

Silent Calls, Loud Minds: Understanding Ringxiety in the Wake of COVID-19

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Abstract

In the aftermath of the COVID-19 pandemic, psychosomatic experiences have emerged since technological dependence has inadvertently strengthened. Ringxiety happens when there is a false perception about mobile phone vibrations or auditory alerts without the actual stimuli. This phenomenon reflects the more heightened digital dependence and also has emerged quite pervasively. This study investigates Ringxiety's prevalence with predictors within urban populations. It also explores all of the psychological ramifications from Ringxiety focusing upon post-pandemic behaviour with sensory shifts. Since a quantitative, cross-sectional methodology was employed, data were collected via structured questionnaires comprising Likert-scale as well as categorical items. The results reveal that elevated mobile phone reliance and a high notification frequency correlate to an increase in Ringxiety, which is statistically important. Symptom frequency showed additionally strong connections with demographic variables. The findings show the most common and prevalent effects of digital overload on mental, emotional, and social health. The study advocates that integration of digital hygiene practices and designing user-centric interfaces followed by an intervention can reduce psychological burden.

Keywords: ringxiety, mobile phone anxiety, phantom phone sensations, post-pandemic mental health, technology dependence, digital detox, sensory misperception

Introduction

In the wake of the COVID-19 pandemic, the world witnessed a drastic and dramatic surge in digital connectivity for mobile phones which became an indispensable tool to be used for work, socialization, as well as entertainment. Lockdowns saw continued operations from this shift and then there was no going back. Along with the increasing connectivity and remote operations, it did also introduce some unforeseen psychological effects, and Ringxiety is in fact one such effect. Ringxiety, which was coined to describe the illusory sensation from phone vibrations or rings when actual notifications are absent, grows as a psychosensory phenomenon deeply rooted in technology-induced anxiety (Krishna, 2020).

Post-pandemic lifestyles have normalized and regularized prolonged screen time and a constant state of digital alertness whether it's for work or social interactions. Several researchers have drawn parallels between excessive notification exposure and elevated stress levels (Jain, 2019;

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Published: 24/12/2025

DOI: <https://doi.org/10.70558/IJST.2025.v2.i4.241155>

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Sharma & Tripathi, 2022). This sensory overload, when combined with emotional stress and social isolation, appears to alter our perceptual thresholds, leading to phantom alerts and subliminal anxiety. While initially dismissed as a harmless side effect of tech use, emerging studies argue that Ringxiety reflects deeper emotional disturbances such as hypervigilance, digital fatigue, and anxiety dysregulation (Narayan & Bansal, 2021).

Ringxiety is still underrepresented or marginalized in both scholarly literature and popular media, despite its increasing relevance and prevalence. There are only a few isolated instances found in the cultural discourse, such as a painting by Violet Cedric in 2023 and a play by Scooter Pietsch in an edition of One Night Standoff that mentions it. This emphasizes even more how important empirical research and organized comprehension are required for this topic.

By investigating Ringxiety as a symptom of increased technological dependence in the post-pandemic era and context, rather than just a behavioural oddity (Trott et al., 2022). It has also been found that primary aged children have more screen time for academics and leisure. Therefore, it is the need of the hour to discuss this topic as it has the potential to affect the children and future generations.

This research paper seeks to bridge the gap in the current literature by creating awareness, and inquisitiveness in scholars to explore this further. In particular, the study looks into how common it is in urban areas and examines important predictors like demographics, phone settings, notification frequency, and mobile usage patterns. This study aims to draw attention to the psychological effects of excessive tech use by using an exploratory and predictive lens. The paper would help individuals to be more cognizant of digital dependency, and develop healthier tech habits.

Literature Review

Robert D. Jones in 2003 was the first to recognize ringxiety—popularly known as Phantom Vibration Syndrome (PVS). It was later developed by psychologist David Laramie, who first used the term in 2007 to refer and address the sensation of imaginary phone vibrations. There was barely any discussion or awareness before this. Scholarly interest in this psychosomatic phenomenon has grown recently as a result of the widespread integration of mobile phones into daily life specially after Covid pandemic, even though cultural references to phantom alerts date back to the 1990s (Laramie, 2007).

Previously, most of the empirical research connected Ringxiety to conditioned behavioural responses, where users become accustomed to anticipating alerts after being exposed to mobile notifications frequently. According to Lin et al. (2013), this expectation or anticipation causes people to mistakenly interpret unrelated somatic stimuli as phone signals. Researchers contend that high-frequency device users do experience cognitive distortions as a result of a breakdown in sensory gating mechanisms, specifically the brain's incapacity to suppress irrelevant stimuli. Furthermore, it has been demonstrated that attachment anxiety greatly increases susceptibility; according to one study, people with anxious attachment styles are 18% more likely to experience Ringxiety as they prioritize being connected all the time (Lee et al., 2014).

Nomophobia, or the fear of being without one's phone, and notification anxiety are two common examples of digital anxiety disorders that are frequently used to conceptualize or understand Ringxiety. These conditions draw attention to the emotional reliance and dependency which are encouraged by constant connectivity and excessive use of technology (Drouin et al., 2012). According to neurocognitive models, ringxiety is ingrained in mobile users learned physical habits and behavioural patterns rather than being solely sensory in nature. These phantom perceptions are caused by neural patterning in response to repetitive behaviors, according to studies from universities like Georgia Tech and the University of Michigan. Researchers have also found a correlation of OCD and Ringxiety. A study funded by the University of Cambridge and the National Institute for Health Research Collaboration revealed a strong correlation between mobile phone usage and psychological distress among university students. This establishes the growing relevance of ringxiety. Hence, mindfulness training and intervention in academic institutions is a requirement not luxury (Galante et al., 2018). According to research from McGill University, auditory frequencies close to 1000 Hz are especially good at producing phantom sensations, which lends credence to the idea that auditory priming plays a role in Ringxiety (ResearchGate, 2019). Hence, the sounds similar to a ringtone can also trick our brain into thinking that the phone is ringing or vibrating. This supports the idea that repeated exposure to certain sounds can also increase ringxiety sensations in an individual.

The prevalence of Ringxiety is also influenced by demographic factors. Research has also found that young female adults of 18-29 from lower income households have reported incidents demonstrating phantom sensations (Wiederhold, 2021). Scholars have also found that female users are more likely to replace a lost or broken device instantaneously and show stronger emotional reactions to network issues, indicating or symbolizing a heightened emotional dependency (Krishnan et al., 2022). Normalization of excessive screen time dependence and reliance on mobile technology for work, social interaction, and entertainment during the pandemic only increased, if not, aggravated these trends even more (Ellis et al., 2020). A significant study in the UK found that restricted policy in schools had no impact on mobile phone usage (Weiss et al., 2024). Hence, a restricted phone policy is not the solution, we need better digital hygiene practices. (Check para flow)

Ringxiety has also shown a tremendous correlation between psychological and physiological effects. Headaches, stress, sleep issues, and poorer performance in school or at work are all directly related to Ringxiety (Wiederhold, 2021). Zhao et al. (2022) used EEG studies to show that repeated exposure to mobile phone notifications alters or changes our neural pathways which are associated with anxiety and attention, especially in the prefrontal cortex. These results highlight Ringxiety's neurological foundations, turning it from a peculiar behavior to a disorder with quantifiable and objective cognitive impacts. Hence, this discussion must be taken seriously for the future generations.

As we have established that Ringxiety has a growing and commanding presence in today's world, many psychometric tools have also been developed recently to measure and evaluate this syndrome. Reliable methods and tools like Digital Behavior Scale were introduced right after the pandemic to identify at-risk individuals, especially among adolescents and remote

workers. These resources make it easier to comprehend and understand how extended use of digital devices alters emotional and perceptual thresholds and limitations (Drouin et al., 2012).

Several behavioural strategies have proven successful in treating ringxiety. Repositioning mobile devices, turning off vibration settings, and establishing healthy digital boundaries are some of the examples to get started. For example, Ringxiety symptoms can be reduced by up to 75% just by turning off vibration mode (Drouin et al., 2012). Reducing screen time and practicing mindfulness also helps us to rebalance perceptual sensitivity and lessen anticipatory anxiety, which promotes mental and emotional health in digitally dominated environments. As it helps us to be focused, understand priorities, and not cater to artificial sensations.

Research Methodology

Aims:

1. To explore how increased reliance on digital devices (mobile, wearables, etc.), since the pandemic, has influenced sensory misperceptions
2. To measure the impact of Ringxiety on the overall well-being of an individual (physical, social, mental, emotional)
3. To identify the key predictors of Ringxiety in the urban population

Research Question:

What are the predictors and psychological consequences of Ringxiety in technology-reliant urban populations since the Pandemic?

Hypothesis:

Keeping above mentioned objectives in mind following hypothesis were formulated:

- H1: Phone reliance predicts sensory misperceptions
- H2: Ringxiety affects overall well-being
- H3: Notifications and wearables increase Ringxiety

Methodology:

This study assumes a quantitative approach with a cross-sectional design, pursuing to capture and understand the participants' experiences at a single point in time. By purpose, the research is both exploratory and descriptive, aiming to identify the patterns of Ringxiety to describe the subliminal factors associated or related with its occurrence. The study is predictive and analytical by outcome. It aims to investigate the key predictors and draw correlations that may help anticipate or predict the probability of Ringxiety among various populations. As data collected will be used to support or refute the pre-formulated or prior assumptions, we have followed a deductive approach. To gather data, the research employs standardized tools such as Likert scales, multiple-choice questions, and binary yes/no items, allowing for the measurement of both subjective, qualitative experiences and quantifiable variables associated with Ringxiety.

Sample: A total of 200 urban respondents were selected through random sampling as primary data.

Sample Area: Participants were recruited from multiple countries, including India, UAE, the UK, the US, and Australia

Sample Selection: All participants are regular smartphone users. Informed consent was obtained, and self-reported mental health data were collected as a control variable. Participants were recruited through an online Google Form disseminated via social media, messaging platforms, and email networks.

Demographic characteristics of the samples: The finalized samples were selected from various age groups and further segregated into male, female and others (non-binary) to make the study inclusive and to derive nominal values. However, no participant was identified as non-binary. [Fig. 1 and 2]

Gender Distribution in a Population

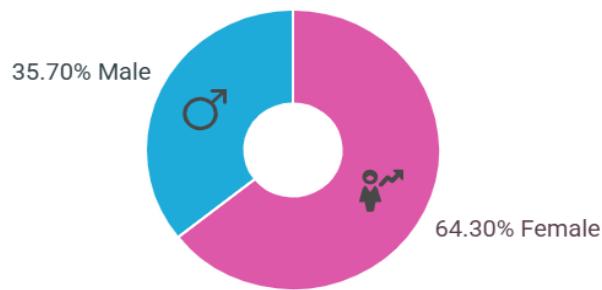


Fig. 1: Gender Distribution

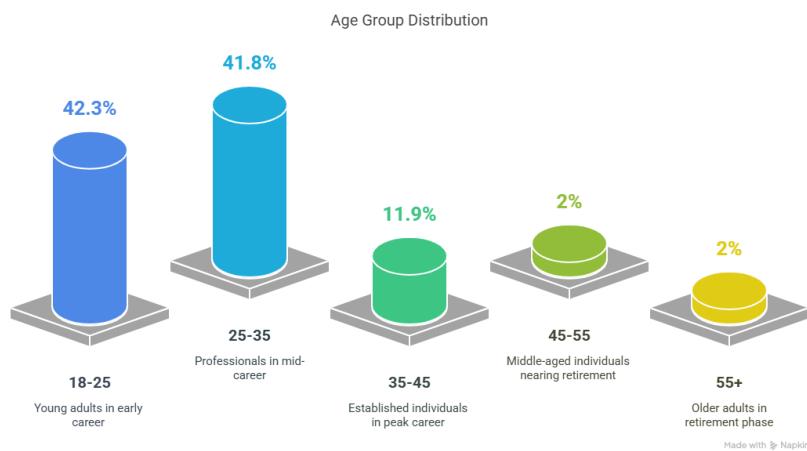


Fig 2: Age group distribution

Employment of the samples: Samples have different types of occupations, including students, employees, homemakers and freelancers, who participated via convenience sampling.

Tools used: Google form, Google Sheet, Microsoft Excel and analyzed using SPSS
Operational Definition:

1. Sensory Misperception:

Sensory misperception in Ringxiety refers to the subjective experience of perceiving a sensory stimulus (phone ring or vibration, for example) when actually no such stimulus has occurred. It is supported by cognitive-affective mechanisms of attentional bias, hypervigilance, and conditioned contingencies. False alarm self-report, as assessed by items about how often, where (e.g., at night, when multitasking), and with what intensity they occur, is utilized to assess sensory misperception within the study. These sensations are not regarded as isolated somatic errors, but rather psychologically driven events based on routine use of the device and expectation-based cognitive schemata.

2. Phone Reliance:

Phone dependence is the regular and psychological reliance on cell phones for conducting everyday activities, such as communication, work, enjoyment, and emotional management. For this research, it is measured through self-reported frequency of and context of mobile phone use, such as variables of screen time, frequency of checking, and task reliance (e.g., using phones as productivity tools, social media, or stress management). Responses were measured using Likert-scale and categorical items on the standardized questionnaire.

3. Well-being:

Well-being is the person's perceived mental, emotional, physical, and social well-being. In the present research, it was measured using items assessing disturbances in sleep, issues in concentration, emotional control, and strain in interpersonal relationships. They were rated using Likert items intended to capture subjective experience of impairment due to mobile device use and phantom phenomena.

4. Wearable Technology Usage:

Use of wearable technology measures frequency and functionality of smartwatch-like devices that send phone-like alerts. Respondents self-reported the wear type, average daily hours worn, and frequency of checking or responding to notifications through such devices. The information was employed in order to examine its additive impact on Ringxiety in addition to smartphone use.

5. Multitasking Behaviour:

Multitasking behaviour is the habit of doing several digital or mental tasks at the same time (e.g., texting during a meeting, watching TV while reading emails). It was captured using self-reported frequencies and scenarios covered under the survey, and it aided in detecting cognitive load factors that are linked with higher phantom sensations.

6. Notification Exposure:

Notification exposure is defined as the frequency and number of notices (visual, acoustic, or tactile) presented to the user by mobile phones and wearable technology. It is measured as a categorical predictor variable, with participants indicating the average number of daily notices,

the salience of vibration/ring configurations, and utilization of alert-based devices (e.g., smartwatches).

Variables:

The independent variables include phone usage habits such as their reliance on phones and their mobile phone behaviours, especially post pandemic. The dependent variable in this study is Ringxiety which is measured by the frequency and how strongly participants experience false phone sensations. Consistency was ensured by keeping a few control variables. They are as follows:

- We included only the urban population in the post pandemic time frame.
- To avoid skewed results, participants who self-reported mental health conditions were excluded

Data collection

Post finalization of the sample size, area and methodology, we aligned the research objectives with the nature and type of data we had gathered. The primary data were collected directly from the participants through structured surveys. Involving quantitative data, measuring the frequency, duration and intensity of the sensory misperceptions related to Ringxiety, along with its probable predictors were the focus. In order to support demographic analysis, we collected categorical data such as age, gender, and profession. The data spanned across various levels of measurement. Nominal variables included gender (Male, Female, Non-Binary), age groups (18-65 years), profession such as students, employee, self-employed or home maker, and. The ordinal variables recorded the frequency of sensory misperceptions (never to always), mobile usage patterns (night vs. day). The interval data includes variables like the frequency of sensory misperception on mobile phones and wearable devices, the frequency of offline activities (like mindfulness, exercise, etc.) to reduce the stress caused by constant phone disruptions. In conclusion, this paper uses cross-sectional data obtained on a one-time basis. All responses collected were compiled as structured data, categorized, and organized into numerical scales for effective and seamless data and statistical analysis.

Procedure

The survey was shared online. Participation was voluntary and ethically compliant. Data were collected through Google Forms and exported to CSV format. Data cleaning included normalization of Likert categories, handling of inconsistent frequency labels, and exclusion of non-interpretable cases. Responses were numerically recoded and analysed. All hypotheses were tested using Pearson correlation and linear regression.

Discussions and Findings

We aimed to investigate if there is a positive correlation between post-pandemic digital reliance and Ringxiety through Hypothesis 1 (H1). Our findings include that there is a significant relationship between post-pandemic mobile phone reliance and Ringxiety. This finding confirms the study by (Subba et al., 2013), which states that Ringxiety was experienced by its

participants. Regression analysis supports Hypothesis 1 (H1), with higher levels of phone dependence predicting sensory misperceptions such as phantom alerts. Surprisingly, the best predictor items were Q2 (Engaging in unnecessary phone checking...), Q10 (Perceived pressure to maintain constant connectivity...), and Q11 (Ringxiety in home or remote work setting...). These items reflect a behavioural and psychological dependence on mobile connectivity, which may dysregulate attention and body awareness, predisposing one to misattribute somatic sensations to device-generated alerts. The findings suggest that Ringxiety is not necessarily a sensory phenomenon but a cognitive-behavioural concept of compulsive digital involvement and anticipatory stress. This supports past studies, showing that technology can change how we perceive things. Another study (Chamberlain et al., 2021), finds a remarkable association between mobile phone usage, the frequency of checking notifications and related psychological issues. This hypothesis and statistical results highlight the psychological impact of increased digital device use and the anxiety associated with it. There is a strong correlation between mobile notifications and heightened emotional dependency (Krishnan et al., 2022), which further supports H1. Therefore, the H1 (fig.3) signifies post-pandemic digital dependence considerably contributes to the experience of Ringxiety, emphasizing the importance of managing digital habits to reduce anxiety-related symptoms like Ringxiety.

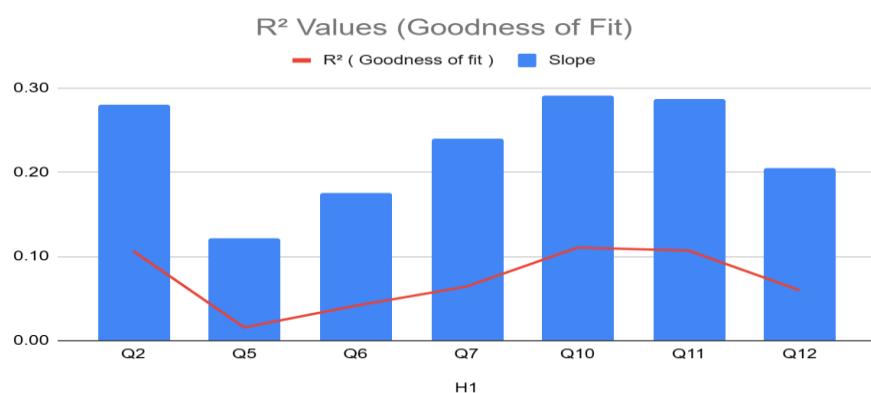


Fig. 3: Phone reliance predicts sensory misperception

H2 assumes that Ringxiety would be associated with impaired well-being, considerably affecting areas such as personal relationships, sleep quality, and concentration. Our study finds a new aspect that the individuals experiencing higher levels of Ringxiety also have compromised well-being.

The regression analysis provides strong empirical evidence in favour of Hypothesis 2 (H2) (fig:4), showing a distinct relationship between Ringxiety and various aspects of psychological well-being. While social disengagement (Q6: Phone use disrupting relationships...and Q7 Checking phone during social time...), digital distress, and pressure to stay connected variables (questions as mentioned above reflect strained relationships, emotional distress, and connectivity compulsion) exhibited poor explanatory power (R^2 0.04-0.11), the strongest influence was observed in cognitive attention-related activity. Specifically, the item involving losing concentration on routine activities exhibited the strongest correlation, with Ringxiety

accounting for 33% of variance (Q. 15 False sensations while multitasking). Similarly, the pressure to stay connected constantly (Q 10) also showed a very strong correlation.

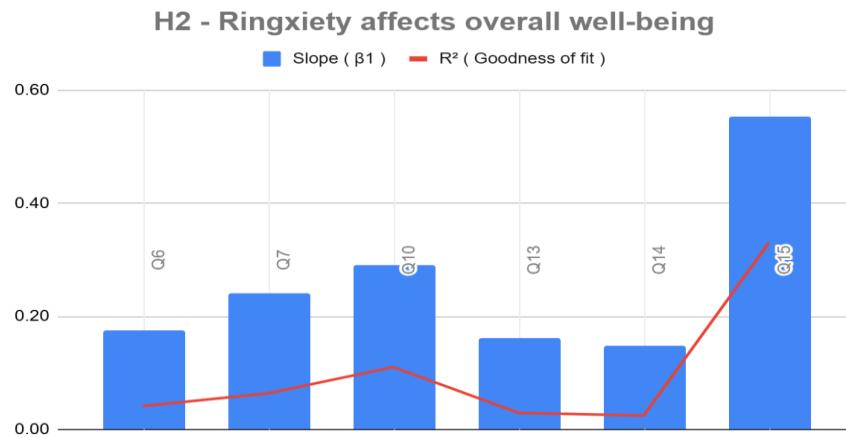


Fig 4: As Ringxiety increases, well-being issues (stress, sleep disturbance, distraction) also increase.

This indicates that frequent phantom alert subjects are distracted not only by Ringxiety but also more likely to show sustained attention deficit, workflow interference, and digital fatigue symptoms.

Previously, ringxiety has been found to impair cognitive ability and sleep disruption, along with other physiological disturbances (Wiederhold, 2021). The unawareness of reducing ringxiety by 75% if the phone is used on silent mode needs to be addressed (Drouin et al., 2012). It suggests a possible disconnect between experiencing symptoms and recognizing a potential solution and the broader psychological and social consequences of Ringxiety beyond just the sensation itself. A similar study supports the idea that ringxiety is related to reduced attention, negatively affects prefrontal cortex and alters our neural pathways (Zhao et al. 2022).

Hypothesis 3 (fig 5) explored whether specific behavioural elements, namely frequent checking behaviour of electronic devices-both mobile phones and smartwatches and digital notifications amplify Ringxiety. The regression analysis strongly supports Hypothesis 3 (H3), which states that long-term exposure to notifications and wearables significantly enhances the Ringxiety experience. The single strongest predictor concerned wearables and smartwatch-related activities: Q8, Frequency of false smartwatch alerts... and Q9, Phone-checking urge after smartwatch notification., explained 22% of variance in Ringxiety scores with a large positive slope of $\beta = 0.46$. This is indicative of extreme vulnerability to sensory misperception among wearable technology users. Second in order of magnitude, with explained variance of 17%, was increased sensitivity to phone notifications, in particular when the phone is in silent mode: Q4, Phone-checking behaviours in silent mode; Q5, Awareness of digital dependence due to notifications, post-Pandemic; and Q12, Connectivity compulsive behaviour due to notification alert.

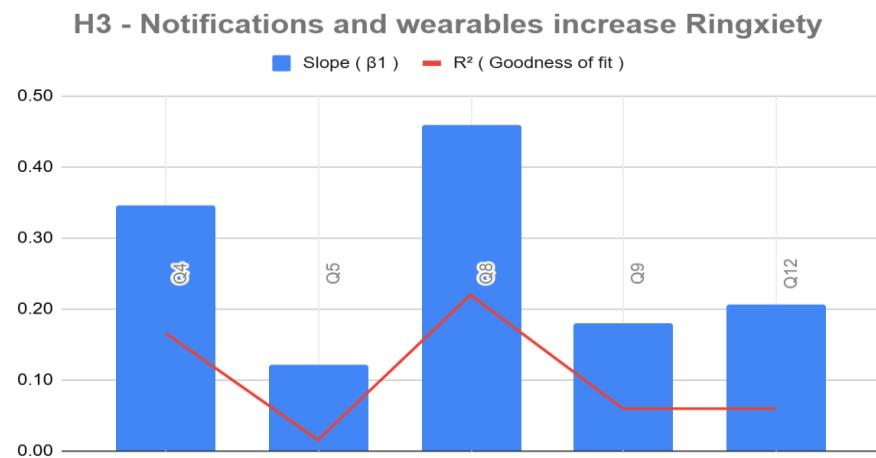


Fig. 5: Digital notifications and wearables increase Ringxiety

In our study, reducing the frequency of phone usage was reported to increase productivity and overall mental and emotional health. Nomophobia and notification anxiety are two common digital anxiety disorders used to conceptualise or understand Ringxiety. The study used both these concepts (Drouin et al., 2012) and has shown similar findings, supporting our data.

Conclusion

The early investigators of psychosomatic research (Laramie, 2007) have conceptualized Ringxiety as a broader issue that has psychological, emotional, and behavioural impact. The aim of our study was to examine the possible predictors, patterns of ringxiety or digital sensory misperception in the post-pandemic time frame, where individuals experience false alerts on electronic devices (smartphones and smartwatches). The study proposed to determine the relationship between ringxiety and digital dependency, overall wellness, individual digital behaviour, along with multitasking. We employed a cross-sectional quantitative study with 200 urban participants and found a significant positive correlation between ringxiety and digital reliance, overall well-being, as well as individual digital behaviour in the post-pandemic era. However, we found no significant relationship between smartwatch false alerts and ringxiety.

Our study supports the idea that Ringxiety is not just a harmless sensory misperception but holds the power to develop maladaptive digital coping mechanisms in individuals, especially if they don't have adequate digital detox awareness and don't practice mindfulness and relaxation techniques.

Implication

As there is a strong association between ringxiety and overall wellbeing (emotional, psychological, social, and behavioural), this requires attention from academia, corporations, digital natives, parents, mass media, and entertainment industries. The future investigators would have to take cognizance of digital detox programmes, mindfulness practices, relaxation techniques, and ringxiety awareness campaigns to mitigate the distress caused. Based on the

study and the above discussion, it would be safe to mention that Ringxiety should be tackled with a multidisciplinary approach.

Acknowledgements:

We would love to express our sincere gratitude to Dr Singh for his constant support and encouragement throughout this study. We are deeply thankful to Dr Dutt for his constructive feedback and insightful suggestions and to Mr. Manojit Dey for guiding us with the statistical analysis.

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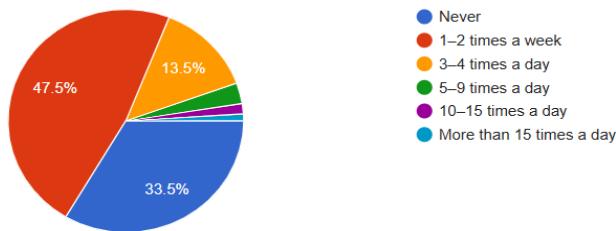
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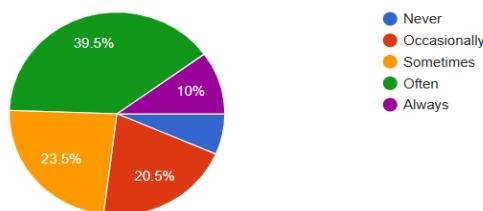
Appendice

1. Since the COVID-19 pandemic, how frequently do you experience the sensation that your phone is vibrating or ringing when it isn't?

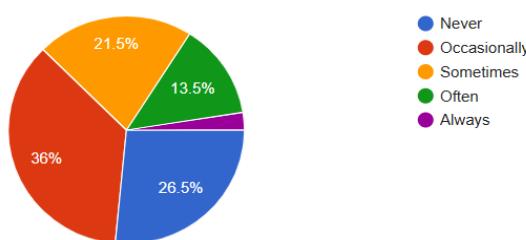
200 responses

**2. Since the pandemic, how often do you check your phone when you are in a situation where checking it is unnecessary (e.g., meetings, social gatherings)?**

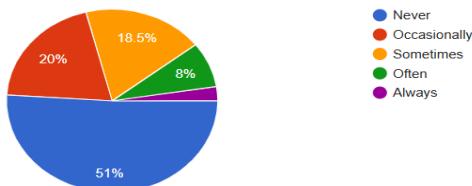
200 responses

**3. How often do you notice phone-related sensations or alerts during the evening or night time?**

200 responses

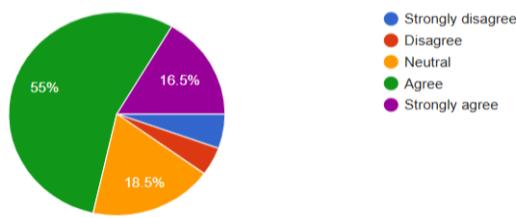
**4. How frequently do you feel or hear sensations from your phone while it is in silent mode?**

200 responses



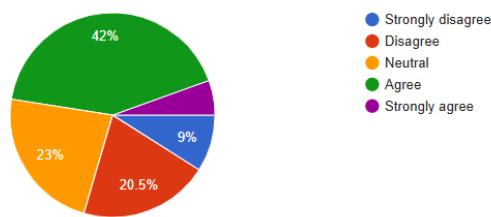
5. Do you feel more digitally dependent due to the constant availability of your phone and notifications since the Pandemic?

200 responses



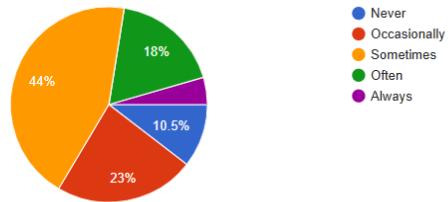
6. Has the habit of frequently checking your phone during social interactions (e.g., with family or friends) affected your relationships or made you feel disconnected since Pandemic?

200 responses



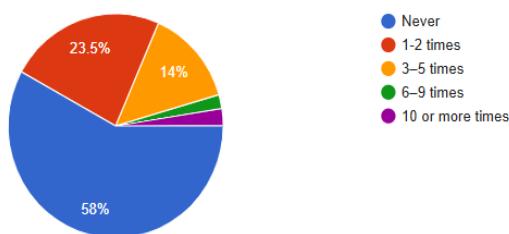
7. How often do you find yourself checking your phone when you are spending time with friends or loved ones?

200 responses



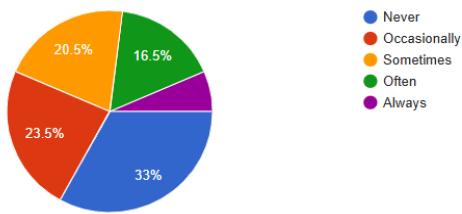
8. In a WEEK, since the Pandemic, how often do you notice sensations or alerts from your smartwatch that turn out to be false?

200 responses



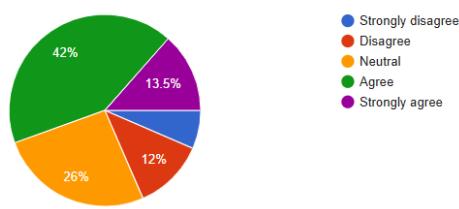
9. How likely are you to check your phone after receiving a notification on your smartwatch?

200 responses



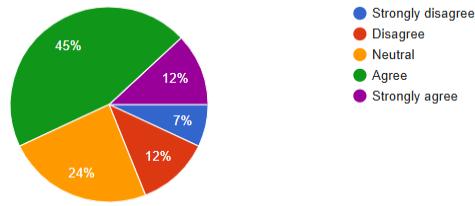
10. Do you feel more pressure to stay constantly connected due to the nature of digital communication since the COVID-19 pandemic?

200 responses



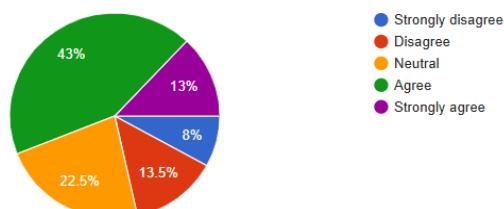
11. Since the COVID-19 pandemic, have you observed that phone-related stress or anxiety occurs more frequently when you are working remotely or spending more time at home?

200 responses



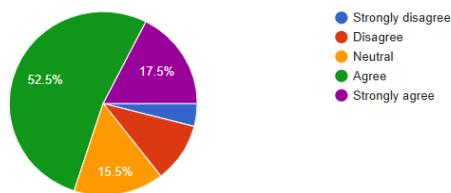
12. Since the COVID-19 pandemic, do you feel more inclined to respond immediately to messages or notifications, even when they are not urgent?

200 responses



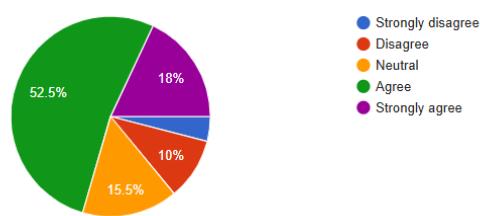
13. Do you feel that constant phone usage has negatively impacted your sleep, such as by making it harder to fall asleep or stay asleep?

200 responses



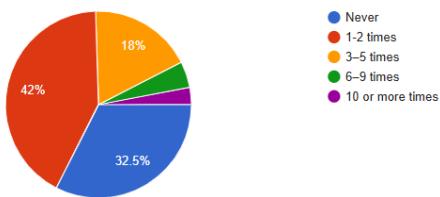
14. Do you feel that the frequency of phone interruptions has made it harder to focus on important tasks or to engage in deep work?

200 responses



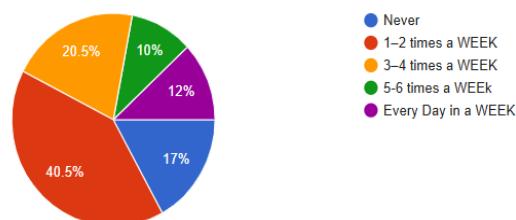
15. How often, in a WEEK, do you notice false sensations from your phone while multitasking (e.g., watching TV, eating, working etc.)

200 responses



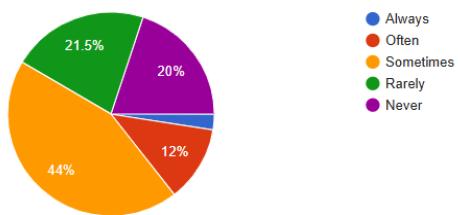
16. How often, post-pandemic, you consciously engage in offline activities (e.g., mindfulness & relaxation techniques, exercise, hobbies, outdoor activities) to reduce the stress caused by constant phone disruptions?

200 responses



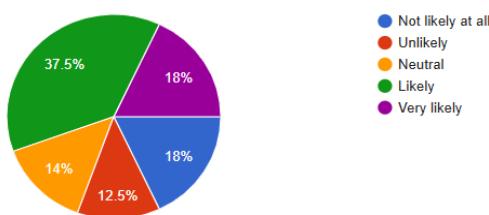
17. How often do you experience sensations or alerts from your phone while practicing relaxation techniques?

200 responses



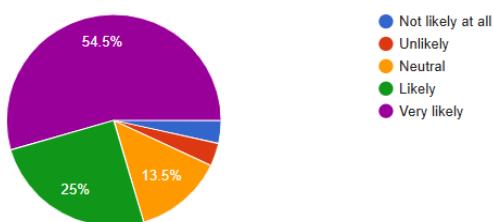
18. How likely are you to use features such as "Do Not Disturb," "Airplane Mode," or notification limits to reduce the impact of phone interruptions?

200 responses



19. Do you think that reducing the frequency of phone usage will improve your productivity or overall mental health?

200 responses



20. To what extent do regular breaks help you feel less attached to your phone?

200 responses

