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College students choose smartphones over food

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University at Buffalo researchers have found that college students prefer food deprivation over smartphone deprivation, according to results from a paper in *Addictive Behaviors*.

Sara O'Donnell, lead author on the paper and clinical psychology doctoral student in the Department of Pediatrics in the Jacobs School of Medicine and Biomedical Sciences at UB, said the results suggest that smartphones can be more reinforcing than food for college students.

"In this study, we provide evidence for the first time that smartphones are reinforcing," she said. O'Donnell is co-author with Leonard H. Epstein, Ph.D., SUNY Distinguished Professor and director of the behavioral medicine division in the Department of Pediatrics.

"We also found that when deprived of both food and smartphones, students were much more motivated to work for time to use their smartphone, and were willing to part with more hypothetical money to gain access to their phone," she said.

O'Donnell was interested in doing the study in order to explore whether smartphones could function as a reinforcing behavior, the same way that food, drugs and alcohol are reinforcers.

"The frequency with which we use our cellphones every day is astounding, with estimates ranging from five to nine hours a day," she said.

In the study, 76 UB college students ranging in age from 18 to 22, had no access to food for three hours and no access to their smartphones for two hours. During that time, they either studied or read newspapers.

After that, the students could use a computer task in order to earn either the use of their smartphones or 100-calorie servings of their favorite snack food. As smartphone time or food was earned, the amount of work needed to earn either one increased.

The researchers measured smartphone reinforcement in two ways. One

was a hypothetical questionnaire that asked how many minutes of smartphone use an individual would purchase at increasing prices (from $0 per minute to $1,120 per minute) and the other was a behavioral index of reinforcement that measured the amount of work (i.e., the number of mouse button clicks) an individual would expend to use their phone, where the amount of clicks needed to use the phone increases over time. The more hypothetical money and work the students were willing to spend to be able to use their smartphones reflected a higher reinforcing value, O'Donnell explained.

"We were very surprised by the results," she said. "We knew that students would be motivated to gain access to their phones, but we were surprised that despite modest food deprivation, smartphone reinforcement far exceeded food reinforcement across both methodologies."

She added that while the study wasn't geared toward assessing how these behaviors might be involved in the phenomenon of smartphone addiction, she said the results do suggest that smartphones are highly reinforcing.

"Research is just beginning to investigate the possibility that smartphone addiction exists," O'Donnell said. "While reinforcing value does not equate to addiction, it seems likely that if smartphone addiction becomes a valid diagnosis, those individuals would have high smartphone reinforcement, just as individuals with alcohol use disorders have high alcohol reinforcement."

More information: Sara O'Donnell et al. Smartphones are more reinforcing than food for students, *Addictive Behaviors* (2018). DOI: 10.1016/j.addbeh.2018.10.018

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