

HITTING RESET ON THE THOUGHT PROCESS

An app developed at the Institute of Behavioral Research, and with the help of students, aims to equip probationers with the tools to make better decisions.

BY CAROLINE COLLIER

The saying about big risks leading to big rewards often proves false. Sometimes, embracing risk can lead a person to prison, or to an incurable virus.

Or both.

The rate of HIV infection for Americans involved in the criminal justice system is up to five times higher than that of the general U.S. population, reports the Centers for Disease Control and Prevention. The double danger is why scientists at TCU's Institute of Behavioral Research are working to curtail the virus's spread among offenders.

But how to address transmission of a minuscule virus in America's massive, cash-strapped criminal justice system?

Could an app developed by TCU behavioral specialists serve as an effective health intervention for at-risk probationers, whose futures hinge on the decisions they will make?

Consider the possibilities:

"I went to this party the other night," an actress explains to her on-screen friend. Eyes downcast, she admits to waking up next to a known philanderer and not remembering what happened. She frets about being exposed to HIV but would rather not know if she is infected.

"The sooner you find out, the better off you'll be," suggests the sympathetic friend.

The video ends, morphing into a touch-screen app asking the viewer to think about the scenario and evaluate possible courses of action. The viewer must choose between decisions. Should the actress with holes in her memory learn more about how untreated

HIV might affect her body, or should she discuss her fears with a trusted adviser?

Spurring the app's user to consider the possibilities, side by side, is the intervention, a high-tech approach that aims to create new thought patterns. The goal is to teach risk-takers a deliberative method of making decisions.

A HISTORIC SPECIALTY

Psychologist Saul Sells founded the Institute of Behavioral Research at TCU in 1962. From the early days, the institute focused on improving substance-abuse treatment. The group was a key participant in the first national evaluation of public drug rehabilitation, said Wayne Lehman, a senior research scientist at the institute.

Drug treatment and the city of Fort Worth are also longtime associates.

In the 1930s, American heroin addicts receiving public treatment were assigned to one of two federal prison hospitals, known as narcotic farms because fieldwork was part of rehabilitation. One farm was in southeast Fort Worth. It closed in 1971, but several buildings remain across the street from a Tarrant County probation office where StaySafe, the app developed under Lehman's supervision at the institute, is being tested.

Today, as in the 1930s, effective treatment for people who are prone to risky behavior goes back to interrupting their decision-making by introducing more systematic ways of thinking — whether via contemplative gardening or a palm-size computer.

People in general have two ways to make decisions, Lehman said. The first is "experiential, where you make very quick decisions based on your past experience. . . . You just do what feels good in the moment."

The other, an analytical approach, is more time-consuming but also more effective. Lehman said many people don't approach problems by thinking all the way through the options and need to be taught the process.

WORKING THE SYSTEM

In 2008, the National Institute on Drug Abuse awarded a TCU research team a \$2.7 million grant to help incarcerated drug abusers pave healthier futures via an analytical thinking process practiced in group therapy settings. The process was similar to a thought-modifying system known as WORK-IT.

A collaboration between the institute and TCU's psychology department, WORK-IT was created in 1994 to help teach better decision-making. People tackle a problem from several angles and then practice making new decisions to create fresh experiences for their memory banks.

Funded with an additional \$2.8 million grant in 2015 from the same agency, researchers are in phase two of a project called Sustainable HIV Risk Reduction Strategies for Criminal Justice Systems. For the second phase, principal investigator Lehman and cohorts developed StaySafe, an Android app intended for probationers in drug treatment. Participants use WORK-IT in a virtual environment while sitting in

“We’re giving [probationers] practice thinking through things.”

Wayne Lehman, senior research scientist at the Institute of Behavioral Research

probation offices.

Analytical thinking can be a transformative tool for people who have been convicted of crimes. Their rates of drug abuse eclipse those of the nonoffending public, said Jennifer Pankow, project director of the StaySafe grant. She joined the institute after spending the early part of her career working in prisons and probation offices.

Probationers are an at-risk group, said Pankow, an associate research scientist, especially if they are in a liminal state between prison and freedom from supervision. Criminal behavior, sexually transmitted diseases and drug use share a commonality: a predilection for embracing risk. “It isn’t just the health risk that they’re dealing with,” she said. “It’s the different challenges around their criminal thinking and their offending.”

Pankow helped train counselors for the first phase of the grant project, which targeted therapy groups in prisons from 2008 to 2014. Designed for inmates about to re-enter society, WaySafe took advantage of free time during incarceration to teach healthy behaviors through group discussion and visual mapping.

WaySafe was effective. After group therapy concluded, participants reported seeking HIV testing almost 1 1/2 times more often than the control group, or those involved in the traditional prison-based health-education programs. WaySafe participants also reported greater knowledge, confidence and motivation about making healthy decisions.

STAYING SAFE

After WaySafe, Lehman, Pankow and research associates wanted to extend their study to reach probationers in court-mandated substance-abuse treatment. The approach had to be quick and simple.

In Tarrant County, around 200 probation officers are responsible for about 20,000 offenders, said Kelli Martin, research unit supervisor for the county’s probation



Wayne Lehman and his team at TCU’s Institute of Behavioral Research won an eight-year grant from the National Institute on Drug Abuse to develop sustainable strategies for HIV risk reduction in the country’s criminal justice system.

department. In 2017, “Our caseloads have gone up because we have received budget cuts through the state.”

Probation officers, who are called to serve as rehabilitators, have the same goal as the behavioral researchers, Martin said. “We teach people to recognize and pay attention to the way that they think.”

But when one officer is responsible for up to 100 people on probation, some will fall through the cracks. Because of a probation officer’s time limitations, Lehman said, “We wanted something that would be self-administered.”

The researchers designed the StaySafe app around three core design concepts: “Simple, engaging, sustainable.” The app, much like a group discussing new ways of considering consequences, aims to put a wrench in automated decisions, moving those choices from a repetition of prior experience into the realm of methodical analysis.

Researchers said the constraints inherent in tailoring the WORK-IT schema to one person using a tablet were challenging. The previous implementations involved bouncing ideas off of group moderators and members, where people received immediate feedback and drew

decision maps to visualize outcomes.

The major obstacle to transitioning to app-based therapy, Pankow said, was “How do we stimulate the participant in a way so that they have to critique their own thinking?”

The solution was StaySafe. The app translates WORK-IT into thought-provoking lessons for someone working alone and receiving no input as to whether or why his hypothetical decisions are wise.

APP TIME

Pankow used her experience counseling offenders to create storyboards based on problems a probationer might face while traversing real-world pitfalls, including telling others about an HIV diagnosis or returning to the dangers of former stomping grounds.

Research assistant Roxanne Muiruri wrote scripts for one-minute videos to bring the potential problems to life. TCU’s Center for Instructional Services helped film theatre students who acted out Muiruri’s roles. The students portrayed risk-takers with lines such as, “I can handle hanging out with my friends without injecting. ... I learned my lesson and I’m not going to let them get me in trouble again.”

To offset the approximate \$50,000 cost to develop the app for Android devices, the institute’s research team members sought the help of TCU student programmers. As part of a two-semester senior design course in computer science, students take on programming challenges with real-world utility.

A four-person student programming team was assigned to the project and met with the institute scientists most weeks. Because institute researchers created a map of how the app would function, the students were able to focus on programming execution, said Donnell Payne, associate professor of computer science, who teaches the senior design courses. They “were lucky in that this project was very well-defined.”

The young computer scientists learned about working in teams, troubleshooting

and communicating with and presenting to clients, Payne said. Real-world application was a bonus. “Assuming they did a good job and it was working well, this project was going to be used.”

VIRTUAL REALITY

Soon after the app was finished, institute staffers fanned out across Texas with stacks of Android tablets loaded with StaySafe.

When probationers entered participating community-supervision offices and one residential treatment facility, a poster advertising the StaySafe risk-reduction study greeted them and offered a stipend for participation.

Seeing a friendly face in the probation offices helped persuade people, said research associate Muiruri. “I practically know everybody by name now.”

In each StaySafe session, the app presents a list of problems related to risky behaviors and allows the person using the app to start making decisions. The user picks a problem and then watches a short video that shows actors faced with a person, place or thing that could trigger a risky decision.

Users then select among four options about how the person in the video might respond. The vicarious experience was an intentional instructive approach, Pankow said, because of the contrast necessitated by different decisions. The app then presents consequences — for several affected people — and mimics the process of mapping out a decision tree.

In a soothing female voice, StaySafe’s digital narrator encourages people, “using just your mind,” to evaluate which option is best for the person choosing it, the person most affected and a helpful person whose advice should be trusted. After thinking through the best decision from several vantage points, the user deliberates about how to prepare for success when a similar situation arises in real life.

Probationers who took an initial survey received \$20 toward their monthly fees. The project was offered in select offices from

October 2016 through fall 2017 in the three most populous counties in Texas: Dallas, Tarrant and Harris.

Probationers who completed the initial survey were assigned randomly to either a control group, whose members earned an additional \$40 for completing two follow-up surveys, or to a group that used StaySafe for 12 sessions. Participants in the latter group could earn up to \$220, funds made possible through the federal grant, by working through nine hypothetical problems at a pace no quicker than one each week.

The remaining three sessions focused on HIV facts and were often the probationers’ favorite parts of the experience, Muiruri said. The Centers for Disease Control and Prevention offers the disease data for free on its website, but most participating probationers weren’t visiting public-health websites and were surprised to learn about the statistical correlation between drug use and HIV or that post-exposure HIV prevention exists.

WRESTLING WITH RISK

HIV prevention is the main focus area of the research project, but the decision-making framework can help criminal offenders with a host of risky decisions, from drug use to sexual partners to activities that could land them back in jail, Pankow said. “HIV just happens to be the context that we’re in, but the decision-making framework works anywhere.”

The problems embedded in the app hide the deeper intention, which is a new way of wrestling with risk. App users “practice through this schema over and over again so it becomes much more accessible,” Lehman said. “We’re giving them practice thinking through things.”

The practice component is essential, which is why researchers suspect a participatory app is more effective than traditional educational material. They are now in the process of evaluating how well StaySafe worked in the study. The scientists said they hope the research outcome is the

same as when the decision-making tools were given to prisoners in the WaySafe component of the project: more knowledge, confidence and motivation to make sensible decisions.

“Knowledge is not enough,” Lehman said. “Are you motivated to act on that knowledge? And do you have the confidence to be able to avoid risk?”

Pankow, at the request of the National Institute on Drug Abuse, also developed a supplement designed to encourage women to think through female-specific health risks. The app and its digital anonymity have proved useful, she said. “It enables us to provide to an individual sensitive information that in fact they may not be comfortable talking to counselors or probation officers about.”

Lehman is in the process of tailoring StaySafe to restaurant workers, another group of notorious risk-takers. (A 2015 study by the Substance Abuse and Mental Health Services Administration reported the food and hospitality industry as having the highest rates of illicit drug use by employees.)

But the app is ideal for probation offices, Pankow said. “The cost of interventions in these settings is huge. To pay counselors to run groups, this is very expensive,” she said. “To be able to have something that maybe has a small footprint but can be made available at a very low cost is absolutely critical.”

Lehman said the app fulfilled its plan of being simple, engaging and sustainable. And now it is scalable. Once the evaluation portion of the grant is over, the institute is planning to distribute StaySafe for free to any interested probation office in the country.

Although Lehman said he is optimistic about the StaySafe app, he is also realistic. “We don’t expect people to all of a sudden quit making bad decisions. We hope that some will, and some will start making better decisions.” ❖