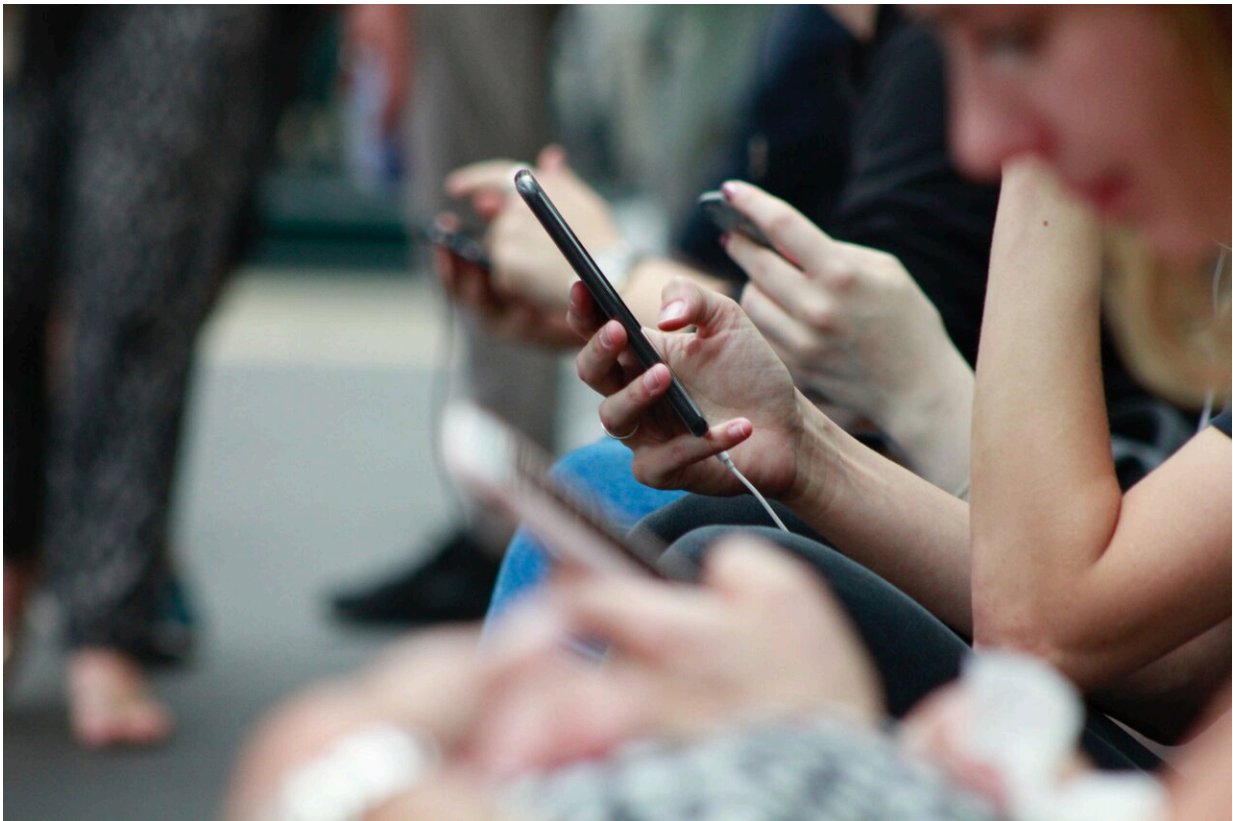# App users wary of health and fitness recommendations based on social media data

April 24 2023, by Matt Swayne

Credit: Unsplash/CC0 Public Domain

People may appreciate online apps that provide advice on health and fitness, but they seem to draw the line when those apps use their social media networks for data, according to researchers.

In a study, users showed a strong preference for fitness recommendations that were personalized for them based on their self-reported preferences. They also liked systems that allowed users to choose among different recommendation approaches, which made them feel more in control.

"As big data gives people new opportunities to personalize their health and fitness routines, it also calls into question how this data is collected," said S. Shyam Sundar, James P. Jimirro Professor of Media Effects in the Donald P. Bellisario College of Communications and co-director of the Media Effects Research Laboratory at Penn State.

According to Sundar, people are using recommendation systems to help make more decisions, such as choosing entertainment activities and weighing vacation options. Health and exercise are natural areas of applications; however, the sensitivity of health data could make people wary of such systems.

The researchers presented their findings today (April 24) at the [ACM CHI Conference on Human Factors in Computing Systems](#), and reported them in its proceedings,

"We are moving toward an era where fitness plans, diet regimens, exercise routines and other forms of preventive health management can be tailored to our specific individual needs and situations," added Sundar, who is also an affiliate of Penn State's Institute for Computational and Data Sciences. "It's the technology and the availability of big data that make this possible, but it also raises questions about the information it uses for tailoring. Does it tailor based on your own preferences, for example, or does it tailor them based on your demographics? Or is it based on other people who have used that app?"

In the study, the researchers recruited 341 people to test six filtering

approaches for recommendation systems, including: demographic filtering, which makes suggestions based on preferences of other users similar in age, gender and ethnicity; collaborative filtering, which is based on others who share similar preferences in exercises; and content-based filtering, which relies on the user's own exercise preferences.

These approaches were further categorized into two versions depending on whether the data came from within the app or from [social media](#), which requires access to the user's social media connections. In addition, one half of the participants were given the choice to change their personalization approach to one of the other five approaches, while the other half were not given such an option.

Participants particularly disliked the approaches that required social media access, said Yuan Sun, a doctoral student in mass communications at Penn State, and the study's first author.

"What we find is that people really don't like the social media-based recommendations," said Sun, who will be joining the University of Florida as an assistant professor in fall 2023. "There may be a few reasons for that. One might be that they perceive it as a threat to their sense of identity. They think it undermines their essence of being a unique person. Also, the social media-based recommendations trigger privacy concerns."

When the researchers gave them a chance to choose other filtering approaches, more than 96% of the participants switched out of the condition which provided fitness content they have viewed or liked on social media. Other approaches based on activities and demographics of social media friends were also not popular.

"Such results are particularly noteworthy because there's usually an inertia with personalization," said Sundar. "When the system is going to

perform a task in a certain way, it's too much of a hassle for people to switch. So, for these participants to take the trouble to opt out of default, it's a mind shift and a bit of effort, which shows how much they dislike it."

According to the researchers, developers and designers should be mindful when they design health-related recommendation systems that might rely on social media data. Even though people post a lot of health and [fitness](#) information on social media, they do not like online apps using these posts for providing recommendations.

"In terms of design applications, when developers create health applications, they should refrain from using social media data for generating recommendations," said Sundar. "Instead, they should use more identity signaling and identity-protective information."

The researchers also recommend that designers provide users the option of choosing their preferred method of tailoring [health](#) advice.

"This is verified by our other major finding that users feel more in control when provided the option, despite the extra work it involved," said Sun.

Magdalayna Drivas, a doctoral student at the University of Southern California Annenberg School for Communication and Journalism, and Mengqi Liao, a doctoral student in mass communication at Penn State also worked with Sundar and Sun.