

# **PREVALENCE OF TACTILE HALLUCINATION OF PHONE VIBRATION AMONG INDIVIDUALS AGED 18-22 YEARS**

**Tanisha Mali<sup>#</sup>**

**Department of Medical Sciences, Krishna Institute of Medical Sciences, Karad, Mumbai, Maharashtra, India**

## **Abstract**

**Aims:** To find the prevalence of tactile hallucinations of phone vibrations among individuals aged 18 years-22 years. To find whether the hallucinations are bothersome

**Background:** Overuse of phones can lead to physiological health hazards. Repeated use of vibration mode leads to fake perception of device being vibrating when it is not. Tactile hallucination of phone vibration is a prevalent phenomenon among young individuals. Theories explaining the possibility of the phenomenon are proven through researchers.

**Design:** Cross sectional survey

**Participants:** 204 individuals responded to the questionnaire.

**Materials and Methods:** An electronic survey consisting of 12 questions based on demographic, mobile usage hours, frequency of phantom vibrations experienced. An online questionnaire was used for the study. It is known as the phantom vibration scale or phantom vibration questionnaire which was taken from an article.

**Results:** 204 responses were received. Out of that 68% experienced tactile hallucinations. Among those who had hallucination different factors were viewed in association with it. 88% possessed a smart phone for more than a year. Respondents were asked about the phone usage hours and majority used it for 3 hours-5 hours daily. Social media is a known addiction of phone and the survey showed that 55% of the respondents used phones to scroll social media. The next factor that is vibration mode of phone, was used by 17% of the people always. 29% used it for most of the time. About the placement while carrying of phone it showed that 69% always carried phone in their jean front pocket. Also, 42% of the participants found those vibrations to be bothersome. 21% had the hallucinations so severe that they felt it when the phone was switched off.

**Conclusions:** More than half of the people on this planet carry smartphone and most use it on vibration mode. Even if one third of them experience the hallucinations, a planned treatment is required for this. *ASEAN Journal of Psychiatry, Vol. 24 (7) July, 2023; 1-7.*

**Keywords:** Tactile hallucination, Phantom vibrations, Phone addiction, Vibration mode;

**Electronic survey**

## **Introduction**

Worldwide technology and its evolution play a major role in every individual's life and the present trend of the society is to adapt to every change in each field which also includes the field of communication. Alexander Graham Bell invented telephone in 1876 and the popularity of this device led to introduction of advanced technologies like cell phones. And now one of the major boons in the field of communication is the cell phone. A cell phone is an instrument that can make and receive calls. Motorola in 1973 invented the first mobile phone. And today cell

phone is a lifeline for many. According to the statistical data of 2021 it is estimated that around 492.78 million people use cell phone in India and it comes as no surprise that majority of the users belong to the youth category. Now a days the cell phone is more of a necessity than a luxury. Phone has a lot of positive things for human beings but there are some negative impacts of it on life too. Mobile phone usage is so strongly integrated into young people's behavioural addiction that it interrupts their day to day activities. The criteria used to determine the phone addiction consist of the "compulsion or craving to use mobile phones". Overuse of

phones can lead to physiological health hazards like fatigue, headache, earache and altered sensations and musculoskeletal problems like neck pain and back pain [1,2].

A study made previously on Indian medical students showed that 73% of them were having nomophobia. This is the 'fear of no phone' or 'fear of being out of mobile phone contact'. Most of the nomophobics, experience ringxiety that is sensation of ringing mobile phones even when it is not ringing. The telecom regulatory authority of India revealed that until 2017, 1167.44 people were using mobile phones in India. Disorders from overuse or misuse of technology are categorized as "techno pathology" which includes phantom vibration syndrome or tactile hallucination of phone vibration [3,4].

Phone ringing is prohibited at most working places like offices, colleges and even the theatres. People generally use vibration mode for alerts of calls and messages. Repeated use of vibration mode leads to fake perception of device being vibrating when it is not. This has given rise to a common and flourishing phone induced disorder called the phantom vibration syndrome. It was first described by Robert D. Jones in 2003. PVS is when a phone user perceives false sensation of phone vibration. According to Dr. Rothberg, phantom vibration is not a syndrome instead is a tactile hallucination in which brain perceives a stimulation that is not present at real [5,6].

Many theories explaining the possibility of the phenomenon are proven through researchers.

**The signal detection theory:** It says when the phone is in the pocket there can be two possibilities that the phone is either vibrating or the phone is not vibrating. In the same way the brain also has two possibilities that the phone is ringing or the phone is not ringing. The brain always matches the correct option, as when the phone is vibrating brain gives the signal of phone ringing and when it is not brain gives the signal of it not ringing. But sometimes the brain makes wrong combinations of "phone vibrating with phone not ringing" and "phone not vibrating with phone ringing". This leads to the hallucination of phone vibration or false call or message received.

The second theory is given by Dr. Larry Rosen. It says that these false sensations are repetitive memories of previous real experiences that are provoked by the present situation. Also, the

physiology neural trace theory suggest that a physical trace of original stimulus always stays in the brain even when the stimulus is stopped.

**The theory of neuroplasticity:** It says that it is the brain's ability to form new connections for a response to changes in the environment. The multiple trace theory explains the learning ability of brain. The brain forms memory of each stimulus and when there is a lot memory stored of a same stimulus, tracing it gets easy. Likewise, the cellphone users regularly experience the vibrations and get wired to the stimulus. It is proven that low energy electromagnetic radiations that are received during phone use cause structural and functional cellular changes. It is caused because of frequent use of cell phone in vibration mode, severe cell phone dependency, emotional attachments to the gadgets or cell phone kept in same pocket for long duration. All these causes lead to symptoms and signs like stress and depression, severe anxiety, over vigilance (action of keeping careful watch) or emotional disturbances. Although this phone related disorder is not included in psychopathy, it can prove to be a leading sign for damage of intellectual and cognitive skills of a person. Psychological or psychiatric illnesses which involve persistent and severe depression, stress and anxiety could occur due to phantom vibration syndrome. If not managed it can lead to complications like burnout syndrome, psychological stress disorder and depressive psychosis. Based on the above background a study is conducted to find the prevalence of the conditions among individuals of age between 18-22 years.

## **Materials and Methods**

During 2021 a survey at Krishna institute of medical sciences was made. Random 200 samples were taken of the age group 18 years to 22 years. An online questionnaire was used for the study, called as the phantom vibration scale or phantom vibration questionnaire. It consisted of 11 questions. The questions were brief and were easy to understand as it was supposed to cover a large population. The questionnaire consisted of questions on duration of phone usage in a day, to know the risk of tactile hallucination in them. It had questions on whether they experienced tactile hallucinations and its frequency and intensity. The questionnaire was circulated among young individuals of age group 18-22 years. It included majority students from all streams and few job seekers. All of them were daily users of mobile

phones and had chronic addiction of social media. The one with neurological disorders and psychological disorders were excluded. Also, the individuals who did not use phone or were not addicted to phone were excluded.

Our objective was to find the prevalence of tactile hallucinations and factors associated with causing the hallucinations. Also, we surveyed whether the hallucinations were bothersome or not and were the sensations severe enough to be experienced when the phone was on switched off mode [7,8].

#### *Procedure*

An online questionnaire was used for the study. It is known as the phantom vibration scale or phantom vibration questionnaire which was taken from an article. The questionnaire was formed on google forms application and was circulated on WhatsApp in form of a link through a smartphone. It consisted of 11 questions. The questions were brief and are easy to understand as it is supposed to cover a large population. The population selected was healthy without any neurological or psychological problem. The questionnaire consisted of questions on duration of phone usage in a day, to know the risk of tactile hallucination in them. It had questions on whether they experience tactile hallucinations and information about its frequency and intensity.

#### **Inclusion criteria:**

- Young individuals between ages group 18-22.
- Daily users of mobile phones.

#### **Exclusion criteria:**

- Individuals with age below 18 or above 22 years.
- Any neurological disorder.
- Individuals who do not use phone.
- Psychological disorders.

#### *Statistical analysis*

Information regarding the experience of tactile hallucinations were analysed using frequency distribution tables. The software used was 'instat'. Raw data was used to analyse a contingency table, in which a larger contingency table was selected. To assess the relationship between primary outcome (positive responses) and categorical variables *chi-square* test for independence was used. The prevalence ratios were taken as proportion of those with characteristics who experienced hallucinations to proportion of those who experienced hallucinations without the characteristic.

For the univariable analyses which showed the frequency and severity of those who experienced hallucinations was calculated as proportion of those who had the characteristic to those who did not [9].

#### **Results**

After the questionnaire was answered by the participants the data was calculated. Out of 204 respondents 132 (64.7%) were females and 72 (35.3%) were males. All of them were in the age group of 18-22 years with majority being 19 years of age. All the participants possessed a smart phone and spend most of their time operating it. A question was asked about the hours of phone usage per day and this showed a tremendous sign of addiction. It showed that 35% that is majority of the total respondents used their phone for 3-5 hours and the next highest group used it for more than five hours. Only 10 out of 204 respondents had a usage time of less than 1 hour. The usage time among majority individuals being high raised the question about what do the respondents use their phone for, and it came out to be the addiction for social media [10]. The results were calculated to be 112 that is 55% of the total respondents spent their time on social media and 28% use other application. Only 15% used it for actual purpose of calls.

Among 204 respondents total 139 (68%) experienced tactile hallucination of phone vibration (Figure 1 and Table 1).

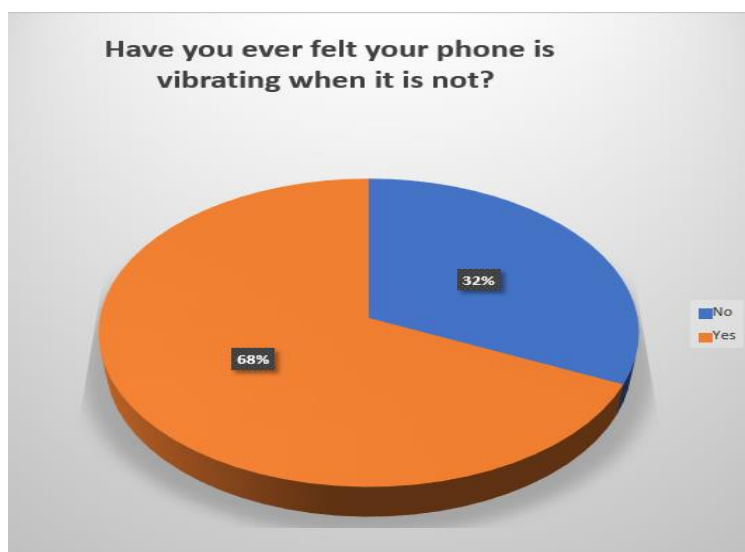


Figure 1. Showing prevalence of tactile hallucination among the surveyed population.

Table 1. Showing (whether the individuals felt the hallucinations or not) the data collected and the significance of it through P value.

Sr. no	Question	Total (204 respondents)	Experienced hallucinations with characteristic	Hallucinations without the characteristic	P value
1.	Since how long do they use phone.	204	Out of total 139		<0.0001
	Less than a month	6 (3%)	4	135	
	1-5 months	6 (3%)	5	134	
	6-12 months	12 (6%)	6	133	
	More than 12 months	180 (88%)	124	15	
2.	<b>Number of hour's phone used per day</b>				<0.0001
	Less than 1 hour	10 (5%)	7	132	
	1-3 hours	54 (26%)	34	105	
	3-5 hours	71 (35%)	50	89	
	More than 5 hours	69 (34%)	48	91	
3.	<b>Purpose of phone use</b>				<0.0001
	Calls	31 (15%)	21	118	
	Social media	112 (55%)	76	63	
	To click photos	4 (2%)	2	137	
	Other applications	57 (28%)	40	99	
4.	<b>Number of hour's phone carried in pocket</b>				<0.0001
	Less than 1 hour	39 (19%)	20	119	
	1 hour-3 hours	48 (23%)	33	106	
	3 hour-5 hours	44 (22%)	26	113	
	More than 5 hours	73 (36%)	60	79	
5.	<b>Use of phone in vibration mode</b>				0.0282
	Never	60 (29%)	31	108	

	Intermittently	50 (25%)	31	108	
	Most of the time	60 (29%)	48	91	
	Always	34(17%)	29	110	
6.	<b>Placement of phone while carrying</b>				
	Shirt pocket	5 (3%)	4	135	<0.0001
	Jean front pocket	141 (69%)	101	38	
	Jean back pocket	7 (3%)	7	132	
	Handbag	51 (25%)	27	112	

88% of the respondents were using phone for more than 12 months. 73 individuals that is majority of the individuals carried phone in their pockets, and among them 60 had experienced hallucinations. When asked about the usage in vibration mode, 71% of the respondents had been using vibration mode. Rather 34 respondents always used vibration mode and 60 used it for most of the time. The next question was about the placement of phone while

carrying. The responses were as 69% carried it in their jean front pocket. And the next highest group of 25% carried it in their handbag. All the 25% who carried it in their handbag were females. Only 3% carried it in their jean back pocket and remaining 3% in shirt pocket. The data presented above was statistically significant which states that all the factors considered are associated with tactile hallucinations (Table 2).

**Table 2. Showing the characteristic specification among those who experienced hallucinations. P value is 0.0002. The data is statistically significant.**

Among those who experienced hallucinations	Yes	No	Total
Hallucinations were Bothersome	59 (42%)	80 (58%)	139
Hallucinations when phone was switched off	29 (21%)	110 (79%)	139

The respondents were asked whether the hallucination they experienced were bothersome for them or not. On that, 42% that is 59 of those who experienced hallucinations answered yes and 58% of them did not find it bothersome. Also, some had hallucination at the rate that they experienced it even when their phone was on switched off mode. 21% felt their phone vibrating when their phone was on silent mode. Also, among the 139 respondents who answered yes, 39 experienced the hallucinations daily whereas, 50 had it once a month and 48 had it once a week.

**Discussion**

Tactile hallucination of phone vibration, an intermittent perception of phone vibrating when it is not, is prevalent among general population. The rising use of mobiles is negatively affecting the people. Increased phone use can lead to increased communication time on mobile phones and anxiety if separate from mobile phone or its signal. It can be said that mobile phones are more of a necessity now a days. But also, there

are evidences that state, phones capable of causing physical as well as mental effects.

In the present study, it showed that all the participants had their own mobile phones. Among total of 204 participants, 68% experienced tactile hallucinations. Further were the factors and causes associated with hallucinations experienced among those 68% (n=139). Now, majority of these possessed phones for more than 12 months. This simply justifies their addiction to phones. Also, 36% of those who experienced hallucinations used their phones for 3-5 hours per day and the next 35% for more than 5 hours which is high usage time. The two highly phone usage time groups who experienced hallucinations mainly shown to be using social media. It can be explained as, summing up individuals who used phones for 3 hours-5 hours and more than 5 hours and experienced tactile hallucinations make 98 individuals, among them 58 shown to be using phone for social media. Result here shows the social media to be the major factor causing addiction of phone among the youth population. In a broad spectrum considering all the

respondents, social media was in all used by 55% (n=112) of the participants followed by 28% for other applications that may include gaming, music etc. Mobile usage hours can be a factor causing hallucination. The p value was showing the factor to be significant.

Another factor that is considered mainly is the usage in vibration mode. It is necessary now a days at official places to turn the phone on silent mode. The vibrating sensation is a factor for the hallucinations felt. The present study showed, 17% among those who had hallucination were always using their phone in vibration mode. 29% used vibration mode for most of the time. Respondents were asked about the placement and carrying of their phone to find any association, if present. The response was, 36% that is major part of respondents carried their phones in pocket for more than 5 hours. The results showed that people mainly have the tendency to carry their phones in jean front pocket. Here, 69% carried their phone in jean front pocket and 25% in their handbags. All the 25% who carry their phone in handbag were females. This is because females have more tendency to carry handbags. All these factors are shown to be significantly associated with the tactile hallucinations.

Experienced hallucinations can be bothersome. For the respondents 42% found it to be bothersome and rest did not. 21% of them also reported that they experienced hallucinations even when their phone is switched off. This also explains the severity of the tactile hallucinations [11,12].

### **Conclusion**

The study highlights the prevalence of tactile hallucinations, the factors associated in causing it and its severity. Even if the hallucinations were not bothersome for all those who experienced its global impact is substantial. For that proportion of people though not finding it bothersome, effective treatment is required. The finding of the study appears to reveal about the contemporary technology and its addiction. The result also presents a warning that mobile usage should be controlled.

### **Conflicts of Interest**

There are no conflicts of interest.

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***Corresponding author: Tanisha Mali, Department of Medical Sciences, Krishna Institute of Medical Sciences, Karad, Mumbai, Maharashtra, India***

***Email: tanishamali04@gmail.com***

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