

Facilitating Self-exploration and Behavioral Change Associated with HIV Risk Reduction: A Qualitative Study of Individuals on Probation and Their Experiences Using a Decision-Making App¹

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TRANSITION FROM INCARCERATION or other restricted treatment settings (e.g., residential) back into the community is associated with high-risk behaviors known to contribute to HIV, hepatitis, and other sexually transmitted infections (MacGowan, et al., 2003; Hearn, Whitehead, Khan, & Latimer, 2015). Poor decision-making fueled by substance and/or alcohol use during reentry elevates this level of risk (Bureau of Justice Statistics, 1999), particularly when behaviors involve intravenous drug use or having unprotected sex (Abiona, Balogun, Adefuye, & Sloan, 2009; Inciardi, 1993). For those in recovery, reentry means exposure to “triggers”—people, places, and things that induce cravings, which may lead to relapse (Preston & Epstein, 2011). Research from Texas Christian University’s (TCU)

Institute of Behavioral Research targeted this high-risk transition period with the development of an intervention (called *StaySafe*) that combines a decision-making strategy (WORK IT) with CDC health and resource information for individuals to use in thinking about, planning for, and avoiding health risk situations. This app-based intervention is administered on a hand-held tablet, delivered in 12 self-directed sessions. The tablet approach provides a way to view sensitive health information privately, a potential benefit for anyone who might otherwise be uncomfortable talking to counselors or probation officers. Additionally, health messages contained in the intervention are consistently and uniformly delivered to any number of individuals as opposed to contradictory information from other sources (e.g., from peers or staff). Unlike treatment provided in group settings, the individualized, brief approach of the *StaySafe* intervention (a session can be completed in 10-12 minutes) allows for flexible scheduling in coordination with post-release supervision and treatment requirements.

Intervention Development and Content

StaySafe incorporates elements of its predecessor, *WaySafe*, a manualized decision-making intervention that was developed for the first 5-year Disease Risk Reduction (DRR1) research project (Lehman et al., 2015). Translating the original intervention into an app involved adapting the TCU mapping-enhanced group counseling strategy (Dansereau, Joe, & Simpson, 1993; Dees, Dansereau, Simpson, 1994) to a self-directed format, incorporating mapping elements and evidence-based health information into the interactive tablet curriculum. Rather than administering the intervention to individuals in small interactive groups prior to release from incarceration, the app-based intervention approach (known as the DRR2 project; see Lehman et al., 2018) extended to the probation waiting rooms where individuals arrive for post-release meetings and behavioral health services. The core feature of the app-based approach is the evidence-based WORK IT strategy, shown to be effective for improving decision skills, self-awareness, and problem recognition in studies with adolescents (Becan, Knight, Crawley,

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Joe, & Flynn, 2015; Knight et al., 2015/2016). WORK IT is an acronym for the steps (see Table 1) that guide the participant through a health risk scenario selected from the Problem Menu (see Table 2). After a participant completes the WORK IT steps for “W,” a list of four options (step “O”) for responding to the health risk become available to the participant; each option is reinforced with health facts to assist the participant with rating the options (step “R”) to determine which one will become the final decision (step “K”) for responding to the risk situation. The remaining two steps (“I” and “T”) are aimed at helping the participant create a mental roadmap for turning the decision into action. Conceptually, the WORK IT steps are based on the idea that judgments and decisions about risk are made on the basis of past experiences and memories of those events—information that is easily recalled for quick response in a risky situation

TABLE 1
WORK IT Strategy

W	What’s the problem? Who will be affected by your choice? Who can help you with this decision?
O	Think about your Options
R	Rate your options
K	Knowing what decision to make
I	Imagine how you will turn your choice into actions
T	Time to test the results

TABLE 2
Problem Menu

Category	Health Topic
People	1. My partner has HIV – what now?
	2. Telling others about testing positive for HIV
	3. Asking a partner about his or her HIV testing
	4. Hanging out with friends who inject
Places	5. Favorite high-risk places to hang out
	6. Returning to the old neighborhood
	7. Finding medical help for HIV care
Things	8. Practicing safe sex
	9. Getting tested for HIV
	10. Fear of getting HIV testing
	11. Myths about HIV and where to find the facts

(Kahneman, 2011). The *StaySafe* intervention was designed so that participants repeat the WORK IT steps multiple times during the 12 sessions, thus making the decision strategy more easily retrievable in the face of real-life risk situations.

A tablet session begins with selecting a health topic from the Problem Menu. The session opens with a short video that demonstrates people handling a similar situation, followed by the WORK IT steps that guide the participant through the decision strategy. Each session concludes with a maze game activity that reinforces the health messages in the intervention. The app contains more than 80 instances of evidence-based HIV health risk information from the CDC, National Institutes of Health (NIH), and current health research. For example, one health fact states, “without treatment, HIV attacks the immune system leading to cancers and other health problems”—information aimed at increasing awareness about the impact of HIV on other types of health problems (NIH, 2013). It’s important that health information stay current; thus, the app was designed with a “back office” where content can be updated and Problem Choices can be changed. Another feature of the app-based intervention is the drug and alcohol content, carefully drafted with attention to treatment concepts (e.g., scenarios dealing with relapse triggers), so that *StaySafe* aligns with substance use/alcohol treatment delivered as part of the requirements of community probation.

Changing Behavior to Reduce Risk

The ability to change addictive behavior requires self-awareness and a desire or motivation for change (Baumeister & Vonasch, 2015). For many, achieving abstinence is difficult and often includes periods of relapse. One way to support recovery efforts, especially for anyone struggling through relapse, is to provide opportunities for success, as well as opportunities to test the ability to be successful (Center for Substance Abuse Treatment, 2005). Experiencing success at any level inspires motivation, an essential element of substance use treatment engagement (Simpson, 2004), as well as for managing other types of behavioral changes aimed at self-regulation (Teixeira et al., 2015). *StaySafe* incorporates several features (WORK IT, health information, and a game-like interactive app) that are designed to enhance motivation, knowledge, and decision-making

to engage the participants in the learning process. For the current study, we were interested in learning if participants made changes in behavior specifically related to using the adapted app-based intervention and what elements influenced the change (e.g., WORK IT strategy, health information, interactive curriculum, etc.).

Methods

Participant Interview Sample

Volunteer participants for the interviews were recruited from the main *StaySafe* study, which was implemented with adults on probation in three large county probation settings: two community probation offices and two

TABLE 3
Participant Characteristics

Gender male	47%
Hispanic	18%
White	47%
Black	41%
Race Other	12%
Self-reported primary substance use	
Stimulants (methamphetamine)	41%
Heroin or Opium	12%
Cocaine (powder)	6%
Marijuana	6%
Alcohol	6%
Ketamine/PCP	6%
None	6%
Unreported	17%
Education – highest grade completed	
7 – 9	12%
10 – 11	18%
12 or GED	29%
More than 12	41%
Marital Status	
Single	59%
Married	24%
Separated	18%
Number of children	
0	24%
1	29%
2 or more	47%
During the last 6 months in the community:	
Employed 35+ hours per week	35%
Received treatment for alcohol use	35%
Received treatment for drug use	53%

N = 17. Source: study intake survey

correctional residential substance abuse treatment centers. Researchers met at each of these locations to describe the main study research and administer informed consent. Those who were interested in participating completed baseline surveys before being randomly assigned to one of two conditions: the 12-session intervention or no intervention (treatment as usual) condition.

Participants received compensation in the form of payment made directly toward probation fees for completed study elements (e.g., \$10 for completing a session and \$20 for the interview). For the current study, a subset of participants (N=17) from one residential and one community probation program who completed a minimum of six tablet sessions were invited to meet with a researcher to provide feedback on their experiences with the intervention. Participation in the interview was voluntary, and each interviewee completed a new informed consent and media release form for the interview prior to scheduling the interview with a member of the research team. Table 3 shows characteristics of the interview participants: 53 percent were women, 41 percent reported stimulants (methamphetamine) as their primary drug, and 12 percent reported

heroin or opioid (three were unreported on the intake survey). The mean age was 34 and the number of *StaySafe* sessions completed ranged from 9 to 12 (M=11.7).

Qualitative Procedures

The TCU researcher met with each participant to complete the interview in a private, closed-door setting. Interviews were scheduled for 30 minutes; the average length was 19 minutes. The researcher asked each participant for verbal consent to record the interview (in addition to the written consent at the time of recruitment). To protect against issues with the equipment, two recorders were used and recordings were evaluated for quality for transcription purposes. The researcher conducted the interview from a set of 24 questions, mainly open-ended (see Table 4). Because we were interested in learning about specific parts of the app-based intervention, visual aids showing various elements in the app were also available during the interview. The audio recordings were transcribed by a professional transcript service. Transcripts were audio-proofed and de-identified by the research team prior to coding with Atlas.ti 6.2 software.

Qualitative Analytic Plan

Codebook development was accomplished with a 2-stage approach: Main codes were primarily based on themes in the interview questions, and secondary codes were determined through iterative review of the transcripts by two coders. A draft set of codes was tested on a subset of transcripts to refine code definitions and to evaluate coding agreement between the qualitative research team—a step aimed at enhancing the trustworthiness of the data. Researchers addressed coding disagreement with a consensus approach to debriefing on the final coded segment. Main and secondary coding for the qualitative dataset resulted in 969 quotes for analysis.

Results

The primary focus for this study (participants' use of WORK IT to make changes) launched our review of the data on examples of behavior change. Additionally, we were interested to hear from participants about their perception of the most important feature of *StaySafe*. Two distinct themes emerged in the feedback: components of the intervention that raised awareness and components that were used in problem-solving; themes that play an important role in behavior regulation (see Figure 1). The most prominent components—those that

participants indicated were “top take-aways”—grouped into either the decision-making strategy, WORK IT, or the *Health Information* provided throughout the intervention.

Theme: Awareness

During the course of the research project, we learned that participants who completed *StaySafe* were interested in how to access health information on the web and where to find more information on local HIV testing resources. During the interviews, many participants identified HIV health information as the most relevant component of the intervention, raising awareness about health risks.

“Just to be more cautious in life instead of just being carefree and not really thinking—thinking that I’ll never get it or like, ‘Oh, I can’t get that. Just what I do, it’s not going to affect me.’ Because now it’s just like, ‘whoa, I could have been affected.’ You know what I mean? Like I’m blessed that I didn’t get infected, just because of the lifestyle I was living. So [StaySafe] just opened my eyes to that.” [P15]

“I mean, it hasn’t made a change in my behaviors, but it’s made me open up to see that, you know—that there is a way you can go through, if you do have AIDS, or you know, if I ever chose not to use a condom and end up getting it or something, or going back to drugs or whatever.” [P13]

One of the key health messages in *StaySafe* is the importance of testing for HIV, which is incorporated multiple places in the sessions (e.g., in maze game questions, in videos, and in problem scenarios). The interviews provided evidence that the HIV testing message resonated with participants.

“Just you’ve really got to protect yourself and know your spouse or, what is it—your other half, I guess, and getting tested for sure.” “To wear condoms. To take protection for myself and really, you know, more than anything.” [P8]

“I guess the biggest thing I learned was that everyone should get tested frequently.” [P7]

For others, WORK IT raised awareness about ways to approach decisions with a

FIGURE 1

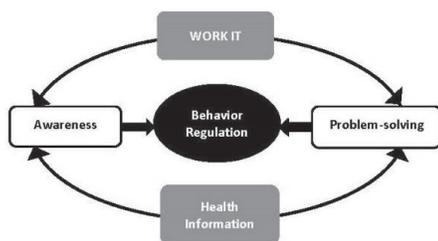


TABLE 4
Interview Guide – Sample Questions*

What was your overall feeling about using *StaySafe*?

Do you think WORK IT can be useful in your everyday life?

Can you give an example of using WORK IT to help you make a decision in your everyday life?

Has the information presented in *StaySafe* helped you to change some behaviors; if so, in what ways?

Do you plan to use information and techniques from *StaySafe* in the future and if so, in what ways?

What was the top thing you learned from the content in *StaySafe*?

*The complete guide contains 24 questions on *StaySafe* and 3 on using tablet technology

systematic method.

“I can identify what my problem is and have a game plan, like a little road map of how to get through it, instead of just taking it on and trying to solve that just big problem, breaking it into little problems to get to the solution would be fun.” [P3]

“StaySafe left us to basically—the whole program led to logical thinking. You know what I’m saying. That’s what I liked about it, logical thinking.” [P11]

The app-based intervention content, particularly the risk behaviors link to substance abuse, is consistent with substance use treatment, so it’s not surprising that some participants expressed a familiarity with the *StaySafe* intervention. In this way, the intervention has additive value in reinforcing treatment.

“I look at my options. I don’t have to go there. I don’t have to go to a bar. Because that’s dangerous territory for me. Because like I said before, it was my use of alcohol and going to clubs that I was introduced to HIV. And so I know to stay away from it. I’m implementing that in my life. So the answer is really simple once you make up your mind that’s what you’re going to do.” [P1]

Theme: Problem-Solving

Participants described examples of problem-solving with using WORK IT, and in some cases, the strategy was applied to issues other than health risk. Below, participants responded to a question asking if they had an opportunity to use what they have learned in *StaySafe*. Their replies suggest that WORK IT is an effective evidence-based strategy to facilitate self-regulation.

“Yeah, before I wouldn’t think. I just would go off on somebody, yeah. I mean, [WORK IT] helped me to think and go back and try to just calm myself down. Because if I stayed the way I used to be I probably would’ve already been back to County.” [P12]

“Arguing with a roommate over the bathroom and actually looking to see, is this a problem that I can handle now or

a problem that I can address later, after thinking through the solutions.” [P10]

“Yes, [WORK IT] definitely helped me be less impulsive when it comes to making decisions.” [P14]

HIV health information also played a major role in changing behavior for several participants, including the two interviewees below.

“We had a girl come into the [building] who was HIV positive and before I would’ve like not wanted to talk to her or be around her, but, you know, I became her friend and we’re pretty cool now. I feel like I acted that way towards her because of what I learned from StaySafe.” [P15]

“Yes, I’m definitely going to get tested. I’ve been tested, since I did StaySafe, I got tested here.” [P5]

Discussion

Interviews with 17 participants who completed an app-based intervention called *StaySafe* provided evidence that supports the use of the intervention in raising awareness about HIV health risk. It also was consistently described as facilitating behavioral change for individuals under community supervision. In fact, the health information component of the app-based intervention was associated with decisions to change behaviors related to reducing HIV risk and the need for HIV testing. In some cases, health information was new, and participants were enthusiastic to learn about options for care (e.g., pre-exposure prophylaxis or PrEP medication taken daily to lower the risk of contracting HIV). For others, health information dispelled myths about HIV, and participants appreciated the use of evidence-based sources to support the content. The WORK IT strategy component was also stated as instrumental to changing behaviors by several participants in relation to self-regulation with impulsivity and anger management. For those participants, WORK IT helped them to think through a problem in a logical, organized way—for some, reducing stress, and for others, reducing impulsive or angry responses. Participants received 12 sessions that provided an opportunity to practice WORK IT—important repetition designed to enhance recall of the steps outside of the

research setting. It is perhaps not surprising that participants generally did not offer examples of using WORK IT to problem-solve HIV risk situations, as the majority of the interviewees were housed in a county correctional residential treatment program in gender-segregated units. However, several participants in the residential setting described instances in their everyday interactions with others in which WORK IT helped them to think through conflict and decide on a different strategy for dealing with the situation rather than reacting negatively to it. Thus, the decision-making strategy generalized for the participants beyond health and HIV risks.

This study’s approach to qualitative data analysis identified patterns of responses rather than evaluating the frequency of certain codes in the data. The model (Figure 1) illustrates the relationship between Awareness and Problem-solving themes with two components (Health Information and WORK IT) that functioned as mechanisms for most participants in raising awareness about HIV and other health risks or facilitating a change in behavior. As Baumeister and Vonasch (2015) describe, behavior change involves self-awareness and a desire to change. This app-based intervention approach provides a strategy that can be applied to any number of situations where decisions have an impact on behavior, and importantly on behavior associated with an increased risk for HIV and other areas of health concern (Schüz et al., 2014).

Limitations

Most prominently, the majority of the interview participants were in a county correctional residential treatment setting with fewer opportunities to engage in risky behavior, although many of them recognized how *StaySafe* helped with making better daily decisions. We do not know how the intervention will impact their health behaviors after return to the community; however, our small community interview sample did provide insight on using it to change health and other behaviors. Even though the study took place in two different probation departments in large cities, they were located in a single state and may not generalize to other departments or locations.

Conclusions

Tablet-based interventions have the potential to provide an easily administered cost-effective way to present HIV health content in correctional settings. Because of the technology, intervention content can be updated to

keep health recommendations current and to provide resource information to community corrections settings. Further research is needed to gain a better understanding about the mechanisms by which app-based interventions such as *StaySafe* impact behavioral regulation long term.

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