

Mi Propio Camino

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A NEW APP OVERCOMES NEGATIVE BELIEFS ABOUT MEDICATIONS WITH A “SEE-FOR-YOURSELF” APPROACH

Modern medical science has produced therapies to treat chronic illnesses like hypertension, high cholesterol, diabetes and heart disease that can kill hundreds of thousands each year.

But a medicine can only be effective if a patient actually takes it. What about those who won't take prescribed medication due to suspicions about overprescribing or exaggerated potential benefits?

A CALIT2 researcher is collaborating with a UC Irvine medical researcher to develop an app that seeks to intervene in one specific population in which concerns about the safety and benefits of medications are especially high. Funded by the National Institutes of Health through its National Heart, Lung and Blood Institute, the \$2.9 million endeavor is called *Mi Propio Camino* (My Own Way): Addressing Negative Beliefs about Medication to Improve Adherence among Hispanic Adults with Hypertension.

Sergio Gago-Masague, director of CALIT2's Engaging Technology and Application Design (ETAD) lab, is working with John Billimek, who leads the HELIOS lab health equity research program in the Department of Family Medicine and the Health Policy Research Institute. The team is developing and testing an IoT-driven intervention that encourages patients in the Latino community who have diabetes and high blood pressure – a large, high-risk population – to take their medication and make healthy lifestyle choices.

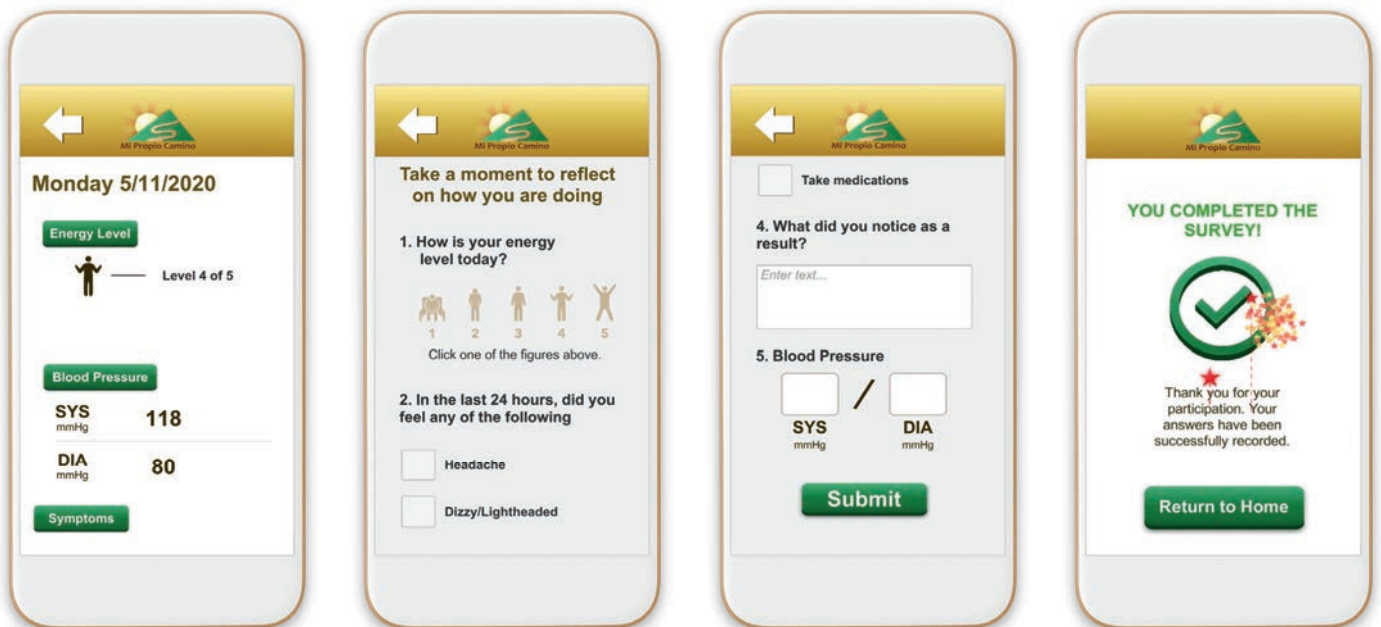
“Culturally bound, negative beliefs about medications and a preference to replace medications with natural remedies are common in medically underserved Latino communities,” the pair stated in their grant proposal.

Billimek and Gago-Masague, who have collaborated before, were discussing medication adherence among this population, and based on the suggestions of an advisory group of Spanish-speaking patients at UCI's Family Health Center Santa Ana, they decided to develop an app to address the issue. They began work on a proof-of-concept prototype through MDP, the Multidisciplinary Design Program, a partnership between CALIT2 and UCI's Undergraduate Research Opportunities Program. "Thanks to a great collaboration, and funding and students provided through the MDP, we were able to achieve the federal funding

will be easier for new users to learn the features," says CALIT2 lead developer Quinn Levine.

A "reflection" section encourages users to fill out daily surveys. These surveys track when patients take their medication and document how they feel physically, including energy level, symptoms like headache or dizziness, and current blood pressure. "We want participants to see over time just how effective their medication, exercise or other healthy lifestyle choices are," Levine explains.

A calendar section allows for daily, weekly and monthly views of



necessary to support the project," says Gago-Masague, a UCI information and computer sciences assistant professor of teaching, who believes the framework can provide a foundation for developing novel interventions for other at-risk populations.

He oversees the app's technical development, while Billimek leads the clinical effort. The cross-platform prototype, which works with Android and iOS mobile devices, offers three features. "We are trying to keep it simple so it

users' reflections and outcomes, and documents those weeks in which they participated every day.

Finally, the app includes a feature that prompts participants to grow an online garden by completing all of their daily reflections. Each week a new plant appears, and users spend the week growing that flower, fruit or tree. Every time they complete a daily reflection, the garden grows a bit more. "The garden is our main source of encouragement for using the application," Levine says.

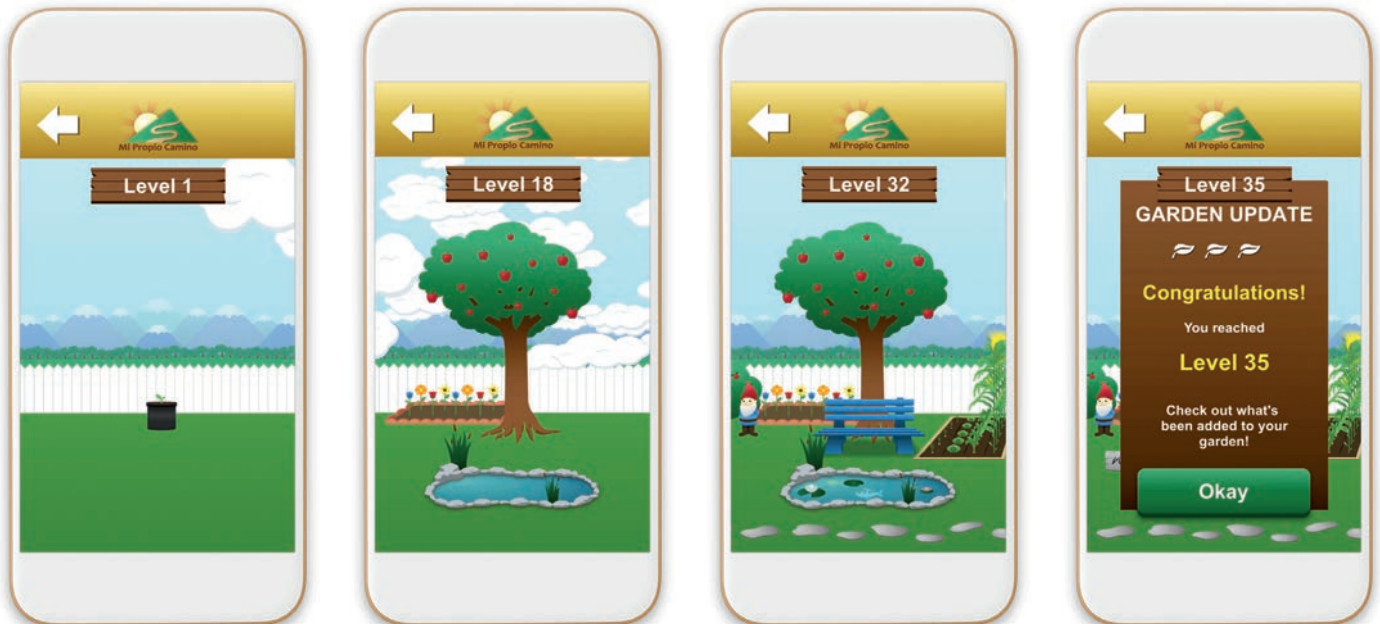
“It is a subtle form of gamification that encourages the user to return to the application daily.”

Adds Gago-Masague: “The main point is for users to see how they’ve changed over time through various health techniques. A nice metaphor for that personal growth is a garden.”

Patient trials are on hold because of the coronavirus pandemic, but the plan is to run a clinical trial with 250 patients over four years. In the meantime, community and patient stakeholders have tested early versions of the app and provided ongoing guidance to its design and implementation. “The patients like

having a very well-organized system for tracking their symptoms,” says Gago-Masague, adding that users indicated it was particularly helpful because tracking symptoms and medication on a daily basis had been a challenge.

“When patients are prescribed drugs, they don’t have a lot of choices; they have to trust the doctor and adhere to the treatment,” Billimek says. “This app allows patients to see for themselves the efficacy of the medication. It actually encourages good communication and transparency between the doctors and patients. That is probably the most important aspect of this project.” 🍎



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