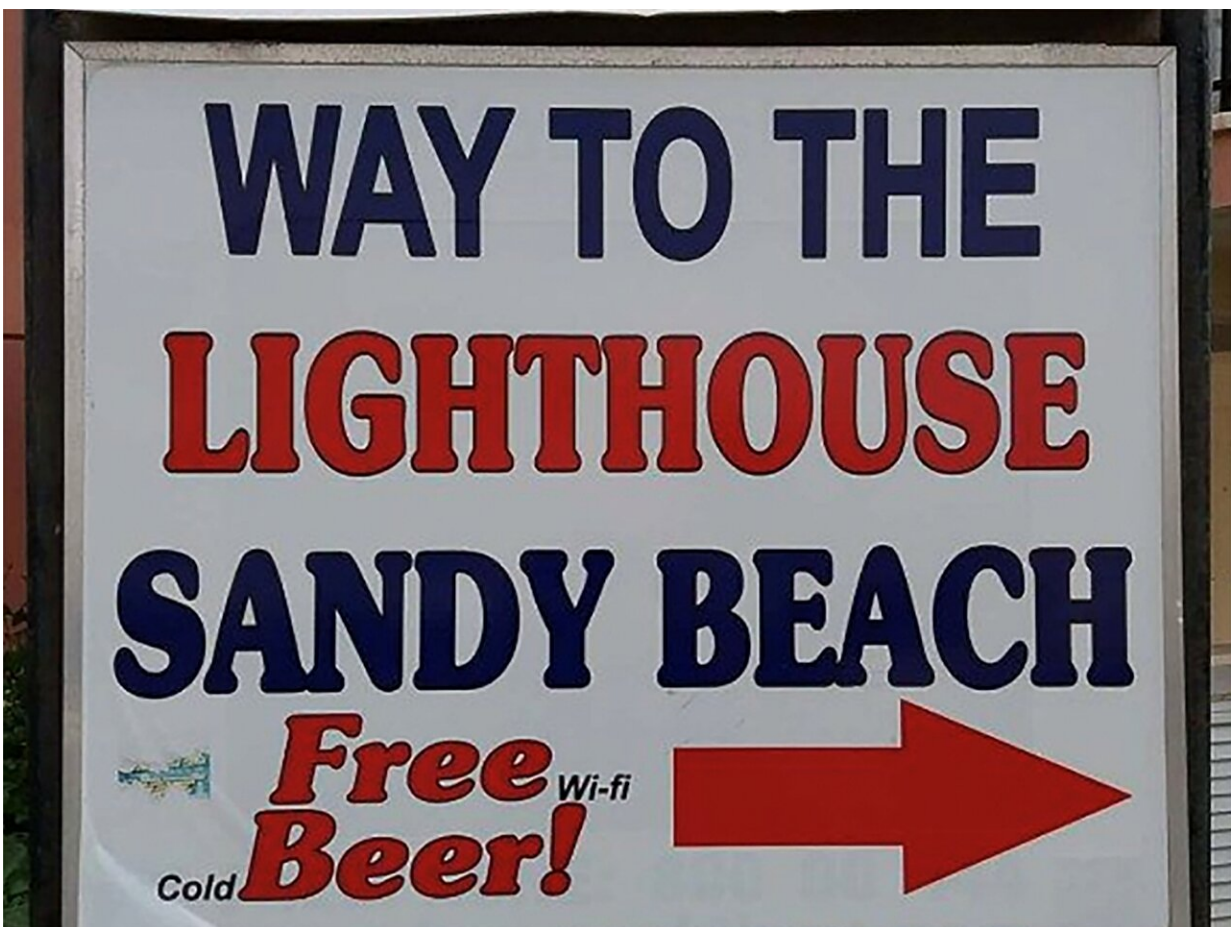


Slow the scroll: Users less vigilant about misinformation on mobile phones, study finds

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One of the tricky photos the researchers used in the study. At first glance the sign appears to read "Free Beer!" but on closer inspection it reads "Free Wi-fi, Cold Beer!" Credit: Mengqi Liao and S. Shyam Sundar

Mobile phones pack a lot of information into pocket-sized devices, which is why users may want to slow down the next time they're scrolling through social media or checking email on a mobile app. People process information more efficiently, but tend to be less vigilant about misinformation on their mobile phones compared to personal computers (PCs), according to a team led by Penn State researchers. This is especially true for users who have developed a routine or habit of using their mobile phones.

The research team also found that counterintuitively, PC users are more likely to click on malicious links in phishing e-mails. The findings, [published in *New Media & Society*](#), have implications for cybersecurity and point to a need for additional alerts on mobile devices to combat misinformation and warnings on personal computers to combat susceptibility to phishing attempts.

"A good number of people report that they habitually use a [mobile phone](#) for everything from entertainment to work, and it serves them well, but habitual mobile phone usage leads them to let their guard down," said principal investigator S. Shyam Sundar, the James P. Jimirro Professor of Media Effects at Penn State. "It's important for them to recognize this behavior and to minimize their habitual use or their consumption of news on mobile devices, and for developers to create an alert system to remind them not to believe everything they read."

To better understand how device type affects information processing, the team conducted two field experiments. Participants self-reported their habitual mobile phone usage and completed surveys using their own mobile phones and personal computers outside a laboratory setting, with all the push notifications and distractions that come with those devices and environments, giving the research team a better sense of how individuals use their devices and comprehend information in real-world settings.

"Usually when we conduct studies, we try to control as many extraneous factors as possible, but in this case, we ran field experiments because we wanted to test the differences in information processing between the two different devices in a natural way, by including all the noise and distractions that people encounter in their daily usage," said Mengqi Liao, first author and doctoral candidate in mass communication at Penn State.

In the first study, the researchers asked 116 participants from Amazon Mechanical Turk to use their mobile phone or PC, including both desktop and laptop computers, to review normal emails, tricky pictures such as a copper-colored stainless-steel knife, and spam emails. The researchers recorded how much time participants spent reviewing the information. They also asked the participants questions to measure variables such as their recall of details from the emails and pictures, such as what material the copper-colored knife was made of and how likely they would be to act on the information in the emails.

In the second study, the researchers asked 241 university students to use their [mobile phone](#) or PC to review misinformation in news blurbs and phishing emails. The researchers again recorded the time participants spent reviewing the material and if participants clicked on the malicious links in the phishing emails, though the links took them to a post-questionnaire instead of an actual malicious website. The researchers also asked participants questions to gauge how they processed and interacted with the material and to indicate whether they ever felt suspicious towards the deceptive content.

"In our first study, we did not find many differences across the two devices in terms of [information processing](#) other than the fact that mobile users processed information faster," Liao said. "In the second study we focused more on deceptive content and recorded actual behavioral measures, like whether participants clicked on a malicious

link. This is where we are more likely to observe detrimental effects from people processing information in a shallow manner, because with deceptive content, the consequences of people letting their guard down and being less skeptical towards misinformation can be quite dangerous."

The way people have come to associate certain devices with specific types of content, such as processing news on mobile devices and emails on computers, may have driven the results, said Sundar.

"The stance in mobile seems to be that if you have to do more work, like go from one app to another to another, you're less likely to pursue information further, whereas with [email](#) on a PC, you're in work mode and may want to explore in depth," he said. "That is perhaps why mobile users are quick to share misinformation without bothering to first verify information, and PC users are prone to click on links that they shouldn't be clicking."

Pop-up alerts are important for warning [mobile users](#) about potential misinformation and PC users about malicious links, he added.

Device-specific responses may also account for the counterintuitive finding that PC users are more likely to click on malicious links, according to the researchers. It seems more convenient or easier to click on links on a PC, which open in a new browser tab but give the appearance of opening on the same screen, than on [mobile devices](#), where the user has to switch between apps, Liao said. PC users may also rely more on their antivirus software, letting their guard down when they see links in phishing emails, she added.

"It's becoming more urgent, with all the misinformation on the internet, that we communicate these risks to users," Liao said. "On the PC side, don't click a new link just because it's convenient, as it can lead to

dangerous outcomes. And given that mobile phones can make you less vigilant, maybe slow down a bit and be more careful when processing information on these devices."

Jinping Wang, University of Florida, and Cheng Chen, Elon University, also contributed to the work.

More information: Mengqi Liao et al, Less vigilant in the mobile era? A comparison of information processing on mobile phones and personal computers, *New Media & Society* (2023). [DOI: 10.1177/14614448231209475](https://doi.org/10.1177/14614448231209475)

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