

Virtual adviser helps older Latino adults get more exercise, researcher says

August 14 2013

When it comes to getting motivated to exercise and do things that are good for our health, sometimes all it takes is a little help from our friends.

This was certainly the case for a group of older, Latino adults in Northern California: They benefited from the advice and encouragement of a virtual friend—a physical-activity adviser named Carmen, a new study reports.

Individuals who participated in an [exercise program](#) guided by the virtual adviser had an eight-fold increase in walking compared with those who did not, according to the study, published online today in the *Journal of Health Communication*. Led by researchers at the Stanford University School of Medicine, it is believed to be among the first "e-health" studies geared toward a non-English speaking, older-[adult population](#) with low literacy.

"The results indicate that a virtual adviser delivering culturally and linguistically adapted physical activity advice led to meaningful four-month increases in walking relative to control among underserved [older adults](#)," the study says. "This [interactive technology](#), which requires minimal language and computer literacy, may help reduce [health disparities](#) by ensuring that all groups benefit from 'e-health' opportunities."

The lead author of the study is Abby King, PhD, professor of [health](#)

[research](#) and policy and of medicine, and director of the Healthy Aging Research & Technology Solutions laboratory at the Stanford Prevention Research Center.

Electronic games and programs that promote healthy habits have proliferated in recent years. King studies the effectiveness of those specifically targeted toward older adults and said she believes older adults represent the perfect population for such interventions. "[They] are at particular risk for the chronic diseases that can be positively influenced by reasonably modest improvements in physical activity," she and her co-authors write in the paper.

This study was based on an earlier study of a successful two-month, [physical activity](#) intervention geared toward older, primarily low-income African-Americans. The earlier study, led by Timothy Bickmore, PhD, associate professor at Northeastern University, involved the use of an interactive computer character that simulated face-to-face counseling; participants interacted with the adviser by touching responses shown on the computer screen.

The new study, of which Bickmore is a co-author, targeted another underserved (and often inactive) population: low-income, older, Latino adults. The digital adviser was modified to fit in with local Latino culture and to offer interactions in English or Spanish.

For the trial, King and her colleagues recruited 40 inactive adults, ages 55 and older, from a primarily Latino population in San Jose, Calif. More than 92.5 percent self-identified as Latino, and 81 percent reported an annual household income of less than \$50,000. The great majority (92 percent) reported a history of chronic illnesses, with the most common being high blood pressure, high cholesterol and arthritis.

Study participants were randomly assigned to a four-month walking

intervention, coached by Carmen the virtual adviser, or to a control group. Those in the intervention program were taught to use a pedometer to track their daily steps. During weekly sessions, Carmen evaluated their pedometer information to provide them with personalized feedback, problem-solving and goal-setting. Participants were encouraged to interact weekly with Carmen, who was made available to them through a computer at a local senior center.

The researchers looked at the change in walking behavior at two months and four months, and also assessed whether the participants were adopting any strategies taught by Carmen. After four months, the researchers found that participants increased the amount of time they walked by an average of about 253 minutes each week—eight times more than the increase in the control group.

The investigators also found that five motivational behavior-change strategies significantly increased over four months for those in the intervention program. These included "understanding the risks of inactivity, committing oneself to being physically active, substituting more active alternatives, rewarding oneself for being physically active and reminding oneself to be physically active," the study said. These skills, it noted, "have been associated with positive health behavior change in other populations."

"While we hoped that the culturally tailored, individualized program would appeal to older Latino adults, we were surprised and gratified to see how well the group of participants randomized to receive Carmen-based counseling actually did," King said.

King also said she was heartened that so many participants requested access to Carmen after the data-collection period of the study was over. The researchers left the computer program at the senior center for an additional 20 weeks, and all but one of the participants assigned to the

intervention interacted with Carmen during that time.

The study enrollment was small, but the researchers are encouraged by the results. "We believe that, with some additional development and larger-scale testing, these types of virtual adviser programs have the potential for wide adoption and dissemination throughout other communities," King said, adding that the virtual adviser could be modified based on the ethnicity of other targeted groups.

King and Bickmore were recently awarded a National Institutes of Health grant to conduct a larger, randomized trial of the program. They plan to assess Carmen's effectiveness as a personal adviser over a longer time period and identify who might benefit the most from using this type of support. The plan is to deploy Carmen at numerous community centers across the San Francisco Bay Area.

Provided by Stanford University Medical Center

Citation: Virtual adviser helps older Latino adults get more exercise, researcher says (2013, August 14) retrieved 17 July 2024 from <https://medicalxpress.com/news/2013-08-virtual-older-latino-adults.html>

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