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Original Research Article

The phantom syndrome: a descriptive study on prevalence and association with smartphone addiction and perceived stress among medical students in central Kerala

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ABSTRACT

Background: Technology in Communication has developed drastically in recent years and the introduction of smartphone is a crucial milestone in history. The constant involvement of people with their smartphone has led to the surfacing of a new kind of psychological disorder called as the phantom syndrome, comprising of phantom vibration syndrome (PVS) and phantom ringing syndrome (PRS), characterized by a recurrent false sensation of vibration and ringing from their smartphones.
Methods: A cross sectional study was conducted among Four hundred eighty seven medical students in Thiruvalla Taluk of Pathanamthitta District, Kerala to estimate prevalence of such sensations among medical students and their association with perceived stress levels and smartphone addiction. Data was collected using a semi structured questionnaire for details about the phantom vibration/phantom ringing sensations over the last 1-month, perceived stress scale (PSS), smartphone addiction scale short version (SAS SV). Chi-square test and odds ratio with 95% confidence interval were used to evaluate statistical significance of association.
Results: 59.1% have a sensation of phantom vibration and 61% experienced phantom ringing syndrome. 73.5% students perceived stress and 67.6% had smartphone addiction. Phantom vibration and phantom ringing were significantly associated to perceived stress and smartphone addiction.
Conclusions: This study throws light on the stress levels and excessive smartphone use among medical students, and the association of smartphone phantom sensations with smartphone addiction and stress level.

Keywords: Kerala, Medical students, Phantom ringing, Phantom vibration, Smartphone addiction, Stress, Thiruvalla

INTRODUCTION

Technology in communication has developed drastically in recent years and the introduction of cellular phone is a crucial milestone in history. Old-style cellular phones consisted of the primary features that allowed users to call or text someone. Before long, smart phones conquered the market. Apart from the conventional voice calls and text messages, today smart phone has become a necessary element for entertainment, social networking, education, business promotion, and related activities. Nowadays, adults spent most of their leisure time on their smart phones. The constant involvement of people with their smart phones has led to the surfacing of a new kind of psychological disorder called as the phantom syndrome, comprising of phantom vibration syndrome (PVS) and phantom ringing syndrome (PRS). Phantom vibration (PV) or phantom ringing (PR) refers to the mistaken

perception of a phone vibrating or ringing, respectively, when in fact it did not.[1] PVS, although termed a "syndrome," is not really a disease or disorder. It is more a "normal phenomenon" with possible misinterpretation of stimuli.[2]

Previous studies show varying prevalence of PPS ranging between 27.4% and 89%.[3] Rothberg et al conducted a study in 2010 on the phantom syndrome among medical staff and found that nearly 70% of the individuals faced phantom syndrome.[2] In 2012, a study among college undergraduates revealed that almost 90% of the students had felt the phantom vibrations.[4] Another study conducted in the year 2013 by Lin et al reported that 78% of the individuals perceived phantom vibrations. [5] A study conducted in 2015 at Kurukshetra university shows that 74% of the postgraduate students experience the phantom vibration and ringing on a weekly basis.[6] In 2017, Abolfazal et al investigated the prevalence of phantom among medical students and found that 54.3% of the students face phantom sensations.[7]

Many studies have explored the factors associated with the Phantom Syndrome. A study by Lin et al showed an association between the frequency and the intensity of PPS and stress due to a medical internship, but not with anxiety or depression.[8] Kruger et al found that PPS was associated with attachment anxiety, but not with general sensation seeking and attachment avoidance.[9] The current research aimed to estimate the prevalence of phantom perceptual experiences of phantom ringing and phantom vibration among undergraduate MBBS students in thiruvalla taluk of Pathanamthitta district, Kerala and to find the association of phantom ringing and vibration with perceived stress and smart phone addiction.

METHODS

This cross-sectional study was conducted in Thiruvalla Taluk of Pathanamthitta district, Kerala from August to October 2019. Institutional ethical committee approval was taken for the study. Considering a 47% prevalence of phantom vibration obtained from a previous study, 10% relative precision with 5% type 1 error, and 10% nonresponse rate, the minimum sample size was calculated to be 487.[10]

Inclusion criteria

Medical students of both gender studying MBBS in any medical college in Tiruvalla taluk of Pathanamthitta District.

Exclusion criteria

Any students who does not use a smartphone were excluded.

Participants were enrolled using cluster sampling, cluster being the year of study. Sixty medical students were randomly selected and surveyed for the study from first, second, third and fourth year of MBBS in two medical colleges in Thiruvalla. The survey was pilot tested to assure clarity and coherence, and it was subsequently modified in response to the pilot results. Data was collected using a study tool which included (a) a semi-structured questionnaire in English for documenting details about the phantom vibration/phantom ringing sensations over the last one month, (b) Perceived stress scale (PSS) and (c) Smartphone addiction scale-short version (SAS-SV). PSS is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. PSS has 10 items where each item is rated on a 5‑point Likert scale ranging from never (Zero) to almost always (Four). Positively worded items are reverse scored and the ratings are summed, with higher scores indicating more perceived stress. The questions in the PSS ask about feelings and thoughts during the last month.[11] The SAS‑SV is a validated scale originally constructed in South Korea, but published in English. It contains 10 items rated on a dimensional scale (1 "strongly disagree" to 6 "strongly agree"). The total score ranges from 10 to 60, with the highest score being the maximum presence of "smartphone addiction" in the past year.[12]

The collected data were entered in Excel, and statistical analysis was performed using EpiInfo. Demographic details and information about phantom sensations were expressed as proportions. Chi-square test was used to evaluate statistical significance of association. Odds Ratio with 95% confidence interval was calculated. P value less than 0.05 was considered as significant.

RESULTS

Out of the 487 study participants, 69.61% of the study population were females and 30.39% were males. 58% spent more than 3 hours each day on their smartphones (general characteristics, Table 1).

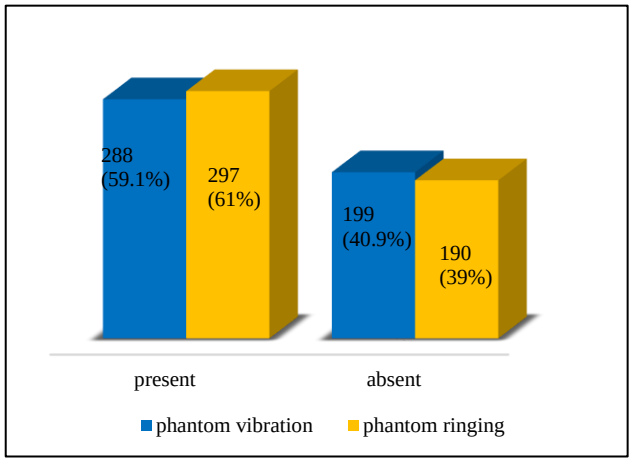

Figure 1: Prevalence of phantom vibration and phantom ringing among study participants.

35.31% were studying Second year MBBS and 27.92 were First year MBBS. 48% of the study population spent 1-5 hours on their mobile phones. 46.2 % of the study population kept their mobile phones in the front pocket of their pants. 288 participants out of 487 (59%) reported having experienced phantom vibrations and 297 study participants (61%) experienced phantom ringing syndrome (Figure 1).

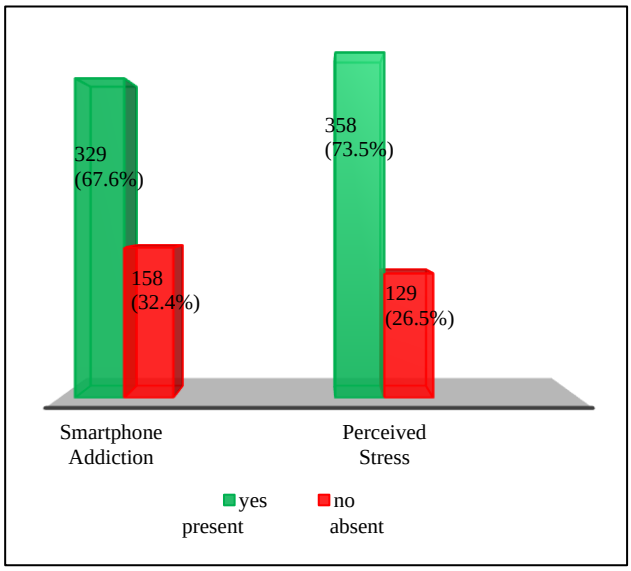

Figure 2: Prevalence of Smartphone addiction and Perceived Stress among study population.

Majority of study population experienced phantom vibrations on a weekly basis and phantom ringing on a monthly basis. 45.17% of the study participants experienced phantom vibrations as bothersome and 36.75% experienced phantom ringing as bothersome. On assessing the SAS-SV and PSS scales, majority of the study population (67.6%) had smartphone addiction and 73.5% perceived stress (Figure 2).

Table 1: Characteristics of the study population.

Variable	Frequency (%)
Gender	
Males	148 (30.39)
Females	339 (69.61)
Year of study	
First year	136 (27.92)
Second year	172 (35.34)
Third year	127 (26.07)
Fourth year	52 (10.67)
Time spent on mobile phone in a day	
Less than 1 hour	15 (3.49)
1-5 hours	233 (47.45)
5-10 hours	140 (28.74)
More than 10 hours	99 (20.32)
Where mobile phone is kept	
Shirt pocket	17 (3.49)
Front pocket of pants	225 (46.69)
Back pocket of pants	72 (16.78)
Handbag	61 (14.52)
Always held in hand	82 (18.52)

Phantom vibration and phantom ringing syndrome were found to be significantly associated with perceived stress and smart phone addiction. Case-control analysis of the study data revealed that odds ratio between perceived stress and phantom sensations was positively significant. Similar is the case with smartphone addiction and phantom sensation (Table 2).

Table 2: Factors associated with phantom ringing and phantom vibration syndrome.

Study variable	Phantom ringing				Chi-square value	P value	Odd ratio	95% CI
		Yes	No	Total				
Smartphone addiction	Yes	245	84	324	77.474	0.001	5.9455	3.9293-8.9962
	No	52	106	158				
	Total	297	190	487				
Phantom ringing								
Perceived stress	Yes	242	116	358	24.834	0.001	2.7953	1.8490-4.2259
	No	55	74	129				
	Total	297	190	487				
Phantom vibration								
Smartphone addiction	Yes	233	96	329	57.279	0.001	4.5453	3.0330-6.8116
	No	55	103	158				
	Total	288	199	487				
Phantom vibration								
Perceived stress	Yes	228	130	358	11.56	0.001	2.0169	1.3418-3.0317
	No	60	69	129				
	Total	288	199	487				

DISCUSSION

The current research describes the prevalence of phantom syndrome (phantom vibration and phantom ringing) among medical students. Prevalence of phantom vibration was 59% and prevalence of phantom ringing was 61% among the study subjects. A study among medical students in Iran found a prevalence of 54.3% and 49.3% for PV and PR, respectively.[7] A high prevalence of PV (93%) was also reported among Pakistani medical students and also among postgraduate students (74%) from India.[6,13] Such wide variation in prevalence may be attributed to differences in geographical and socio demographic characteristics among different groups of people.

The study reveals that majority of the study population (67.6%) had smartphone addiction and 73.5% perceived stress. A study conducted among medical students from Bengaluru found that 39.5% of their study subjects were suffering from nomophobia, suggesting high mobile phone use.[14] A study among students affiliated to a medical college in Orissa, found that 53% of them were suffering from stress.[15] present study revealed that phantom vibration and phantom ringing syndrome were found to be significantly associated with perceived stress and smart phone addiction. Similar to present study, Goyal et al also found that the symptoms of phantom syndrome are directly proportional to the number of hours that the smartphone was carried and the frequency of the phone use.[6]

CONCLUSION

Technological advances in communication is a brilliant achievement, however the more dependent we become to it, so increases the chances of being affected by the adverse effects that accompany the overuse. The present study throws light on the stress levels and excessive smartphone use among medical students, and the association of smartphone phantom sensations with smartphone addiction and stress level.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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