



A CROSS SECTIONAL STUDY ON PHANTOM VIBRATION SYNDROME AND ITS IMPACT ON PSYCHOLOGICAL MORBIDITY AMONG MEDICAL STUDENTS.

Community Medicine

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ABSTRACT

Background - Phantom vibration syndrome (PVS) is the sensation of false belief that mobile phone is vibrating when actually it is not. It is an emerging psychological disorder due to overuse of mobile phones owing to its charismatic features such as portability, accessibility, etc. Mobile phones have become an essential part of day-to-day life. As a society increasingly dependent on mobile phones, PVS easily becomes a phenomenon of worry. Frequent use of Mobile phones on prolonged vibration mode lead towards PVS. Studies suggest that PVS can cause psychological stress, anxiety, depression and if left unmanaged, primary symptoms progress to advanced stages. **Aims and Objectives** - To estimate the proportion of Phantom Vibration Syndrome among medical students and to assess the Impact of Phantom Vibration Syndrome on Stress, Anxiety and Depression. **Materials and Methods** - A cross sectional online questionnaire-based study was conducted among 280 medical students of Indira Gandhi Government Medical College, Nagpur from January 2022 to February 2022. Data was collected using pre-tested questionnaire which included questionnaire regarding Mobile phone usage and Psychological well-being. Stress, Anxiety and Depression were assessed using Perceived stress scale, Hamilton Anxiety rating scale and Beck's Depression Inventory Scale respectively. **Results** - Out Of 280 respondents, 135 (48.2%) are Male and 145 (51.8%) are Female. 74% (208) reported having experienced Phantom Vibration Syndrome (PVS) from mobile phones. Whereas only, 18.57% of Study Participants experienced Phantom Ringing Syndrome. **Conclusions** - Excessive problematic usage of mobile phone has resulted in various disorders like phantom vibration syndrome, Phubbing, Ringxiety and Nomophobia that deals with psychological or socio behavioral changes. By limiting mobile phone use in a productive way, these health-related problems can be avoided.

KEYWORDS

Phantom Vibration Syndrome, Mobile phone, Anxiety, Depression.

INTRODUCTION –

Necessity is the mother of invention, it is said. Invention's people say, is the mother of modern diseases that are being categorized as “techno-pathology disorders” resulting from overuse/ misuse of technology¹. Mobile phones have brought new revolution in the field of communication. In India at present, there are a total number of 1.16 billion users of Mobile Phones². Following the government curbs on social distancing and lockdown, there was a 39% rise in the average time spent by an Indian user on a smartphone. As per a report by App Annie,³ India stood third (4.6 hours a day) on the list of average time spent by an average user on smartphone³.

Owing to its charismatic features such as portability, accessibility, etc. mobile phones have become an essential part of day-to-day life. To avoid interruption in public places, users are urged to keep their mobilephones on silent and therefore numerous people use phones on Vibration mode for alerts. Repeated usage on vibration mode may result in intermitted perception that device is vibrating when, in fact, it is not.¹

Phantom vibration syndrome (PVS) is the sensation of false belief that mobile phone is vibrating when actually it is not. History of phantom syndrome can be traced back to 1996, when the cartoonist Scott Adams, referred such sensation as “phantom-pager syndrome” in his comic “Dilbert”. In 2003, Robert D. Jones stated, 'tactile hallucination of mobile phone vibration' in his article entitled as “Phantom Vibration Syndrome”. Earlier, various terms such as vibranxiety, fauxcellarm and ringxiety were used until the term “Phantom” made its way in 2012 and was declared as the “Word of the Year.” WHO has stated that there are no known health consequences below the limits recommended by International Commission on Non-Ionizing Radiation Protection

(ICNIRP), yet concerns are raised on the issues of mobile phone overuse and recently on its

addiction⁴. Similarly, Phantom Ringing Syndrome (PRS) is an auditory hallucination that an electronic device is ringing when actually it is not. The term PRS was first used by Lin et al in 2013⁵.

This study was conducted to estimate the proportion of Phantom Vibration Syndrome among medical students of Indira Gandhi Government medical College, Nagpur and to assess the Impact of Phantom Vibration Syndrome on Stress, Anxiety and Depression.

MATERIALS AND METHODS:

A cross sectional online questionnaire-based study was conducted among medical students of Indira Gandhi Government Medical College, Nagpur from January 2022 to February 2022. The online study was done with the aid of Google forms. The study link was disseminated through Emails and Various WhatsApp groups. Informed Consent of Study Participants was taken, and Confidentiality was ensured to the Study Participants. Those who were already suffering from any psychiatric problems were excluded from the study.

Based on a study conducted by Charulata RJ et al.⁶ in Kancheepuram district, Tamil Nadu, India it was seen that 76% reported having experienced Phantom Vibration Syndrome and on applying suitable formula, $n = z^2 * pq / d^2$, for a cross-sectional study, sample size come out to be 280. Data was collected using Pre-tested questionnaire which included questionnaire regarding Mobile phone usage and Psychological well-being. Stress, Anxiety and Depression were assessed using Perceived stress scale, Hamilton Anxiety rating scale and Beck's Depression Inventory Scale respectively.

Perceived Stress Scale (PSS):

It is the most widely used validated 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 scores are obtained by reversing responses obtained (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated questions (items 4, 5, 7, & 8) and then summing across all scale items. A short PSS 4 item scale can be made from questions 2, 4, 5 and 10 of the PSS 10 item scales. Individual scores on the PSS that range from 0-13 would be considered low stress; 14-26 considered as moderate stress and score ranging from 27-40 would be considered high perceived stress.⁸

Hamilton Anxiety (HAM-A) scale:

It is a widely used validated rating scale to measure the severity of anxiety disorders in clinical practice as well as research setup. There are 14 items in the scale depending on the symptoms of anxiety and each item is scored on a 5-point scale, ranging from 0 (not present) to 4 (severe). The participants were explained about the symptoms associated with anxiety. The individuals were then classified based on their total score as follows: Total score 0–13 = Normal individuals; 14–17 = Mild anxiety; 18–24 = Moderate anxiety and 25 or more = Severe anxiety.⁹

The Beck Depression Inventory (BDI):

It is a 21-item, self-report rating inventory that measures characteristic attitudes and symptoms of depression. It is the most often used self-rating instrument for depressive symptoms. The questionnaire was developed from clinical observations of attitudes and symptoms occurring frequently in depressed psychiatric patients and infrequently in non-depressed psychiatric patients. Twenty-one items were consolidated from those observations and ranked 0 (symptom absent) to 3 (severe symptoms) for severity. The minimum score is 0 and maximum score is 63.

Scores of 0–13 indicate minimal depression, 14–19 (mild depression), 20–28 (moderate depression) and 29–63 (severe depression)¹⁰. After collecting data, data entry was done in MS EXCEL Version 2019. Data was organized and presented by applying principles of descriptive statistics. Analysis of the data was done by IBM Statistical Package for Social Sciences version 20 (SPSS 20). Descriptive statistics like mean, standard deviation and percentages was used to describe the findings. Analysis was done using Chi square test and a P-Value of <0.05 was taken as significant.

RESULTS:

Out Of 280 respondents, 135 (48.2%) are Male and 145 (51.8%) are Female. 74.28% (208) reported having experienced Phantom Vibration Syndrome (PVS) from mobile phones. (Figure 1) Whereas only, 18.57% of Study Participants experienced Phantom Ringing Syndrome. (Table 1)

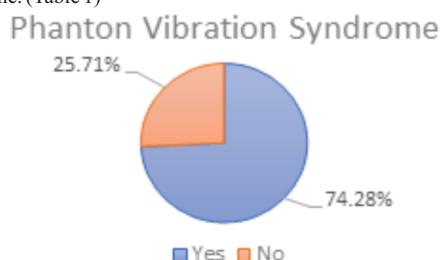


Figure 1: Distribution Of Phantom Vibration Syndrome among Study Participants

Table 1: Frequency distribution of Variables

Variables	Study Participants	
Gender	Number	Percentage
Male	135	48.20
Female	145	51.80
EXPERIENCED PHANTOM VIBRATION SYNDROME		
Yes	208	74.28
No	072	25.71
EXPERIENCED PHANTOM RINGING SYNDROME		
Yes	052	18.57
No	228	81.42

On evaluating the scores on PSS, 72.6 % (n=151) had moderate level of stress and 11.5% (n=24) of them had high level of stress. According

to Hamilton – A scale, 80.8% (n=168) of study experienced mild anxiety, 14.9% suffered from moderate anxiety 4.3% suffered from severe anxiety. According to Beck's Depression Inventory, 9.62% (20) had Moderate level of depression and 3.37% (7) had severe level of Depression. (Table 2)

Table 2 - Level of mental health status among study participants who experienced PVS.

Level Of Mental Health Status	Study Participants	
	Number	Percentage
Stress: (PSS Scale)		
Low	033	15.8
Moderate	151	72.6
High	024	11.5
Anxiety: (HAM-A Scale)		
Mild	168	80.08
Moderate	031	14.90
Severe	009	04.30
Depression: (Beck depression inventory)		
Minimal	129	62.02
Mild	052	25.00
Moderate	020	09.62
Severe	007	03.37

Most of the students spend more than 6 hours with their smart phone and 66% of them experienced PVS. Almost 55% of Study participants kept their phones on Vibration mode often and among them 81% developed PVS. Majority of the students who experienced PVS (77.1%) had kept their mobile phones in their pockets / directly in hand rather than keeping it in their bags. PVS was seen more in Study participants who used mobile phones more during the night hours (79.53%). It was found that, Phantom Vibration Syndrome had a statistically significant association ($P < 0.05$), with those Study participants who Often kept mobile phones in vibration mode, whose duration of mobile phone usage was >6 hours , those whose usually place of keeping their mobile device was in hand / pocket and also those study participants whose usage of Mobile phones was more during the night. (Table 3)

Table 3 : Association between PVS and factors influencing it

Variable	Study Participants	PVS		P Value
		Yes	No	
Duration of mobile phone usage (Per Day)				
>6 Hours	166	110	56	0.0002*
<6 Hours	114	098	16	
Duration of mobile phone activated in vibration mode				
Busy Time / Often	153	124	29	0.004*
At Times/ Rare	127	084	43	
Usual site to place mobile phone				
Pocket/Hand	214	165	49	0..05*
Bag	066	043	23	
Mobile Often Used During				
Morning/ Evening	109	072	37	0.011*
Night	171	136	35	

*p < 0.05 statistically significant at 95% confidence interval

The association between students who experienced PVS and the level of perception of stress was also statistically found to be significant with p value (0.02). (Table 4)

Table 4: Association between PVS and factors influencing it

Variable	Study Participants	PVS		P Value
		Yes	No	
Stress				
Yes	227	175	52	0.02*
No	053	033	20	
Anxiety				
Yes	047	040	07	0.06
No	233	168	65	
Depression				
Yes	033	027	6	0.29
No	247	181	66	

*p < 0.05 statistically significant at 95% confidence level

DISCUSSION:

The present study findings (74% of the students experienced PVS) was supported by a similar study conducted by Sunitha V (2020) on assessment on prevalence and its factors on phantom vibration syndrome among Undergraduate and Postgraduate students in selected colleges revealed 74% of students to have Phantom vibrations syndrome. A study conducted by Charulata RJ et al. on distribution of Phantom vibration syndrome and its association on psychological morbidity among medical students it was seen that 76% reported having experienced Phantom Vibration Syndrome, while a study of undergraduates conducted by Drouin M et al. suggested almost 90% experienced phantom vibrations and a study conducted in 2017 by Abolfazal MB et al. noted that prevalence of PVS among medical students was 54.3%.

The result obtained in this study suggests study participant experienced moderate level of anxiety (83.6%) and low level of stress (70%) which was different from the result obtained from the studies conducted by Goyal A et al. 2015 that suggested high level of anxiety (72.1%) and Mangot AG Murthy et al. 2015 in which majority of the subjects (59%) were found to have a high level of stress.

Almost 65% experienced minimal level of depression in this study, similar to the study conducted by Desai et al. 2016 in which majority were normal (56.32%) and about 34.48% and only 3.44% had mild and moderate level of depression respectively.

Students who spent more time (> 6 hours) in their mobile phones experienced PVS. This result goes in accordance with Subba et al. study conducted in 2013, where students who had PVS observed to spend more time on their mobile phones. Repeated and prolonged exposure to actual phone signals may result in long-term accessible patterns, which in turn may increase the chances of misinterpretations of sensory stimuli as phone signals or the detection of phantom phone signals in the absence of sensory stimuli. This explanation is consistent with the present findings where students who activated vibration mode often experienced PVS (81.04%). The site of placement of mobile phone by students who experienced PVS was more common in pockets or directly in hand (76.42%) that coincided with the result obtained from study supported by Alam et al. 2014 that concluded (70%) kept their mobile phones in their trousers pockets.

CONCLUSION:

The results of present study revealed that most of study participants are facing the phantom vibration syndrome. This study concluded that the mobile phone usage among study Participants is mostly at night and pocket/hand is the most common site of placement. The Study also concludes that PVS was seen more among study participants who use mobile phones on vibration mode often. The mobile phone usage had an adverse impact on the study participants in terms of phantom vibration syndrome. They also reported low, Moderate and minimal level of stress, anxiety and depression respectively. These findings suggest that mobile phone dependency is becoming more common among college students.

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