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Computer-Tailored Intervention for Juvenile Offenders

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Abstract

Studies assessing the efficacy of juvenile justice interventions show small effects on recidivism and other outcomes. This paper describes the development of a prototype of a multimedia computer-tailored intervention (“Rise Above Your Situation” or RAYS) that relies on an evidence-based model of behavior change, the Transtheoretical Model, and expert system technology to deliver assessments, feedback, printed reports, and counselor reports with intervention ideas. In a feasibility test involving 60 system-involved youths and their counselors, evaluations of the program were favorable: 91.7% of youths agreed that the program could help them make positive changes, and 86.7% agreed that the program could give their counselor helpful information about them.

Keywords

Transtheoretical Model; stages of change; computer-tailored intervention; delinquency; substance abuse; juvenile offender; juvenile justice; *Rise Above Your Situation (RAYS)* program

In 2007, there were 2.2 million juvenile arrests in the United States. While juveniles between the ages of 10 and 17 represent 11% of the U.S. population, they account for 16% of all arrests for serious violent crimes and 26% of arrests for serious property crimes (Butts & Mears, 2011). Even with declines in juvenile crime since the mid-1990’s (Butts & Mears, 2011; Snyder & Sickmund, 2006), crimes committed by youths continue to impose enormous costs on: (a) victims, who experience tangible losses, pain, suffering, and reduction of quality of life; (b) society, which bears the expense of the criminal justice system and treatment for offenders; and (c) the juvenile offenders themselves, who lose wages, freedom, and opportunities for a better life (Cohen, 2000). When price tags are attached to those costs, the total value of preventing a single high-risk youth from resorting to a life of crime is \$3.5 to \$5.9 million (in 2007 dollars). This value increases to \$4.2 to

\$7.2 million for juveniles who would have become both heavy drug users and career criminals (Cohen & Piquero, 2007). Investment in effective treatment for young offenders is indeed money well spent.

There is considerable variability in effectiveness of programs for juvenile offenders. The magnitude of an intervention's effect can be represented by a standardized measure of effect size, such as Cohen's d , where d of .20 indicates a small effect, .50 a medium effect, and .80 a large effect (Cohen, 1988). In a meta-analysis of 134 studies regarding juvenile offender programs, Dowden and Andrews (1999b) found effect sizes ranging from $d = -.95$ to $+2.98$, with a mean effect size of .18¹, which is in the small range. To explain the variability across studies, they examined the extent to which outcomes were moderated by program adherence to four principles of effective corrections identified and validated in work with adult male and female offenders (Andrews et al., 1990; Dowden & Andrews, 1999a): (a) *social service*—Did the program provide any treatment, as opposed to only criminal sanctions? (b) *risk*—Did the program provide the most intensive services to the highest risk offenders? (c) *needs*—Did the program target needs, such as alcohol abuse, associated with increased likelihood of reoffending? and (d) *responsivity*—Did the program adapt the intervention to individual characteristics, such as strengths, motivations, preferences, personality, age, gender, and culture? The effect sizes associated with juvenile justice programs adhering to each of those four principles were $d = .26$, $d = .24$, $d = .45$, and $d = .49$, respectively (Dowden & Andrews, 1999b). Programs not adhering to those principles had effect sizes below $d = .10$.

Of the four principles of effective corrections, responsivity has received the least attention in the research literature (Birgden, 2004). There have been calls for increased attention and sensitivity to responsivity—and in particular to individual motivation or readiness to make positive changes (Birgden, 2004; Prochaska & Levesque, 2002; Serin & Kennedy, 1997; Slavet et al., 2006; Willoughby & Perry, 2002). Given the costs of crime and a sense of urgency, we often mandate offenders to treatment with the expectation that they benefit from it, ready or not. But only a minority of young offenders is ready. Legal pressure to attend treatment is often negatively associated with motivation (Battjes, Gordon, O'Grady, Kinlock, & Carswell, 2003; Broome, Joe, & Simpson, 2001). In one study, only 10% of justice-involved juveniles with substance abuse problems were willing to access treatment (Lennings, Kenny, & Nelson, 2006).

The Transtheoretical Model of Behavior Change

The Transtheoretical Model of Behavior Change (TTM) provides an empirically validated framework for matching interventions to readiness along the entire continuum of change. Research on the TTM over the past 30 years has found that behavior change involves progress through a series of stages: Precontemplation (not ready), Contemplation (getting ready), Preparation (ready), Action (making behavioral changes), and Maintenance (maintaining changes) (Prochaska & DiClemente, 1983). The model includes additional dimensions central to change:

- Decisional balance—the pros and cons associated with a behavior's consequences (Janis & Mann, 1977).
- Self-efficacy—confidence to make and sustain changes in difficult situations, and temptation to slip back into old patterns (Bandura, 1977).

¹Dowden and Andrews' (1999b) measure of effect size, Phi, has been converted to d to facilitate comparisons across studies. A separate review of five meta-analyses examining the effects of residential treatment for juvenile offenders found a mean effect size of $d = .17$ for recidivism and $d = .19$ across all outcomes (Grietens & Hellinckx, 2004).

- Processes of change—10 cognitive, affective, and behavioral activities that facilitate progress through the stages of change (Prochaska & DiClemente, 1985).
- Processes of resistance—activities that inhibit progress and increase the risk of relapse or regression (Levesque, Velicer, Castle, & Greene, 2008).

More than 30 years of research on the TTM have identified particular principles and processes of change that work best in each of the stages to facilitate progress. TTM stage-matched interventions have been found effective across dozens of behaviors and populations, including smoking cessation (Velicer, Prochaska, & Redding, 2006), domestic violence cessation (Levesque, Ciavatta, Castle, Prochaska, & Prochaska, in press), and bullying prevention (Evers, Prochaska, Van Marter, Johnson, & Prochaska, 2007). A meta-analysis of health interventions found that those tailored to the appropriate stage of change produced significantly greater effects than those that were not tailored to stage of change (Noar, Benac, & Harris, 2007). For juvenile offenders, interventions matched to readiness to change have the potential to increase efficiency in the use of scarce treatment resources, reduce program attrition, and improve program effectiveness (Andrews, 2008; Birgden, 2004; McMurran, 2002; Olver, Stockdale, & Wormith, 2011; Tubman, Wagner, Gil, & Pate, 2002).

Transportability

Along with the four principles of effective corrections, another factor that has been shown to moderate outcomes of juvenile treatment is intervention “transportability” to real-world settings. Meta-analyses show that juvenile offender programs delivered by the evaluator for research or demonstration purposes have significantly larger effects than programs delivered in the community (Curtis, Ronan, & Borduin, 2004; Lipsey, 2009; Petrosino & Soydan, 2005). This is a problem often observed when behavioral interventions are transported from highly controlled efficacy trials to the real world (Glasgow, Lichtenstein, & Marcus, 2003). For example, outcome studies assessing the efficacy of Multisystemic Therapy (MST) (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998) for high-risk youths found an average effect size of $d=.55$, which is impressive for the field. However, effect sizes have been significantly larger for programs overseen by MST developers (mean $d=.81$) than for programs that are community-based ($d=.26$) (Curtis, Ronan, & Borduin, 2004). Some agencies may lack the resources, administrative support, or expert oversight required to deliver this complex intervention with the level of program adherence required to achieve the outcomes found in researcher-led efficacy trials (Henggeler, 2004; Henggeler, Pickrel, & Brondino, 1999).

Efforts are under way to identify strategies for increasing adherence to evidence-based practices, such as improving training (Cucciare, Weingardt, & Villafranca, 2008; Henggeler, Pickrel, & Brondino, 1999; Miller, Yahne, Moyers, Martinez, & Pirritano, 2004), increasing supervision and monitoring (Martino, Ball, Nich, Frankforter, & Carroll, 2008), providing feedback on patient progress (Lambert, Harmon, Slade, Whipple, & Hawkins, 2005), and providing incentives to counselors (Andrzejewski, Kirby, Morral, & Iguchi, 2001). However, even under the best circumstances, counselors and other service providers may vary in their stage of readiness for adopting and maintaining new professional practices (Kratochwill, 2005; Levesque, Prochaska, & Prochaska, 1999; Prochaska, 2000).

Delivering evidence-based treatment in the real world is a challenge. In such an environment, computer-administered interventions offer several potential benefits: (a) They are low-cost; (b) They require relatively little staff time and training to administer; (c) They allow a high degree of tailoring; and (d) They can be delivered with high fidelity, following

preprogrammed decision rules. For those reasons, a majority of TTM-based interventions are delivered by computer or by computer-generated print materials.

Computer-delivered interventions first appeared in the late 1980s, and have been tested in dozens of clinical trials. Meta-analytic reviews of outcome studies suggest that computer-delivered interventions hold promise for the treatment of anxiety and depression (Cuijpers et al., 2009), for reducing college drinking (Carey, Scott-Sheldon, Elliot, Bolles, & Carey, 2009), and health behavior change (Krebs, Prochaska, & Rossi, 2010). However, only a few computer-delivered treatments have been tested among illicit substance users or among juvenile offenders. Studies examining the efficacy of computerized versions of two evidence-based, manualized interventions for the treatment of addiction—cognitive behavioral therapy (Campbell et al., 2012; Carroll, 1998; Carroll et al., 2008) and the community reinforcement plus vouchers approach (Bickel, Marsch, Buchhalter, & Badger, 2008; Budney & Higgins, 1998)—have yielded positive findings. Furthermore, a study that examined the effectiveness of a computerized version of an evidence-based, manualized intervention for HIV prevention among high-risk and court-involved youths suggests that computer-delivered programs may offer an effective, acceptable, and feasible approach to intervention for young offenders (Center for HIV Identification Prevention and Treatment Services, 1998; Lightfoot, Comulada, & Stover, 2007).

In the current study, we developed a prototype of a multimedia TTM-based computer-tailored intervention, titled *Rise Above Your Situation (RAYS)*, for juvenile offenders that delivered an interactive session and a printed report. The intervention also generated companion materials for counselors since juvenile offenders and substance abusers require adult assistance and support in navigating the change process in their often challenging environments, and research shows that human support can increase adherence to e-health interventions (Budney & Higgins, 1998; Christensen, Griffiths, & Farrer, 2009; Mohr, Cuijpers, & Lehman, 2011); and (c) The computer-generated intervention ideas provide step-by-step guidance and structure to reduce the barriers to counselor delivery of evidence-based treatment. The intervention addresses responsivity by delivering assessments and individualized guidance tailored to the stage of change and other dimensions of the TTM, and by allowing youths to identify the skills and goals they believe they most need to work on. It also addresses transportability by providing a low-cost approach to delivering evidence-based treatment with high fidelity by computer, and by providing easy-to-implement intervention ideas for counselors who can further support and facilitate change. In the pages that follow, we describe the development of our stage-based computer-tailored intervention, the results of a feasibility trial assessing the acceptability of the intervention to youths and their counselors, areas requiring improvement, and the next steps.

Development of the *Rise Above Your Situation (RAYS)* Program

The development of the *RAYS* program, which applied the TTM to a new area, was the result of multiple steps, including: (a) developing psychometrically sound and externally valid measures of the model's core constructs for the new behavior and/or population; (b) model testing to assess the applicability of the TTM to the new behavior and/or population by examining how well the TTM constructs and the established relationships between them characterize the process of change; (c) using the data to establish decision rules and cutoff scores to guide intervention development; (d) developing the TTM-based intervention; (e) assessing the feasibility of this intervention approach; (f) assessing the intervention's efficacy in a randomized clinical trial; and (g) disseminating the intervention. Based on data provided by over 350 juvenile offenders, steps (a) through (c), described elsewhere (Levesque et al., 2011; Levesque, 2011), provided the empirical foundation for this work.

Steps (d) and (e): developing and assessing the TTM-based intervention are presented in the remainder of this paper. Steps (f) and (g) are to be completed in the future.

At the outset, we decided that the program would target both criminal behavior and substance use, given the reciprocal relationship between those two behaviors (Bukstein, 1996; Mulvey, Schubert, & Chassin, 2010). Intervention development identified best practices for interventions with juvenile offenders and substance abusers, matching those practices to the TTM processes and principles of change, and organizing them within the stage framework provided by data-based decision rules (Levesque, 2011). To identify best practices, we examined program guides for six empirically supported programs (Degnan, 2007; Godley et al., 2001; Goldstein, Glick, & Gibbs, 1998; Hossfeld & Taormina, 1997; Sampl & Kadden, 2001; Sussman, Craig, & Moss, 2004), conducted interviews with six experts on juvenile offenders and adolescent substance abuse, and relied on the Office of Juvenile Justice and Delinquency Prevention's (1998) recommendations for intervention. During the review, we found significant overlap between best practices for intervening with juvenile offenders and substance abusers. Therefore, we decided that the intervention would select only one of these behaviors for the full TTM intervention in order to avoid redundancy, but would provide feedback on the secondary behavior and address the reciprocal relationship between criminal behavior and substance use throughout. Substance abuse was given the priority for intervention, as delinquent behavior may be more likely to be time limited (Dembo, Wareham, & Schmeidler, 2007). The best practices for cessation of alcohol and drug use and staying out of trouble (e.g., thinking about the benefits of making positive changes, increasing social support, increasing pro-social activities, planning ahead for tempting situations), organized around the stages of change, were the bases of the intervention design. Reliance on best practices also helped to ensure that the intervention content would resonate with other types of treatment the youths might also receive. For all but the lowest-risk youths, we envision the *Rise Above Your Situation (RAYS)* program (described below) as an adjunct to usual care, rather than a stand-alone intervention.

Draft content for the intervention was reviewed by content experts and by consultants knowledgeable about the TTM. A cultural sensitivity expert, trained and certified by the Anti-Defamation League, ensured that the content was sensitive to cultural differences, gender neutral, and free of ageism, racism, and cultural stereotypes and assumptions. In addition, three focus groups with a total of 28 court- and/or substance-involved youths provided feedback on draft content and images, voice talent, and program flow.

A prototype of the *RAYS* multimedia intervention was programmed, tested, and debugged. An expert system software program, called TTMX (Transtheoretical Model Expert), administers the assessments, scores them, and follows programmed decision rules to deliver individualized feedback and guidance efficiently, cost-effectively, and with perfect fidelity. TTMX uses Java Servlets, runs in a simple web browser, and is compatible with a variety of back-end databases, including SQL Server, Access, and Oracle, for storage of participant responses.

The basic program flow is: (a) baseline assessment; (b) substance abuse screening; (c) for youths who screen positive for substance abuse, detailed assessment of substance use and assignment to the Substance Abuse Track (which focuses on giving up the use of alcohol and drugs); for youths who screen negative for substance abuse, assignment to the Criminal Behavior Track (which focuses on staying out of trouble); (d) within each track, based on assessment data, feedback is offered on the problems caused by substance use and/or criminal behavior, on the stage of change, and the pros and cons of changing the target behavior; (e) assessment and feedback on stage-matched processes of change; (f) if stage-appropriate, assessment and feedback on processes of resistance and self-efficacy; (g)

assessment and feedback on global effort to stop using substances or stay out of trouble; (h) assessment and feedback on skills and activities participants think they most need to abstain from substances or stay out of trouble; (i) selection of goals to work on during the next month, and assistance developing an implementation plan for each goal. Throughout the session, youths are reminded that their counselor will be able to print out their report, so the two of them can talk about the issues and ideas covered in the online session.

At the end of the session, the program prints a participant report that includes all of the feedback received during the session, along with additional information and activities, much like an individualized workbook. The intervention also generates a “counselor report” that, for each program component, summarizes assessment results and provides a bulleted list of ideas for reinforcing stage-matched principles and processes of change and for assisting with goal implementation (Gollwitzer, 1999).

The *RAYS* prototype is comprised of over 500 text files, 500 audio files, and 250 image files. Corresponding sets of paragraphs were also developed for the printed feedback reports for youths, and the printed reports for counselors. The Flesch-Kincaid reading level for the text feedback for youths was grade 5.0. Sample screenshots from the computerized intervention are presented in Figure 1 in the Appendix.

Next, a feasibility trial was conducted to determine whether: (a) the intervention could be delivered to court- and system-involved youths in a variety of programs and settings; (b) whether the intervention was perceived as acceptable and useful by youths; and (c) whether the intervention materials were perceived as helpful by counselors.

Method

Participants

Pilot test participants were recruited from six agencies and organizations throughout the United States, including a juvenile probation department in California, three social service agencies and a private practice providing court-mandated substance abuse or mental health counseling to youths in Texas, Ohio, and California, a community center serving high-risk youths in Massachusetts, and a group home for high-risk youths in Ohio. Agencies were asked to identify one or two counselors who would recruit a total of 10 participants and who for each participant would: (a) attain parental consent; (b) administer the online intervention session; (c) help the youths print the participant report at the end of the online session; (d) review the participant and counselor reports; and (e) complete a brief survey assessing the helpfulness of the intervention materials. In addition, counselors were asked to conduct one-on-one sessions with a minimum of two youths to discuss the reports, and to participate in a debriefing interview with the study’s principal investigator. Four agencies identified one counselor to complete those tasks, and two agencies identified two counselors. Before the launch of the pilot, counselors were provided access to a 4-hour online training on the TTM, completed an online *RAYS* session to obtain a sense of the user experience and become familiar with the format and structure of the printed reports, and spoke with the principal investigator on the telephone in order to discuss the intervention approach and the pilot test.

Five of six agencies met or exceeded their stated recruitment goals within 1 to 16 days, with the remaining agency recruiting only three youths. The intervention was successfully delivered to 60 of 61 pilot test participants (98.4%), demonstrating feasibility. According to the agency contact, the single youth who did not complete the session was “experiencing other psychological issues and probably wasn’t an ideal candidate for the research.”

The 60 program completers ranged in age from 13 to 19, with a mean age of 16.2 years. Eighty percent of the sample was 17 or younger; 76.7% were male; 5.0% were White non-Hispanic, 30.0% Black non-Hispanic, 53.3% Hispanic, and 11.7% “other,” multiracial, or unknown. Thirty percent had been in jail, prison, or juvenile detention in the past six months, but none were incarcerated currently; 45.0% were currently on probation, and 10.0% were currently in a residential treatment program. Based on data from the counselor evaluations, described below, counselors had worked with participants from 0 to 60 months, with a mean of 8 months and a median of 1 to 2 months. Counselors reported that sessions took up to 60 minutes to complete for youths assigned to the Substance Abuse Track, and up to 45 minutes for youths assigned to the Criminal Behavior Track. Following the program decision rules, 66.7% of participants were assigned to the Substance Abuse Track of the *RAYS* program, and 33.3% were assigned to the Criminal Behavior Track.

Measures and Procedure

Youth ratings—In the final section of the *RAYS* online session, pilot participants were asked to rate the program on 10 positive dimensions, with 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Four open ended questions asked what youths liked least and most about the program, how the program could be improved, and how they felt about their counselor receiving the report.

Counselor ratings—Following the online sessions, counselors were asked to review the participant and counselor reports and, for each participant, to complete and return a paper-pencil evaluation assessing the nature of the relationship. Separate questions assessed the helpfulness of two types of information presented in the counselor reports: (a) the assessment results; and (b) the intervention ideas. Response options were 1 = Not helpful at all, 2 = A little helpful, 3 = Helpful, 4 = Very helpful. Counselors were also asked whether they planned to discuss the feedback with the client, what the counselor liked least and most about the materials, and how the program could be improved.

Finally, the principal investigator interviewed counselors ($N = 7$) who completed a minimum of two evaluations, to discuss their overall responses to the program and their experiences delivering the one-on-one counseling sessions using the materials.

Results

Youth Ratings

Table 1 presents the 10 acceptability statements included in the evaluation, and the percentage of youths giving each response. For example, over 90% of participants agreed or strongly agreed with the statement that the program gave them new things to think about, and the statement that the program could help them make positive changes.

In response to the open-ended question, “What did you like least about the program?” 34.4% of participants responded “nothing” or made a positive statement (e.g., “I liked everything about it”); 34.4% responded that there were too many questions or that the session was too long; 11.5% commented on some other aspect of the questions (e.g., “Some of the questions were hard to understand at first”); and 4.9% responded “not sure” or “I don’t know.” Youths assigned to the Substance Abuse Track were more likely than youths assigned to the Criminal Behavior Track to state that there were too many questions or that the session was too long (45.0% vs. 15.0%, respectively, $\chi^2(N = 60) = 5.3, p = .025$), perhaps because they completed several additional measures in the baseline assessment.

In response to the open-ended question, “What did you like most about the program?” 36.1% commented that the program helped open their minds or provided helpful feedback, advice, or information; 18.0% responded “nothing” or made a negative comment about the program (e.g., “time consuming”); 14.8% said that they liked “everything” about the program; and 9.8% said they liked the questions.

In response to the question, “How could we improve this program?” 41.0% said “not sure,” “nothing,” or that the program was fine the way it was; 23.3% suggested that we make the session shorter; and 11.5% suggested ways to improve the user experience (e.g., “games,” “add videos,” “maybe music in the background”). In response to the final question, “How do you feel about your counselor getting your report?” 49.2% said they were “okay” with it; 23.0% expressed positive thoughts or feelings about it (e.g., “I feel confident and for some reason excited”); 19.7% said “not sure” or “nothing”; and 8.2% said they did not like the thought of their counselor obtaining their report.

Counselor Ratings

A total of eight counselors participated in the feasibility trial. A majority (62.5%) were female; 37.5% were White non-Hispanic, 12.5% Black non-Hispanic, and 50.0% Hispanic. Counselor roles included: court-ordered therapist, substance abuse counselor, probation officer, probation officer-diversion, life skills counselor, and youth worker. Counselor evaluations were received for all 60 pilot test participants. In 15% of the evaluations, counselors reported that they did not know the client at all, 45.0% knew the client a little, 30.0% knew the client pretty well, and 10.0% knew the client very well. Counselors had already discussed the *RAYS* session and feedback with 56.7% of study participants, planned to discuss them with another 33.3%, and had no plans to discuss them with 10.0%.

Table 2 presents the two statements included in the counselor evaluation, and the percentage of evaluation forms with each response. In response to the open-ended question, “What did you like most about the *RAYS* Counselor Report for this client?” 45.0% of counselor evaluations mentioned that the report provided new information or insight (e.g., “I found out a lot more information than what was originally disclosed,”); 30.0% said the intervention ideas were helpful (e.g., “It gave me some new ideas and approaches to working with this client,”); 11.7% said that it provided a framework or context for therapeutic intervention (“It gives me a very good outline to follow when working with this client”), and 11.7% listed no response.

In response to the question, “What did you like least about the *RAYS* Counselor Report for this client?” 77.6% of evaluations listed no response or said the report was fine the way it was; 13.3% identified additional information or topics that should be addressed (e.g., “no detailed intervention for anger issues”); and 8.3% mentioned that the youths may not be ready to participate in the intervention (e.g., “homework assignments client—not ready to complete them”).

In response to the question, “How can these program materials be improved?” 48.4% of evaluations listed no response, said “not sure,” or made a positive comment; 21.7% suggested the inclusion of additional tools or information (e.g., “Maybe provide a blank graph of the stages of change in order for the client to keep track of his or her progress”); 8.3% suggested changes to specific questions (e.g., “did not understand the highest grade level completed,”); and 6.7% said the session was too long (e.g., “Length of the time on the computer should be shortened”).

Finally, the principal investigator interviewed seven counselors who completed a minimum of two evaluations in order to discuss their overall responses to the program and their

experiences delivering the one-on-one counseling sessions using the materials. Emerging from the interviews were the following recurring themes regarding the program's strengths and areas needing improvement:

Strengths

1. **The youths' personal reports facilitated communication and connection.** During the online sessions, youths provided a great deal of personal information that they knew would be shared with their counselors. The reports put a number of important topics on the table for discussion—topics counselors might not have considered or felt comfortable addressing otherwise. Counselors also learned about youths' personal goals, providing more opportunities for engagement and collaboration.
2. **The reports helped to diffuse tension and conflict.** Youths and counselors could collaborate in interpreting, clarifying, and expounding upon the information in the reports, and on answering follow-up questions presented in the reports. They could also collaborate in following through with recommended intervention ideas. For example, one intervention idea for a Precontemplator in the Substance Abuse Track is to utilize NIAAA resources to learn more about the effects of alcohol and drugs. The counselor said, "We did it together, discovered the info together. Because the report said to do it, it took the argument out of it."
3. **The program is theory- and evidence-based.** Counselors reported: "It's refreshing to have a straight-forward tool instead of pulling something out of a hat"; "I was not proactive in participating in this research—but ended up seeing, especially after discussing reports with the youth, the more you look at this, the more material you have, and the more ammunition you have in your work with youth"; and "Counselors tend to overuse certain techniques, such as time outs; this program introduced new ones."

Areas Requiring Improvement

1. **Provide more information and resources.** Counselors recommended that the intervention website include links to helpful websites, handouts, worksheets, and journaling activities on specific topics (e.g., anger management, dealing with withdrawal, dual diagnosis, and trauma) to help them and the youths follow through with intervention ideas.
2. **Reduce session length for the Substance Abuse Track.** Although some youths and counselors recommended shorter sessions, counselors unanimously agreed that the substance abuse measures yielded important information that they did not want to give up.
3. **Provide additional guidance on how to address clinical issues and how to prioritize topics for discussion.** Some counselors wanted guidance regarding whether they should address important topics that were uncovered in the reports, but not specifically mentioned in the intervention ideas. Others wanted to know how to prioritize topics for discussion, since they would rarely have time to address all intervention components in the reports. For example, given the link between trauma, substance abuse, and response to substance abuse treatment (Williams, Smith, An, & Hall, 2008), the intervention should stress the importance of addressing trauma and of delivering or making referrals to trauma-informed care.

Discussion

We developed and tested the feasibility of a multimedia computer-tailored intervention, *Rise Above Your Situation (RAYS)*, which adheres to the responsivity principle and addresses some of the barriers to transporting evidence-based practices to real-world settings. The strengths of this approach include its theoretical foundation in an empirically supported model of individual behavior change, the Transtheoretical Model (TTM), its reliance on decision rules based on data provided by over 350 juvenile offenders and substance abusers, and reliance on expert system technology that can ensure adherence to the theory and evidence-based decision rules. The result is a stage-matched intervention designed to help juvenile offenders make progress at each stage of change. The addition of counselor support, guided by program-generated feedback and intervention ideas, is likely to increase the impact of the intervention. The feasibility test demonstrated that the intervention could be delivered to court- and system-involved youths in a variety of programs and settings and that the intervention materials were perceived as acceptable and useful by youths and their counselors. The feasibility test also identified a number of enhancements that might increase the intervention's impact among youths and its utilization by service providers. A major limitation of this study is that it provides no information on the efficacy of this approach to intervention with juvenile offenders.

We have received research funding to move to the next phase of this research. This involves completing development of the intervention package, and testing its efficacy in a randomized clinical trial involving 1000 youths and 50 probation counselors randomly assigned to usual care or usual care + *RAYS*. The *RAYS* intervention package will be comprised of three computer-delivered sessions. Follow-up sessions will include the same types of TTM assessments and feedback delivered in the computer-tailored intervention session described above, but will also include feedback on how the participant has changed on key dimensions since the last session. The follow-up interventions will also assess whether participants achieved self-selected goals. Because this population is known for its high levels of sensation-seeking and need for stimulation (Robbins & Bryan, 2004), we will seek to increase engagement and retention by increasing the "sensation value" of the intervention session for youths (e.g., via the use of flash animation and videos of personal testimonials with quick camera cuts, unusual camera angles, and zooms). Research shows that high sensation seekers are more likely to attend to, recall, remember, and display behavior change in response to anti-drug public service announcements with high sensation value that meet their need for arousal (Everett & Palmgreen, 1995; Palmgreen, Lorch, Stephenson, Hoyle, & Donohew, 2007). To address the complaint that the substance abuse module is too lengthy, we will abbreviate measures where possible, and stress that follow-up sessions will be shorter in length—about 30 minutes—as they will exclude several baseline and screening measures.

In response to counselors' request for additional resources that could help them and the youths follow through with intervention ideas, we will compile a list of high-quality websites, and create PDFs of printable information sheets, worksheets, and journaling activities that can be accessed via the counselor website to support implementation of stage-matched interventions. Websites and printed materials will address such topics as anger management, the effects of marijuana on the developing brain, the relationship between depression, criminal behavior, and substance abuse, and how to recognize and deal with withdrawal.

The intervention package will also include a number of enhancements designed to reduce barriers to counselors' delivery of the one-on-one sessions. The first enhancement will be to deliver computer-based training that provides an overview of the TTM and this intervention,

and also provides: (a) demonstration videos; (b) quizzes to test counselor knowledge; (c) options about how the materials and ideas can be integrated into ongoing clinical work; (d) a set of measureable, minimum standards regarding what content from the reports should be discussed during the one-on-one sessions with some “do’s and don’ts” of using a stage approach; (e) strategies for discussing youths’ responses that may have been less than truthful; and (f) instructions for allowing a youth to retake a session. In addition, the online training materials will include assessments and feedback on the counselor’s stage of change for using a stage approach to treatment, and stage-matched guidance to increase counselor readiness. We will also develop a 6-hour in-person training that will include a review of the e-learning content and demonstrations of the *RAYS* program (3 hours), as well as role-playing (3 hours). Finally, we will develop a protocol for certifying counselors. They will be provided with sample participant and counselor reports, and will be asked to role-play a counselor in a mock session on the telephone. Counselors assigned to the “treatment condition” will be certified before the launch of the clinical trial, and re-certified every three months during the intervention period.

If the *RAYS* intervention program is shown to be effective in the randomized trial, it represents an intervention that is responsive to an individual’s stage of change. Reliance on web-based technology helps to ensure that the computer-tailored intervention sessions can be administered to youths with high-fidelity and at low cost.

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APPENDIX

FIGURE 1.
Screen Shots from RAYS Intervention

TABLE 1Youths' Ratings of the *Rise Above Your Situation* Online Session ($N=60$)

Acceptability Dimensions	Strongly disagree (1)	Disagree (2)	Agree (3)	Strongly agree (4)
	Percent			
The program was easy to use	5.0	5.0	50.0	40.0
The questions were easy to understand	5.0	5.0	51.7	38.3
The personal feedback was easy to understand	5.0	5.0	48.3	41.7
I like the way the program looked	5.0	15.0	50.0	30.0
The program was designed for people my age	10.0	10.0	45.0	35.0
The program gave me new things to think about	5.0	1.7	51.7	41.7
The program could help me make some positive changes	5.0	3.3	50.0	41.7
The program can give my counselor helpful information about me	8.3	5.0	51.7	35.0
I would be willing to use this program again	10.0	13.3	46.7	30.0
I know someone else who could benefit from this program	8.3	15.0	38.8	38.8

TABLE 2

The 8 Counselors' Ratings of the *Rise Above Your Situation* Counselor Materials for Each of Their Clients ($N=60$)

Helpfulness Dimensions	Not at all helpful (1)	A little helpful (2)	Helpful (3)	Very helpful (4)
	Percent			
How helpful did you find the assessment results summarized in the Counselor Report and Participant Report (including the charts)?	1.7	13.3	41.7	43.3
How helpful did you find the intervention ideas summarized in the Counselor Report?	1.7	10.0	55.0	33.3