

## App may signal cellphone dependency

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A new, free app will allow smartphone users to measure their cellphone



use. Computer scientists and psychologists from the University of Bonn have developed an application for this purpose. Whoever installs it can see, e.g., how much time s/he spends on the phone or which apps s/he uses most frequently. The relevant key data is sent to a server anonymously for the scientists to analyze. They are already using a similar technology for the early detection of depression.

This app dubbed Menthal will run on Android 4.0 (or newer). It is available as a free download from Google's Playstore or <u>www.menthal.org</u>. "If you would like to go on a digital diet, we will provide you with the scales," joked Alexander Markowetz, junior professor for computer science at the University of Bonn.

The app is part of a larger research project regarding the use of cellphones. Most studies have so far relied on user self-assessments for this purpose. But that information is unreliable. "Menthal will provide reliable data for the first time," Markowetz stressed. "This app can show us in detail what someone's average cellphone consumption per day looks like."

## Average users activate their smartphones every 12 minutes on average

In an as yet unpublished study, the researchers used Menthal to examine the phone behavior of 50 students over a period of six weeks. "Some of the results were shocking," commented Dr. Christian Montag, Privatdozent for Psychology at the University of Bonn. So, for example, a quarter of the study subjects used their phones for more than two hours a day. On average, study participants activated their phones more than 80 times a day – during the day, every 12 minutes on average. For some subjects, the results were even twice as high.



Typical users only spoke on their phones for eight minutes a day, and they wrote 2.8 text messages. And yet, the main use of phones was still for communication: over half of the time, the subjects were using Messenger or spending time on social networks. What'sApp alone took up 15 percent, Facebook nine percent. Games accounted for 13 percent, with some subjects gaming for several hours a day.

The main interest of the Bonn researchers focused on problematic use of cellphones. "We would like to know how much cellphone use is normal, and where 'too much' starts," Christian Montag explained – and that using a cellphone is similar to using a slot machine – which is why phones are turned on so often. He added that this potential new addiction is not yet an officially recognized disease. "And yet we know that using a cellphone can result in symptoms resembling an addiction," Montag pointed out. He explained that excessive use might result in neglecting essential daily responsibilities or one's direct social environment. "Outright withdrawal symptoms can actually occur when cellphones cannot be used."

## **Cellphones as detectors for depression**

The app was created in the context of a broader initiative that aims at introducing computer science methods into the psychological sciences --scientists also call this new research area "psychoinformatics." In a current article in the journal *Medical Hypotheses* they explain how psychology and psychiatry can benefit from the related possibilities. "So for example, one could imagine using cellphone data in order to measure the severity and the progress of depression," explained Montag. "We are in the process of conducting another study about this in cooperation with Prof. Dr. Thomas Schläpfer, a psychiatrist from the Bonn Universitäts¬klinikum."

Depression is signaled by social withdrawal and an inability to enjoy



activities, among other symptoms. The disease often progresses in an episodic fashion. "We suspect that during a depressive phase, <u>cellphone</u> use will change in a measurable way," explained Prof. Schläpfer. "Patients will then make fewer phone calls and venture outside less frequently – a change in behavior that smartphones can also record thanks to their built-in GPS." A psychiatrist might thus be able to use patients' cell¬phones as a diagnostic tool and, if necessary, intervene accordingly early on. "Of course," Markowetz added, "this will only be possible in strict compliance with data privacy laws, and with patients' consent."

In general, Markowetz explained, compliance with strict data privacy rules is essential when analyzing such data. In their study, the participating researchers explicitly discuss the ethical aspects of data use in their work, pointing out that the doctor-patient privilege, which is painstakingly applied to the data collected, constitutes a proven method for handling information.

**More information:** Psycho-Informatics: Big Data Shaping Modern Psychometrics; *Medical Hypotheses*, in print. <u>dx.doi.org/10.1016/j.mehy.2013.11.030</u>

Provided by University of Bonn

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