

Evaluation of the Sensation of Hearing False Mobile Sounds (Phantom Ring Tone; Ringxiety) in Individuals.

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ABSTRACT:

BACKGROUND:

The annoying feeling of mistakenly thinking that you can hear your mobile phone ringing. This audio illusion is familiar and unnerving sensation is so widespread and now it has an official name: ringxiety.

OBJECTIVE:

This study was conducted to determine whether "Ringxiety" is common among Iraqi peoples and its correlation with age, sex, education, mobile type, and mobile using time.

METHODS:

Two hundred adult persons of either sex with a mean age of 20 ± 3 years were asked to answer a questioner with 14 questions.

RESULT:

The results of this study revealed that 73% of the individual involved experienced the phenomenon of ringxiety from time to time, in addition to 4% who experienced frequent ringxiety.

Significant correlations were found between this sign and using mobile for more than 30 minutes per day and also a significant correlation was found between mobile addicts and ringxiety (P value <0.05).

42% of studied subjects experienced mobile vibration mistakenly feeling, which occurs always with ringxiety but not the reverse. This sign was only correlated with the high mobile using time.

No association was found between ringxiety and age, education, type of ring tone, or short messages (SMS) using.

CONCLUSION:

This study has proved that ringxiety is common among mobile users and could be one of the side effects of radio waves or just a malfunction of the brain due to the life heavy duties. Ringxiety might cause discomfort or loss of concentration during car driving or using dangerous machine.

KEYWORDS: phantom ring tone, ringxiety, mobile ring tone.

INTRODUCTION:

Due to wide spread use of the Global System for Mobile Communications (GSM), mobile phones has become indispensable as communication tool. In recent years, the use of cellular phones has rapidly increased as the costs for basic charges and calling charges have become less expensive therefore any consequent biological effects should be considered as a high-priority environmental health issue. There were 300 million wireless subscribers nationwide at the end of 2007, a nearly sevenfold increase in just a decade in the USA according to the Cellular Telecommunications and Internet Association (CTIA) ⁽¹⁾. Now its use is an essential part of business, commerce and society. The extensive use of mobile phones has been

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accompanied by public debate on the possible adverse effects on human health. The concerns relate to the emissions of radio frequency (RF) radiation from the mobile phones. There is an inadequate knowledge on what biological systems could be affected by the use of these devices. Biological effects of radio-frequency electromagnetic fields (EMF) transmitted by mobile phones are still a matter of public and scientific discussion. There are 2 direct ways by which health could be affected as a result of exposure to RF radiation. These are thermal (heating) effects caused mainly by holding mobile phones close to the body causing sensations of burning or warmth around the ear ⁽²⁾, and also as a result of possible non-thermal effects, the mobile phones may cause adverse health problems such as headache ⁽³⁾, disturbance of sleep ⁽⁴⁾, alteration of cognitive functions and neural activity ^(5,6) as well

as alteration of the blood-brain barrier and a relative decrease in regional cerebral blood flow have been reported as effects resulting from mobile phone use^(7,8). In addition, mobile phones can cause discomfort, lack of concentration, dizziness, and or worm on ear⁽¹⁹⁾. However, to date, the potential teratogenic effect of EMFs is still a subject of debates and research⁽⁹⁾.

Ringxiety, first coined by psychologist David Laramie, is exactly what it sounds like: confusing the sound of a cell phone ringing with a sound similar to it. Since there's no harm done, aside from a bit of annoyance, especially if a person struggles to locate his phone, most people seem to regard ringxiety as a curiosity or a fact of wireless life. The exact origin of this hallucination has yet to be exactly pinned down⁽¹⁰⁾.

Many of us will be familiar with the basest form of ringxiety when one phone rings and everyone in the vicinity suddenly starts checking their pockets or handbags with frantic abandon. But some cases become far more complex: individuals have reported hearing their phone ring at concerts, or while driving.

SUBJECTS AND METHODS:

The study was conducted on 200 adult mobile phone users of either sex with a mean age of 20 ± 3 years who were randomly selected but most of them were medical students. All subjects were asked to answer on a questioner paper of 14 simple questions in Arabic. Data included age, sex, education, mobile using time per day, personal idea about mobile importance, feeling of false mobile tone, type of mobile ring tone, situation and time of this feeling, rate of SMS using, mobile vibration false feeling, mobile using and feeling of importance, and if person consider himself "mobile addict".

RESULT:

Two hundred healthy adult people included in this study, 141 male and 59 female. The ringxiety happening was high in 4% and moderate in 73% and did not happened at all in 23% of people surveyed. The ringxiety occurrence was not associated with age, sex, mobile type of ring tone used, or education. It correlates only with duration of using mobile per day. When this feeling was present, it was most likely to be felt during mid day 38% than the night 32% and to lesser extent during the morning 28%. In about 55% of persons with such feelings it was felt in closed space like room or car and in 58% of cases situation was noisy. Person who considers himself "mobile addict" were about 27% of the people studied and always practice such feelings. Vibration false feeling was present in

about 47% of people studied and more common in males. There was no association between this feeling with any asked questions but only with using time of the mobile per day, and personal feeling of being important while using mobile phone. The vibration false feeling was always present when the person has ringxiety but not the reverse.

DISCUSSION:

Several studies have linked the development of neurological symptoms and sensations experienced by long term users of mobile phones. These include; headache, extreme irritation, increases in the carelessness, forgetfulness, decrease of reflexes, and clicking sound in ears^(11, 12). Many mobile phone users might suffer from audio illusion - called phantom phone rings or, more whimsically, ringxiety (The word ringxiety is a blend of *ring* and *anxiety*) which emerged recently as an internet discussion topic and has become a new reason for people to either bemoan the technos- saturation of modern life or question their sanity. David Laramie, a young psychologist, in 2006, was the first who studied this symptom and suggested the name "Ringxiety". A recent study, performed in Alliant International University in 2007 found that about two thirds of the people surveyed, reported hearing their phone ring or feeling it vibrates when it had not actually rung⁽¹³⁾. These results were in harmony with the results of the present study that found that about 73% of people studied described similar feelings from time to time. According to research presented at The American Academy of Otolaryngology-Head and Neck Surgery Foundation Annual Meeting & OTO EXPO in Washington, DC, 100 people who had used mobile phones for over a year suffered ear symptoms such as ear warmth, ear fullness, and ringing in the ears as early warning signs that they might have an auditory abnormality⁽¹⁴⁾. Though there is no sample study on the incidence of 'Ringxiety' in India, Goutami in 2007 reported that large chunk of people visiting psychiatrists with such kind of problem at least 25 per cent of all mobile phone users may be those who can hear 'virtual' rings⁽¹⁵⁾. From a psychological point of view, the ringxiety might be a part of the general modern life anxiety. There is a very wide diversity of stress in city life⁽¹⁶⁾. Complexity of the social system including radical sociability, increase in communication network and complicated daily life system, are the outcome of technological development. Under these circumstances, mentally or emotionally stressful situations occur throughout our lives⁽¹⁷⁾. Psychologists have even suggested that there might

be a link between ringxiety and self-esteem. They claim that people are growing emotionally dependent on their phones for feelings of self-worth, so that when they hear an imaginary ring, it is their subconscious calculating how popular they are⁽¹⁸⁾. In this study, most of the people studied think that the mobile phone is very important in their life but the feeling of importance because of mobile using was rare (only 30%) and not associated with ringxiety. Other study also found that younger people use their phones a lot, while young people, extroverts and people with low self-esteem use their mobile phones in inappropriate and sometimes dangerous situations⁽¹⁹⁾. In this study, no correlation was found between the age of person and the duration of mobile using. Dianne James, Brisbane based behavior researcher, argued that Australians are immensely dependable over the usage of mobile phones and suffering from a wide range of problems including anxiety if they are forced to switch off their mobiles and even experiencing low self-esteem if not receiving calls or text messages⁽²⁰⁾.

In our study, only 27% of the people studied consider themselves "Mobile addict" and the occurrence or ringxiety was very common among them. Many studies reported psychological addiction towards mobile phone among young people and especially students^(21,22).

The human brain usually uses "The Experience", which might be the way that encodes the vague or unexplained signals. It is the way by which "Referred pain perception" could be explained by the higher centers. Referred pain is irritation of a viscus frequently produces pain which is felt not in the viscus but in some somatic structure that may be a considerable distance away. Such pain is said to be referred to the somatic structure⁽²³⁾.

Experience plays role in referred pain. Although pain originating in an inflamed abdominal viscus is usually referred to midline, in patients with history of previous abdominal surgery pain of abdominal diseases is frequently referred to their surgical scars. Another example is pain of the maxillary sinus is usually referred to nearby teeth especially in case of traumatized teeth even when teeth are a considerable distance away from the sinus⁽²⁴⁾. So, in a similar manner, we thought that primed as busy people are to respond to a ring or illusion of a ring or even a vibration, the phone usually is the first response to the question as a part of continues experience, "Where is that coming from?" Also, for many people the mobile phone is like a fifth limb, something that they cannot do without, and ringxiety linked to phantom limb syndrome, a

psych-physiological condition whereby amputee sensation of a limb that no longer exists. Falsely perceived ring tones are sometimes likewise referred phantom (phone) rings⁽²⁵⁾. An important point to mention is that the mobile phone gave sounds in the range of 1000 to 6000 hertz. Tones that are generated around 1,000 hertz have special characteristic that it is hard to tell where they are coming from. Babies cry in this range, for example and that is why the mother sometimes here her baby's cry even when he was sleeping so the brain is conditioned to respond to a phone ring just as it is to a baby crying⁽¹⁰⁾.

In this study, no correlation was found between the type of mobile ringing tone used and the occurrence of ringxiety. Because humans have ears on each side of their head, they are able to localize most sounds. The direction of high-frequency sounds is pinpointed based on their volume level in each ear, and that of low-frequency sounds, on their arrival time in each ear. Guy Moore, an assistant professor of physics at McGill University in Montreal, said that human ears did not do a good job finding the sources of sounds around 1,000 hertz and that is why it's so hard to tell where an ambulance siren is coming from in traffic⁽¹⁰⁾.

In a human event-related brain potential (ERP) study, they have used one's personal-relative to another person's ring tone presented in a two-deviant passive oddball paradigm to investigate the long-term memory effects of self-selected personal significance of a sound on the automatic deviance detection and involuntary attention system. They found that the personal significance of mobile phone and text message technology prompts the formation of individual memory representations, which affect the processing of sounds that are not in the focus of attention⁽²⁶⁾.

To this day, no reports published about the incidence of "mobile vibration illusion" among mobile users. It is similar to auditory illusion of ringxiety but it is a physical sensory illusion. In this study 47% of the people studied described such feelings. It was more common in male and always associated with ringxiety. Its explanation might be similar to ringxiety.

CONCLUSION:

About two third of the mobile users included in this study felt mobile ring audio illusion that called "ringxiety" and about half of them described mobile vibration illusion. These annoying feelings are usually harmless but might cause discomfort or loss of concentration during car driving or using dangerous machine.

Table 1: The percentage of ringxiety in subjects studied.

Ring anxiety happening	Frequency	Percent (%)
High occurrence	8	4.0
Moderate occurrence	146	73.0
Non at all	46	23.0
Total	200	100.0

Table 2: The percentage mobile phone vibration illusions among subjects studied.

Vibration anxiety happening	Frequency	Percent (%)
High occurrence	10	5.0
Moderate occurrence	84	42.0
Non at all	106	53.0
Total	200	100.0

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