Asian Journal of Psychiatry 27 (2017) 76–80

Contents lists available at ScienceDirect

Asian Journal of Psychiatry

journal homepage: www.elsevier.com/locate/ajp

# The prevalence of phantom vibration/ringing syndromes and their related factors in Iranian' students of medical sciences

Abolfazl Mohammadbeigi[a,*], Narges Mohammadsalehi[b], Esmail Moshiri[c], Zohreh Anbari[d], Ali Ahmadi[e], Hossein Ansari[f]

[a] Department of Epidemiology and Biostatistics, Neurology and Neurosciences Research Center, Qom University of Medical Sciences, Qom, Iran
[b] Health Policy and Promotion Research Center, Qom University of Medical Sciences, Qom, Iran
[c] Department of Anesthesiology, Arak University of Medical Sciences, Arak, Iran
[d] EDC, Arak University of Medical Sciences, Arak, Iran
[e] Modeling in Health Research Center, Department of Epidemiology and Biostatistics, School of Public Health, Shahrekord University of Medical Sciences, Shahrekord, Iran
[f] Health Promotion Research Center, Department of Epidemiology and Biostatistics, Zahedan University of Medical Sciences, Zahedan, Iran

ARTICLE INFO

*Article history:*
Received 26 June 2016
Received in revised form 31 January 2017
Accepted 12 February 2017
Available online xxx

*Keywords:*
Phantom vibration
Syndrome
Phantom ringing
Mobile phone
Smartphone
Medical students
Iran

ABSTRACT

*Background and aim:* Mobile phone abuse can cause pathologic stress that may lead to addictive behavior such as Phantom Vibration Syndrome (PVS) and Phantom Ringing Syndrome (PRS). The current study aimed to determine the PVS and PRS due to mobile phone use in students of Qom University of medical Sciences in Iran.
*Design:* Cross-sectional study.
*Participants:* The participants were 380 students selected by proportional stratified random sampling method in each stratum.
*Measurements:* Data were collected by a self-administered questionnaire and analyzed by descriptive and analytic statistical methods including *t*-test, chi square and analysis of variance.
*Findings:* The prevalence of PVS and PRS due to mobile phones in students of medical sciences was estimated to be 54.3% and 49.3%, respectively. PVS was higher in female students than in males while the PRS was higher in male students. There was a significant relationship between PVS and using social networks such as Viber, WhatsApp, and Line. In addition, a significant association was observed between PVS and friend-finding, chatting and entertainment.
*Conclusion:* Studies should be done in the future to assess the long-term complication of overusing mobile phones. In the current study, the prevalence of PVS and PRS in half of students is considerable.


## 1. Introduction

Today, psychosomatic syndromes are emerging in mobile phone users who are frequently checking their phones when their phones are in "silent/not ringing" or "vibrated" modes (Hemmert, 2008). As such, an intermittently perceived hallucination is defined as phantom vibration syndrome (PVS) or vibranxiety' and Phantom Ringing Syndrome (PRS) or ringxiety, respectively in mobile phone users who feel that their mobile phones are vibrating or ringing when indeed it is not the case (Drouin et al., 2012; Hemmert, 2008; Lin et al., 2013b; Rosenberger, 2015).

PVS and PRS are common forms of hallucination in the general population,especially in teenagers and adolescents (Lin et al., 2013b). According to recent statistics, the prevalence of Iranian mobile phone and internet usage in Iran has increased to 85% and 35%, respectively. Moreover, 22% of Iranian users and 58% of teenagers connect to the internet by their smartphones or Tablets (The Official Portal Of Measuring Information Society Of Iran, 2014). Text messaging using in social networks of smartphones was increased consequently, due to high internet access in recent years and a sharp increase occurred in mobile communications worldwide including Iran (Drouin et al., 2012; Dixit et al., 2010; Payne et al., 2012; Ramesh et al., 2008; Lenhart et al., 2010; Mohammadsalehi et al., 2015). According to recent studies in this area, the prevalence of PVS was estimated to be 68% in Rothberg's study (Rothberg et al., 2010), 78.1% in Lin (Lin et al., 2013b) and 89% in Drouin's study (Drouin et al., 2012). Based on the stress-related

* Corresponding author.
*E-mail address:* ansarih88@gmail.com (H. Ansari).

http://dx.doi.org/10.1016/j.ajp.2017.02.012
1876-2018/

situations in medical students, PRS has lower prevalence in the population ranging from 27.4% to 54.2% (Lin et al., 2013b).

Based on few studies (Drouin et al., 2012; Lin et al., 2013a, 2013b; Rothberg et al., 2010) conducted on PVS and PRS, it has been found that using vibration mode in mobile phones and the state of being medical students are seen as two important factors for PVS and PRS (Lin et al., 2013b). Moreover, carrying mobile phones for long hours, carrying them in bosom pocket and stressful workload are other related determinants (Lin et al., 2013b; Rothberg et al., 2010; Drouin et al., 2012; Lin et al., 2013a; Bianchi and Phillips, 2005). In addition, it is suggested that exploration of psychological traits and stress are also the related factors of PVS (Rosenberger, 2015). Therefore, the current research was conducted on medical students, having mobile phones, in order to assess the prevalence of PVS and PRS and the related factors of these phenomena.

## 2. Materials and methods

This cross-sectional study was carried out on students of Qom University of Medical Sciences in January 2015. Proportional stratified random sampling method was used to select 380 undergraduate students with each faculty being defined as a stratum. Inclusion criteria consisted of studying at Qom University of Medical Sciences and being at least in the second term of educational program. Students who were unwilling to participate in the study were excluded. Informed consent was taken from all participants and the ethical committee of Qom University of Medical Science approved the study protocol.

A tailor-made self-administrated questionnaire was used for data collection. The questionnaire was constructed based on the literature review (Lin et al., 2013a, 2013b; Rothberg et al., 2010) and using Drouin et al. (2012) questionnaire as the primary draft. This questionnaire was validated by experts and has high reliability coefficient. The main theme in the current study was "Do you experience the phantom/ringing vibrations?" The other items asked about the frequency of phantom/ringing vibration on a scale that ranging from 1 = rarely to 5 = usually. Moreover, the inconvenience of using smartphone and social networks including the effect of overuse of smartphone on relatives' discontent, family relationship, and social activity was assessed by three different questions in likert-scale format ranging from 0 = never to 5 = usually. In addition, the participants were also asked about demographic characteristics, type of using smartphones, type of using and the purposes of android applications of social networks.

### 2.1. Statistical analysis

Overall, 363 participants responded to the questionnaires and the response rate was 95.5%. Data were entered into SPSS software (Chicago Inc.) for the purpose of statistical analysis. Descriptive statistics including percentage, mean, and standard deviation were used for central and deviation indexes. Chi-square test was used to compare the demographic characteristics, the use and the purposes of using android-related social networks in smartphones among students labeled as PVS/PRS and normal ones.

## 3. Results

The mean age of all 365 students was 21.76 ± 3.2 years. Overall, 69.1% were female and 87% single and 47.7% lived in the university dormitories. Table 1 shows the demographic characteristics of study population in more detail. Most of students (53%) were in the third and fourth term of the educational program. Moreover, 81.3% had smartphones and using internet among them was estimated to be 74%. The participants reported that 29.93% of them used smartphones for text/messaging and internet less than one hour and 28.9% more than three hours, daily. In addition, 24.5% and 16.67% of the participants reported using smart phones 1–2 h and 2–3 h, respectively.

**Table 1**
Demographic characteristics of studied students.

| Demographic Characteristics | | N | % |
|---|---|---|---|
| Age | <19 years | 66 | 18.2 |
| | 20–21 years | 148 | 40.8 |
| | 22–23 years | 87 | 24 |
| | >24 years | 54 | 14.9 |
| Gender | Female | 251 | 69.1 |
| | Male | 112 | 30.9 |
| Resident place | Dormitory | 173 | 47.7 |
| | Home | 178 | 52.3 |
| Marital status | Single | 318 | 87 |
| | Married | 42 | 11.6 |
| Educational level | General physician | 125 | 35 |
| | Bachelor | 236 | 65 |
| Faculty | Medical | 100 | 27.5 |
| | Dental | 31 | 8.5 |
| | Nursing ad midwifery | 79 | 21.8 |
| | Paramedical | 85 | 23.4 |
| | Health | 67 | 18.5 |

The prevalence of PVS and PRS in medical students were calculated to be 54.3% and 49.3%, respectively. In addition, 70.1% of all participants experienced at least one type of PVS or PRS. Furthermore, 32.5% (118 students) were affected by both PVS and PRS. The frequency distribution of severity of PVS or PRS is presented in Table 2. According to the findings in Table 3, gender was a significantly related factor of PVS and PRS ($p < 0.05$). Place of residence was another effective factor in PRS occurrence ($p = 0.005$) and age was a determining factor of PVS ($p = 0.027$). Nevertheless, no significant relationship was seen between PVS and PRS with marital status and educational level ($p < 0.05$). Place of residence was not a significant factor of PVS ($p < 0.05$). Moreover, there was no significant relationship between PVS and PRS and faculty, educational term, number of active SIM-cards and mobile phones ($P < 0.05$).

Based on the results shown in Table 4, there was not any significant relationship between the occurrence of PRS and using social networks including Viber, WhatsApp, Tango, Line, and Instagram in smartphones. In addition, no difference was observed between students affected and unaffected by PRS regarding the purpose of using android-related social networks including scientific activities, communication with family or friends, chatting or friend-finding and entertainment ($p > 0.05$). Nevertheless, a significant difference was observed between students who were affected by PVS and others in using social networks such as Viber, WhatsApp, Tango and Line ($p < 0.05$). Moreover, PVS was more common in students that used social networks for friend-finding and chatting while it was lower in students that used smartphones for entertainment($p < 0.05$).

Fig. 1 shows the severity of difficulties due to using smartphone and android-related social networks. According to Fig. 1, relatives' discontent in 31.1% of students was reported to be more than the

**Table 2**
Distribution the severity of phantom ringing/vibration experience among studied students.

| | Phantom Ringing n(%) | Phantom Vibration n(%) |
|---|---|---|
| Never | 184(50.7) | 166(45.7) |
| Seldom | 117(32.2) | 110(30.3) |
| Once a month | 16(4.5) | 21(6) |
| Once a week | 20(5.7) | 25(7.1) |
| Daily | 8(2.3) | 17(4.8) |
| More than daily | 7(2) | 12(3.4) |