

# SOCIETY *of* BEHAVIORAL MEDICINE

*Better Health Through Behavior Change*

**EMBARGOED FOR RELEASE**

**11:25 a.m. Eastern Time**

**Friday, April 25, 2014**

**CONTACT (UMass/MIT)**

**Richard Fletcher, PhD**

[fletcher@media.mit.edu](mailto:fletcher@media.mit.edu),

[richard.fletcher@umassmed.edu](mailto:richard.fletcher@umassmed.edu)

**(617) 694-1428**

**PRESS CONTACT (UMass)**

**Lisa Larson**

**University of Massachusetts Medical School**

**Media Relations**

[lisa.larson@umassmed.edu](mailto:lisa.larson@umassmed.edu)

**CONTACT (NYU)**

**Noelle Leonard, PhD**

[Noelle.leonard@nyu.edu](mailto:Noelle.leonard@nyu.edu)

**CONTACT (U of Memphis)**

**Santosh Kumar, PhD**

[santosh.kumar@memphis.edu](mailto:santosh.kumar@memphis.edu)

## **Can Wearable Sensors and Smart Phones Help People Avoid Unhealthy Behaviors?**

**Philadelphia, PA** – Wearable sensors that track our physiology have become widely available, and are now used by consumers to help track their sleep or improve their daily physical activity. Health researchers have now begun to use wearable sensors to better understand our behavior and help treat psychological and behavioral problems that have traditionally been very challenging. These emerging clinical applications include uses for autism, epilepsy, anxiety disorders, and substance abuse, among others.

“The key innovation is smart phones,” said Rich Fletcher, assistant professor at the University of Massachusetts Medical School and research scientist at MIT. Fletcher has been working on the development of this technology for the past five5 years along with Professor Rosalind Picard at MIT.

“Smart phones can do much more than just record the data from these sensors and stream data to the ‘cloud.’ With the proper algorithms, our phones can learn to know exactly what activity we are doing and also recognize how we are *feeling*. The phone can then respond, through a variety of interactive mobile apps, to help us make healthy choices or provide motivation. It’s like having a life coach in our pocket,” Fletcher said.

Dr. Fletcher is one of the presenters and organizers of a panel session on wearable sensors at the annual meeting of the Society for Behavior Medicine, held in Philadelphia. The panel members presented recent research results that demonstrate the smart phone's ability to monitor our behavior and the potential to provide health interventions.

Selene Mota, a senior PhD student at MIT and former industry researcher, presented how the "sensor band technology" has evolved from simply detecting a person's movement to being able to recognize a variety of distinct activities or gestures.

"Just as the iPhone's Siri software is now able to adapt and learn to speech and understand what you say, the new motion tracking algorithms we are developing can adapt to the user and can be taught to recognize new activities. Indeed, this is one of the most significant shifts in current self-monitoring technologies, since our ultimate goal is to address how the data can become more personal, more meaningful, and contribute to the improvement of our health, wellness and well-being," said Mota.

Another panelist, Noelle Leonard, PhD, senior research scientist at New York University College of Nursing, discussed her ongoing study which employs wearable sensors as part of behavioral training for young adolescent mothers to help overcome a variety of psychological issues.

"The girls live together in a shelter and they each wear a sensor band around their ankle when they are at home with their child. The bands contain skin conductance sensors and accelerometers, and can detect when she gets upset or angry. The smart phone then automatically responds with friendly reminders and coping strategies that helps reinforce the mindfulness and cognitive behavioral therapy that the girls are learning in their treatment program," Leonard said.

"The sensors and phone are like training wheels when we are learning to ride a bike," Fletcher said. "Once a person learns to recognize their 'triggers' and learn healthy ways to deal with specific situations, then they can wean themselves from the sensors and naturally make healthier decisions."

The final panelist was Santosh Kumar, associate professor at University of Memphis who is applying wearable sensors to the problem of substance abuse.

"By understanding the sympathetic nervous system and measuring small changes in the person's heart rate variability, we are able to automatically detect, with fairly good success, when a person is using cocaine," Kumar said.

“These sensor algorithms, together with a good support system and mobile phone intervention, can provide an additional tool to help combat this very serious and difficult public health problem. It will be interesting to see how this technology gets integrated into standard clinical care in the future.”

*The Society of Behavioral Medicine ([www.sbm.org](http://www.sbm.org)) is a multidisciplinary organization of clinicians, educators, and scientists dedicated to promoting the study of the interactions of behavior with biology and the environment and the application of that knowledge to improve the health and well being of individuals, families, communities and populations.*

*This was presented during a panel on Friday, April 25, 2014, at the 2014 Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine (SBM) from April 23-26 in Philadelphia, PA. However, it does not reflect the policies or the opinion of the SBM.*

*Work presented was funded by the National Institutes of Health and the National Science Foundation. Additional disclosures: Dr. Fletcher is on the advisory board of Ashametrics, Inc., which manufactures certain types of wearable sensors.*

###