psychology and sociology. The present study addressed the question of whether there is any relationship between the amount and type of cell phone addiction and mental health status of university students in Shahrekord, Iran.

## Methods

Due to the purpose of this study, this research was an applied research survey. The study population consisted of all students in different universities of Shahrekord (Islamic Azad University, Payame Noor University, and University of Medical Sciences). From among the target population, 296 subjects were randomly selected. Two types of questionnaires were used to collect data that include the Symptom Checklist-90-R (SCL-90-R) questionnaire, and 32-point scale questionnaire of behavior associated with mobile phone use (Hooper and Zhou, 2007).<sup>12</sup> The SCL-90-R questionnaire has been used in many researches in Iran and outside Iran, and has a high reliability.<sup>12,21-23</sup> The validity and reliability of the mobile phone use questionnaire in some researches was at a high level.<sup>13,19</sup> In order to analyze the collected data, SPSS for Windows (version 18, SPSS Inc., Chicago, IL, USA) was used. The Pearson correlation analysis, Student's independent t-test, and chi-square test were used for data analysis. From the total of 296 students who participated in the study, 57.10% were men, 49.90% were female,

14.90% were single, 85.10% were married, 34.80% were living in a dormitory, and 65.20% lived elsewhere. Moreover, 50.30% studied in public Universities of Medical Sciences, 32.80% studied in Payame Noor University, and 16.90% enrolled in Islamic Azad University.

## Results

Based on the results of Table 1, the majority of students, according to the categories of addictive behaviors of mobile phone, were placed in the three categories of habitual behaviors (21.49%), voluntary behaviors (21.49%), and dependent behaviors (21.49%). Based on the results of Table 2, students, with regard to mental health, had higher rates of depression (17.30%), obsessive-compulsive disorder (OCD) (14.20%), and interpersonal sensitivity (13.80%). Results showed that with confidence interval of 0.99 and  $P < 0.001$ , there was a relationship between mental health and four out of six categories of mobile phone addiction (habitual behaviors, dependent behaviors, addictive behaviors, and involuntary behaviors). In fact, only at the level of voluntary and compulsive behaviors there was no significant relationship with students' mental health. The results showed that with confidence interval of 0.99 and  $P < 0.001$ , there was a significant negative relationship between mental health and general behavior of addiction to mobile phones. This means that as the rate of mobile addiction becomes less, the students' mental health increases. Table 3 presented phone addictive behaviors that have a significant relationship with mental health. Based on these results, mental health of university students of Shahrekord did not differ according to demographic factors (gender, type of university, type of residence, education, and marital status).

**Table 1.** Ranking mobile phone addiction in terms of defined behaviors (n = 296)

Description	Percentage
Habitual behavior	21.49
Voluntary behavior	21.49
Dependent behavior	21.49
Involuntary behavior	16.53
Compulsive behavior	16.53
Addictive behavior	15.70

**Table 2.** Ranking mental health in terms of study dimensions

Description	Percentage
Depression	17.30
OCD	14.20
Interpersonal sensitivity	13.80
Anxiety	11.60
Psychosis	10.88
Hypochondrias	10.46
Paranoia	10.39
Hostility	6.05
Phobias	5.22

OCD: Obsessive-compulsive disorder

**Table 3.** The relationship between mobile phone addiction behavior and mental health

Types of addictive behaviors toward mobile phone	Correlation coefficient with mental health
Habitual	-0.417*
Voluntary	-0.011
Dependent	-0.317*
Involuntary	-0.309*
Mandatory	-0.060
Addictive behaviors	-0.330*
General addictive behavior toward mobile phones	-0.383*

\*Correlation is significant at the 0.01 level (2-tailed)

## Discussion

The results of this study showed that university students of Shahrekord, based on the six categories of mobile phone addictive behaviors, were mostly placed in categories of habitual, voluntary, and dependent behaviors with 20.30%. These findings were consistent with results of several studies.<sup>12,17-20</sup> As was noted in the findings section, there was a significant inverse relationship between mobile phone addiction and mental health. Findings show that the highest correlation was related to mental health and habitual behaviors. Habitual behaviors refer to behaviors that are formed from habit, without hesitation, thought, and mental awareness in order to achieve a particular purpose.<sup>17</sup> Students who suffer from lower mental health, usually when faced with a challenge, a problem, or an assignment or a specific purpose, feel helpless, frustrated, and powerless. As a result, to counteract these negative feelings, they turn to their previous habits involuntarily and automatically, such as mobile phone contacts, and with this they reduce their anxiety and worry due to their inefficiencies. It was observed that after habitual behaviors, addictions and dependent behaviors have the

highest negative correlation with mental disorder. One of the most important causes of this serious relationship probably depends on the nature of addictive and dependent behaviors. Addictive behavior refers to a sudden and involuntary tendency to do a particular act or behavior, in the state of psychological imbalance, and the main factors that drive this conflict and psychological imbalance are irrational negative, inner thoughts.<sup>12,21-23</sup> Hence, it seems that students with lower mental health and psychological balance, are more vulnerable to addictive mobile phones use, because they try to reduce their internal tensions by talking to others. On the other hand, students who had average and high mental health levels also had some types of addiction to mobile phones (habitual addiction). This could be related to excessive use of mobile phones for long-distance calls to family members. Another factor is the lack of entertainment and addiction to entertainment and games that are available on mobile phones. Factors such as jealousy, personality characteristics, the presence or absence of metacognitive skills such as self-regulation skills, and financial considerations could be other factors for the usage or non-usage of cell phones.<sup>21-23</sup> Further research on the relationship between these factors and mobile phone addiction is recommended.

The results showed that between mental health and addictive behaviors toward mobile phones there was a significant inverse relationship in the categories of dependent, involuntary, and addiction behaviors. In other words, in higher mental health, human behavior is more rational, and the amount of cell phone addiction reduces. These findings were consistent with results from a number of studies such as Thomee et al.,<sup>3</sup> Chen,<sup>19</sup> Billieux et al.,<sup>17</sup> Park et al.,<sup>18</sup> Hassanzadeh and Rezaei,<sup>1</sup> Golmohammadian and Yaseminejad,<sup>24</sup> and Seyed Ali.<sup>25</sup> Research results indicate that there is a relationship between addiction to mobile phone and mental health in dimensions of behavioral problems, anxiety, depression, and psychosis. In addition, the results showed that there was no relationship between the occurrence of behaviors of cell phone addiction and gender, type of residence, type of university, and the study field. These findings were consistent with results of Koo and Park,<sup>27</sup> Pawlowska and Potembska,<sup>26</sup> Wei,<sup>28</sup> and Wilska,<sup>29</sup>

and domestic research, including Zamani et al.<sup>21-23</sup> The investigation showed that there was a relationship between mobile phone addictive behavior and gender-related factors. Furthermore, there was a relationship between habitual behaviors of mobile phone use and marital status, addictive behaviors, and university. However, the results indicated that there was no significant relationship between mental health and gender, marital status, type of residence, university, and field of study.

### Conclusion

Survey results showed that with increased and improved mental health, the rates of students' addiction to mobile phones reduced. Hence, it is necessary to take more steps in developing

recreational programs for students' leisure time to maintain students' mental health, and thereby decrease addiction to a variety of new digital media such as the Internet, chat rooms, computer games, and mobile phones. Therefore, it is necessary that the university authorities and higher education institutions develop training programs, and make efforts to maintain physical and mental health of students.

### Conflict of Interests

The Authors have no conflict of interest.

### Acknowledgements

We would like to thank all students in different universities of Shahrekord for their collaboration in this research.

### References

- Hassanzadeh R, Rezaei A. Pathology of using Information and communication technologies by universities' students. *Information and Communication Technology in Educational Sciences* 2010; 1(1): 79-91. [In Persian].
- Hassanzadeh R, Rezaei A. Effect of sex, course and age on SMS addiction in students. *Middle-East Journal of Scientific Research* 2011; 10(5): 619-5.
- Thomee S, Harenstam A, Hagberg M. Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults--a prospective cohort study. *BMC Public Health* 2011; 11: 66.
- Igarashi T, Motoyoshi T, Takai J, Yoshida. No mobile, no life: Self-perception and text-message dependency among Japanese high school students. *Computers in Human Behavior* 2008; 24(5): 2311-24.
- Zhao TY, Zou SP, Knapp PE. Exposure to cell phone radiation up-regulates apoptosis genes in primary cultures of neurons and astrocytes. *Neurosci Lett* 2007; 412(1): 34-8.
- Meo SA, Al-Drees AM. Mobile phone related-hazards and subjective hearing and vision symptoms in the Saudi population. *Int J Occup Med Environ Health* 2005; 18(1): 53-7.
- Balci M, Devrim E, Durak I. Effects of mobile phones on oxidant/antioxidant balance in cornea and lens of rats. *Curr Eye Res* 2007; 32(1): 21-5.
- Hocking B, Westerman R. Neurological effects of radiofrequency radiation. *Occup Med (Lond)* 2003; 53(2): 123-7.
- Kosmanis TI, Kosmidou EP, Zygidis TT, Kantartzis NV, Xenos TD, Tsiboukis TD. A comparative study of the biological effects of various mobile phone and wireless LAN antennas. *Magnetics, IEEE Transactions* 2002; 38(2): 777-80.
- Mild KH, Hardell L, Carlberg M. Pooled analysis of two Swedish case-control studies on the use of mobile and cordless telephones and the risk of brain tumors diagnosed during 1997-2003. *Int J Occup Saf Ergon* 2007; 13(1): 63-71.
- Beydokhti A, Hassanzadeh R, Mirzaian B. The relationship between five main factors of personality and addiction to SMS in high school students. *Current Research Journal of Biological Sciences* 2012; 4(6): 685-9.
- Hooper V, Zhou Y. Addictive, dependent, compulsive? A study of mobile phone usage. *Proceeding of the 20<sup>th</sup> Bled conference emergence: Merging and Emerging Technologies, Processes, and Institutions*; 2007 Jun 4-6; Bled, Slovenia.
- Ghamari F, Mohamadbigi A, Mohamad Salehi N. Relation between mental health and other individual characteristics with students' academic achievement in Arak University. *J Babol Univ Med Sci* 2010; 12(1): 118. [In Persian].
- Shambare R, Rugimbana R, Zhou T. Are mobile phones the 21st century addiction? *African Journal of Business Management* 2012; 6(2): 573-7.
- Ahmed I, Fiaz Qazi T, Aijaz Perji K. Mobile phone to youngsters: Necessity or addiction. *African Journal of Business Management* 2011; 5(32): 12512-9.
- Nassiri Z, Hashembeik N, Siadat SA. The relationship between type and amount use of mobile phone and personality characteristics of students. *Institute of Interdisciplinary Business Research* 2012; 4(3): 113-20.
- Billieux J, Van der Linden M, Acremont M, Cesch

- G, Zermatten A. Does impulsivity relate to perceived dependence on and actual use of the mobile phone? *Applied Cognitive Psychology* 2007; 21(4): 527-37.
18. Park N, Hwang Y, Huh E. Exploring problematic mobile phone use: relationships between adolescents? *Characteristics and Mobile Phone Addiction* [Online]. [cited 2010 Jun 21]; Available from: URL: [http://citation.allacademic.com/meta/p\\_mla\\_apa\\_research\\_citation/4/0/4/1/9/p404199\\_index.html](http://citation.allacademic.com/meta/p_mla_apa_research_citation/4/0/4/1/9/p404199_index.html)
  19. Chen YF. The relationship of mobile phone use to addiction and depression amongst American college students. *Moblie Communication and Social Change* 2004; 10: 344-52.
  20. Chóliz M. Mobile-phone addiction in adolescence: the test of mobile phone dependence (TMD). *Prog Health Sci* 2012; 2(1): 33-44.
  21. Zamani BE, Babri H, Mosavi S. The factors affecting students' attitudes toward learning via cellular phone: a study on students of Isfahan university of medical sciences using technology acceptance model. *Strides Dev Med Educ* 2012; 9(2): 110-17. [In Persian].
  22. Zamani BE, Abedini Y, Shariari Neistani SH. Relationship between the degree and type of mobile phone usage and student's personality traits. *Psychological Science* 2012; 11(41): 106-18. [In Persian].
  23. Zamani E, Abedini Y, Kheradmand A. Internet addiction based on personality characteristics of high school students in Kerman, Iran. *Addict Health* 2011; 3(3-4): 85-91.
  24. Golmohammadian M, Yaseminejad P. Normalization, Validity and Reliability of Cell-phone Over-use Scale (COS) among University Students. *Social Psychological Researches* 2011; 6(19): 37-52. [In Persian].
  25. Seyed Ali T. Identifying the Reasons of addiction to Internet and Mobile [Online]. [cited 2013]; Available from: URL: <http://vista.ir/article/284498/%D8%A8%D8%B1%D8%B1%D8%B3%DB%8C-%D8%B1%DB%8C%D8%B4%D9%87-%D9%87%D8%A7%DB%8C-%D8%A7%D8%B9%D8%AA%DB%8C%D8%A7%D8%AF-%D8%A8%D9%87-%D8%A7%DB%8C%D9%86%D8%AA%D8%B1%D9%86%D8%AA-%D9%88-%D9%85%D9%88%D8%A8%D8%A7%DB%8C%D9%84>
  26. Pawlowska B, Potembska E. Gender and severity of symptoms of mobile phone addiction in Polish gymnasium, secondary school and university students. *Current Problems of Psychiatry* 2011; 12(4): 433-8.
  27. Koo HY, Park HS. Factors Influencing Cell Phone Addiction in Adolescents. *J Korean Acad Child Health Nurs* 2010; 16(1): 56-65.
  28. Wei R. Motivations for using the mobile phone for mass communications and entertainment. *Telematics and Informatics* 2008; 25(1): 36-46.
  29. Wilska T. Mobile Phone Use as Part of Young People's Consumption Styles. *Journal of Consumer Policy* 2003; 26(4): 441-63.

## ارتباط سلامت روان با سطوح اعتیاد به تلفن همراه در دانشجویان دانشگاه‌های شهر کرد، ایران

زهرا بابادی عکاشه<sup>۱</sup>، دکتر بی‌بی عشرت زمانی<sup>۲</sup>، دکتر یاسمین عابدینی<sup>۳</sup>، حجت‌اله اکبری<sup>۴</sup>، دکتر نسیم هدایتی<sup>۵</sup>

### مقاله پژوهشی

### چکیده

**مقدمه:** خطر اعتیاد به تلفن همراه یک مسأله مهم اجتماعی و روان‌شناسی می‌باشد که توسط روان‌شناسان، روان‌پزشکان و مربیان آموزشی مطرح شده است. مطالعه حاضر با هدف بررسی ارتباط رفتارهای اعتیاد به تلفن همراه با سلامت روان دانشجویان دانشگاه‌های شهر کرد انجام شد.

**روش‌ها:** این پژوهش با توجه به اهداف آن، کاربردی از نوع پیمایشی و جامعه موردنظر همه دانشجویان دانشگاه‌های پیام‌نور، آزاد و علوم پزشکی شهر کرد بود. ۲۹۶ دانشجو به صورت تصادفی انتخاب شدند. جهت جمع‌آوری اطلاعات از پرسش‌نامه ۹۰ ماده‌ای SCL-90-R (Symptom checklist-90-Revised) و پرسش‌نامه ۳۲ ماده‌ای رفتارهای مربوط به استفاده از تلفن همراه Hopper و Zhao استفاده گردید. تجزیه و تحلیل داده‌ها با استفاده از نرم‌افزار SPSS و آزمون‌های آماری توزیع فراوانی، میانگین، ANOVA،  $\chi^2$  و LSD (Least significant difference) انجام گرفت.

**یافته‌ها:** دانشجویان دانشگاه‌های شهر کرد بر اساس شش دسته رفتار اعتیاد به تلفن همراه، بیشتر در سطح رفتارهای عادی (۲۱/۴۹ درصد)، اعتیادی (۲۱/۴۹ درصد) و ارادی (۲۱/۴۹ درصد) قرار داشتند. با بررسی شاخص‌های سلامت روان مشخص شد که دانشجویان به اختلال افسردگی (۱۷/۳۰ درصد)، وسواسی (۱۴/۲۰ درصد) و حساسیت بین فردی (۱۳/۸۰ درصد) مبتلا می‌باشند. همچنین یافته‌ها نشان داد که بین سلامت روان و رفتارهای عادی ( $r = -0/417$ )، وابسته ( $r = -0/317$ )، اعتیادی ( $r = -0/330$ ) و بی‌اختیار ( $r = -0/309$ ) کاربرد تلفن همراه، ارتباط به طور معنی‌دار معکوسی در سطح  $P < 0/001$  وجود داشت.

**نتیجه‌گیری:** نتایج تحقیق نشان داد که با افزایش و بهبود سلامت روان، میزان اعتیاد به تلفن همراه دانشجویان کاهش می‌یابد.

**واژگان کلیدی:** سلامت روان، تلفن همراه، اعتیاد، رفتار، دانشگاه

**ارجاع:** بابادی عکاشه زهرا، زمانی بی‌بی عشرت، عابدینی یاسمین، اکبری حجت‌اله، هدایتی نسیم. ارتباط سلامت روان با سطوح اعتیاد به تلفن همراه در دانشجویان دانشگاه‌های شهر کرد، ایران. مجله اعتیاد و سلامت ۱۳۹۳؛ ۶ (۳-۴): ۹۳-۹۹.

تاریخ پذیرش: ۹۳/۳/۲۹

تاریخ دریافت: ۹۳/۱/۱۳

۱- مربی، عضو هیأت علمی، گروه علوم تربیتی و روانشناسی، دانشگاه پیام‌نور شهرضا، اصفهان، ایران

۲- دانشیار، گروه علوم تربیتی، دانشکده علوم تربیتی و روانشناسی، دانشگاه اصفهان، اصفهان، ایران

۳- استادیار، گروه علوم تربیتی، دانشکده علوم تربیتی و روانشناسی، دانشگاه اصفهان، اصفهان، ایران

۴- گروه علوم تربیتی، دانشگاه پیام نور فرخ شهر، شهر کرد، ایران

۵- استادیار، گروه دندانپزشکی اطفال، دانشکده دندانپزشکی، دانشگاه علوم پزشکی رفسنجان، رفسنجان، ایران

نویسنده مسؤول: زهرا بابادی عکاشه

Email: zakashe@yahoo.com