# Mobile App proposed to facilitate healthy behavior changes

According to a 2011 Pew Internet Project report, almost half (46 %) of all American adults own a smartphone. In the near future, there may be more reasons to get one- to make healthy behavior changes. With more than one-third of U.S. adults (35.7%) considered obese (Centers for Disease Control, 2012), USC researchers hope to create a mobile app to help participants lose weight.

Dr. Brie Turner-McGrievy, Assistant Professor in the department of Health Promotion, Education, and Behavior at the Arnold School of Public Health (ASPH) has teamed up with Dr. Michael Huhns and Dr. Homayoun Valafar from the department of Computer Science and Engineering to apply for funding to test a weight loss intervention that utilizes social networks through a mobile app.

Key Points

- USC faculty members from ASPH and Computer Science and Engineering have applied for NIH funding to test a weight loss intervention using a mobile app.
- Proven social and behavioral theory based practices would be paired up with the latest technological advances.
- The app would be created to provide feedback to reinforce healthy behaviors; monitor weight, diet, and physical activity; and provide incentives for weight loss behaviors.
- The Center for Research in Nutrition and Health Disparities played a valuable role to encourage collaborations between faculty of ASPH and Computer Science and Engineering.

The proposed study, under review at the National Institutes of Health (NIH), would include college students and adults to explore the most effective aspects of the app and the factors that encourage participation in their social networks.

Turner-McGrievy explained, "We are looking at how we can leverage social networks for health behavior change through mobile devices, allowing us to explore how these networks form, how engagement in these networks can help with behavior change, and what aspects make social networks more engaging among users."

The intervention will also include recommender systems, similar to those used by Amazon, NetFlix, and Google, where recommendations are made to the participant based on their history and activities of other participants within their social network.

The app would encourage engagement with the participant's social network around physical activity and diet. It would also provide feedback to reinforce healthy behaviors; monitor weight, diet, and physical activity; and provide incentives for weight loss behaviors.

Turner-McGrievy said, "Participants would be able to receive automated text messages from counselors based on their preferences and learn from one another in their social network. When someone needs support, they could request it from someone in the group and ask questions. They could also receive information about what works for someone and use those ideas. Then they would be able to share that information with another person."

"Interdisciplinary research of this kind, where behavioral scientists collaborate with computer science and engineering researchers can greatly enhance mobile health interventions. Such collaborations have promise when proven social and behavioral theory-based practices are paired up with the latest technological advances," said Turner-McGrievy.

In 2011, the Center for Research in Nutrition and Health Disparities held a symposium: *Healthy Eating in Context: The Role of the Political, Physical, Economic, and Social Structures in Nutrition.* Dr. Kuldar Tavater, a visiting Fulbright Scholar and colleague of Dr. Michael Huhns, gave a presentation about the potential role of mobile apps and healthy behavior change. Afterwards, the Center convened a meeting with faculty from ASPH and Computer Science and Engineering to explore possibilities of collaborations.

"I thought that a collaboration with Computer Science and Engineering is one that I would like to get going. We started formulating ideas, and since then we have been waiting to hear from other grants we have submitted," said Turner-McGrievy.

Although the USC team has chosen nutrition, physical activity, and weight loss as health behaviors of interest, the hope is that mobile apps could be used in other areas of health behaviors.

"This concept could be applied to other areas of behavior change, such as addictive behaviors, chronic disease management, and smoking cessation. Its potential use could play a powerful role in health promotion and disease prevention," said Turner-McGrievy.

Adds Huhns, "We are also investigating how the apps can be provided with multiplayer game interfaces to provide additional engagement and motivation.  Social networks and intelligent apps can now be used for more than just keeping track of friends or playing with angry birds, they can motivate healthy living."