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Technology in Treatment: Are Adolescents and Counselors Interested in Online Relapse Prevention?

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Abstract

BACKGROUND—Approximately 75% of adolescents who receive substance abuse treatment relapse within one year; therefore, it is important to have effective, easily accessible aftercare resources to support them while they are in recovery.

OBJECTIVE—The goal of this study was twofold: 1) to find out from adolescents and counselors if an online relapse prevention program was feasible and of interest and 2) to solicit ideas for content for this program regarding peer relationships during early recovery.

METHODS—Sixteen counselors were interviewed about peer relationship-related content and features this program should include then asked to sort and rate the responses using an online concept mapping program. The development of an interactive prototype of the proposed program was informed by these results. This prototype was shown to the 16 counselors and 24 adolescents in substance abuse treatment ($M_{age}=15.8$ years) for feedback. Then the adolescents participated in focus groups in which they discussed their use of technology and peer relationship-related challenges in recovery.

RESULTS—The concepts that were rated highest by counselors were Setting Boundaries in Peer Relationships ($M=4.38$), How to Follow Through with Decisions ($M=4.23$), and Figuring Out What You Really Want ($M=4.18$). Pre-established criteria for satisfaction were exceeded with both adolescents ($M=84\%$) and counselors ($M=86\%$). In the focus groups, adolescents said that they would be interested in using technology to meet challenges in recovery.

CONCLUSIONS—The online relapse prevention program concept has feasibility according to these key stakeholders.

Keywords

relapse prevention; adolescents; substance abuse; Internet

According to the 2003–2004 National Survey on Drug Use and Health data (Office of Applied Studies, 2006), only 7.2% of the adolescents who needed alcohol treatment received it (111,000 out of 1.5 million) and only 9.1% of the adolescents who needed drug treatment received it (124,000 out of 1.4 million adolescents). Of those adolescents who receive substance abuse treatment, generally 75% relapse within one year (Drug Strategies, 2003).

Relapse can be precipitated by a wide range of psychosocial issues in a person's life, including but not limited to: poor coping strategies (e.g., wishful thinking; Myers, Brown, & Mott, 1993), depression (Cornelius et al., 2003), family conflict, drug users within one's peer network (Godley, Kahn, Dennis, Godley, & Funk, 2005). Aftercare is associated with

positive outcomes (Godley, Godley, Dennis, Funk, & Passetti, 2002; Latimer, Newcomb, Winters, & Stinchfield, 2000), that can help adolescents develop the skills they need to remain sober. For example, a team of researchers at UConn has conducted randomized clinical trials that have indicated that active aftercare interventions (e.g., in-person, telephone) were associated with less alcohol use relapse than a non-active aftercare condition (Burleson, Kaminer, & Burke, 2011; Kaminer, Burleson, & Burke, 2008).

Typically, treatment providers refer adolescents to Alcoholics Anonymous (AA) and/or Narcotics Anonymous (NA) support groups for aftercare support. These self-run community support groups are a core element of recovery in the 12 Step Model (Nowinski, Baker, & Carroll, 1995). A review by Kelly and Myers (2007) highlighted benefits and barriers to adolescent participation in these groups. Their participation is facilitated by cost (i.e., free to attend), anonymity (i.e., not required to disclose personal information), wide availability of support options (i.e., many meetings at many times in many places), and contact with individuals who support abstinence, including a sponsor, if desired. Barriers to their participation include transportation to the meetings, as well as discrepancies in age, motivation, drug use severity, and acceptance of spirituality focus compared to the adult participants. Although 12 Step groups provide extremely important opportunities to reinforce relapse prevention skills, they are primarily tailored towards adults in recovery. A possible alternative is to provide a psycho-social educational resource geared specifically towards adolescents in a manner that is engaging to them and where they can access it without issues of transportation: the Internet.

The Internet is an integral part of most American adolescents' lives. The Pew Internet survey from September 2009 indicates that 93% of teens between the ages of 12–17 use the Internet (Lenhart, Purcell, Smith, & Zickuhr, 2010). Access to the Internet is available to adolescents in numerous places and 93% of the students that are online are accessing the Internet at multiple points (Lenhart, 2007). The National Center for Educational Statistics (NCES) reports that in the fall of 2005 nearly 100% of schools had Internet access, including access in 94% of public school instructional rooms (NCES, 2007). Eighty-five percent of online teens access the Internet weekly, with 51% of those going online at least once daily to a) use social networking Web sites (55%), b) create content for the Internet (57%), and/or c) complete schoolwork (94%) (Lenhart, 2007).

A technology-based approach shows promise as an easily accessible and cost-effective aftercare option to engage adolescents and continue to teach them the skills they need to prevent relapse. Feasibility of the concept of an online relapse prevention program for adolescents was tested in two separate studies involving two key stakeholder groups: adolescent substance abuse counselors and adolescent clients in treatment. These exploratory studies focused primarily on relapse among adolescents and the specific struggles they face with peer relationships during aftercare because there is a wealth of literature about the powerful influence of peers on adolescents (e.g., Dishion & Tipsord, 2011). Qualitative methods were used in these exploratory studies: interviews, focus groups, and Concept Mapping (Trochim, 1989) – a process which permits quantitative analysis of qualitative data, such as interviews, using cluster mapping techniques. These procedures were chosen to provide an inductive approach to the conceptualization of this proposed program. In addition, we collected descriptive data about participants' reactions to a pilot demonstration program for evaluation purposes.

Study 1 with Adolescent Substance Abuse Counselors

Method

Participants—Sixteen adolescent substance abuse counselors were recruited through substance abuse treatment centers and professional contacts. Inclusion criteria for substance abuse counselor participation were: a) working with adolescents, b) age 18 or older, and c) able to read and write English. After being screened for eligibility, these counselors were consented into the study.

Eight males and eight females participated. Of these 16 participants, four of them identified with being a minority; all of the other participants were Caucasian. They had between three and 21 years of clinical experience ($M = 12.32$, $SD = 5.86$) and performed between 25% and 100% clinical time per week ($M = 56.25$, $SD = 50.96$). See additional demographic information for these participants in Table 1.

Participants were asked to complete three tasks; 1) a one hour telephone interview, 2) online sorting and rating tasks (i.e., Concept Mapping) tasks, and 3) a satisfaction questionnaire. Participants were paid \$100 for participating in each task. Fifteen of the 16 substance abuse counselors that participated in the interview task participated in satisfaction testing.

All study procedures were approved by an Institutional Review Board prior to implementation. Of note, all research team members are employees of Inflexxion, Inc. in Newton, MA., which received a Small Business Innovation Research (SBIR) grant from the National Institutes of Drug Abuse (NIDA) to conduct this project (NIDA-NIH # 1R43DA026645-01 (PI: K. J. Trudeau)).

Procedures

Interviews with substance abuse counselors: The research team conducted one-hour structured telephone interviews with 16 adolescent substance abuse counselors that were transcribed by a note taker. The interview protocol included: (1) a description of the goal of proposed program to provide relapse prevention tools to adolescents in early recovery; (2) discussion of barriers to aftercare, as well as (3) the elicitation of statements in response to a focus prompt: “To help these adolescent clients with peer relationship issues in early recovery, the most important types of information this Web site can offer are...” Topics one and two in the interviews were rated thematically; i.e., the responses for each question were combined into like categories then summed across category within question to derive specific percentages. Statements derived during topic three were used as follows: The research team combined the statement lists and removed statements that were redundant or too general or specific. Then we added a few statements based on interview results and the research literature. The final list included 79 unique statements. See examples of these statements in Table 2.

Concept Mapping with substance abuse counselors: Participants were sent a link to an online Concept Mapping program (Concept Systems, 2007). Participants were instructed to sort the statements into individual categories in a way that made sense to them. After sorting, participants were asked to rate all statements on a five point scale in regard to their perceived importance for inclusion in the proposed program (i.e., 1 = “Not important” through 5 = “Extremely important”). These results would be used to inform the content and features in a prototype of the “Peer Relationships” section of the online adolescent relapse prevention program. The time frame between Concept Mapping and satisfaction testing was approximately four months.

Satisfaction testing: Participants were sent a link to a prototype of the proposed program. After the participants viewed the prototype they were directed to an example of a skill-building activity that will be included in the online program. Finally, participants were directed to a 27-item, online Satisfaction Questionnaire that included questions about: (1) proposed Web site features, (2) proposed administrative features on the Web site, and (3) whether they believed the content would be easy for adolescents to understand. These questions were developed by the researchers to evaluate the content and features of the prototype and lesson. Each participant was presented with a question and related response options on a 7-point scale (e.g., 1= Didn't like it at all through 7=Liked it a lot). For example, "How much did you like the process of setting a goal?" The scale alpha was .92.

Results

Interviews—All of the counselors indicated that they liked the concept of an online relapse prevention program. They said they would use the following methods of integrating an online program into treatment: in group sessions or individually with their clients (69%) and/or as homework (31%). When asked if they thought adolescents would continue to use the program after treatment, all but one of the counselors said yes. The reasons they provided for continued adolescent use included: program features that adolescents find interesting and engaging (60%); an adolescent client's motivation to recover (27%); and including the program as part of treatment (20%). Features that counselors suggested to help maintain adolescent interest in an online relapse prevention program included: an online community (63%); interactive activities (25%); and peer stories (25%).

Concept Mapping—The rating and sorting data for the 79 statements were analyzed using Concept Mapping (Concept Systems, 2007). [See Trochim (1989) for a description of how multidimensional scaling and cluster analysis techniques are used to create concept maps.] Each statement is represented as a separate point on a "map." Points that are closer on the map are statements that were sorted together more frequently by participants. The Concept Systems program organizes the statements that were sorted together into individual clusters. Concept maps showing the data organized into five to nine cluster models were reviewed. The eight-cluster map provided the most meaningful categorization and prioritization of content (see Figure 1).

Each cluster has from one to five layers, where the number of layers represents the average importance rating of items in the cluster. Examination of the concept mapping results permitted the research team to view the concepts or domains of information identified by the participants and the relative importance attributed to the domains and their component statements. Each of the following clusters, listed from highest to lowest overall mean, suggested a potential skill-building activity to include within the program: Setting Boundaries in Peer Relationships ($M = 4.38$, $SD = 0.33$, 9 statements total), How to Follow Through with Decisions ($M = 4.23$, $SD = 0.61$, 12 statements total), Figuring Out What You Really Want ($M = 4.18$, $SD = 0.46$, 7 statements total), How to Achieve and Maintain Healthy Relationships ($M = 4.06$, $SD = 0.36$, 12 statements total), Working with a Counselor or Sponsor ($M = 4.01$, $SD = 0.42$, 9 statements total), Health Education ($M = 3.73$, $SD = 0.40$, 5 statements total), and Developing Peer Support for Recovery ($M = 3.97$, $SD = 0.38$, 12 statements total). The cluster titled Educational Activities ($M = 3.68$, $SD = 0.42$, 13 statements total) focused primarily on technological features rather than specific content to include on the site. The top three statements per cluster are listed in Table 2.

Satisfaction testing—We exceeded our pre-established criteria for satisfaction (i.e., 80%): An average of 86% of the adolescent substance abuse counselors rated their satisfaction with the program prototype between 5 and 7 on a 7-point scale (e.g., 1= Didn't

like it at all through 7=Liked it a lot) on the Satisfaction Questionnaire. In addition, almost 93% of the items in the questionnaire received a mean of 5 or better (overall $M = 5.75$) and their overall opinion of the program concept was high ($M = 6.47$, $SD = 0.83$).

Features and design: The highest rated items in the questionnaire were regarding their anticipated use of the Counselor Resources page with the customized map of treatment and/or referral resources ($M = 6.53$, $SD = 0.83$), and the anticipated helpfulness of the Community feature ($M = 6.40$, $SD = 0.83$). In addition to the Community feature, four other features received means of 6.0 or above: Goal-setting ($M = 6.26$, $SD = .0.80$), Journal ($M = 6.20$, $SD = 0.86$), mini-assessment at client log in ($M = 6.13$, $SD = 1.06$), and the MY SOS homepage (i.e., an engaging and informative page that provided a summary of client activity in the program; $M = 6.13$, $SD = 1.06$). Fourteen of the 15 counselors rated the interactive skill-building activities between 5 and 7 on the scale of 1 through 7 ($M = 5.80$, $SD = 1.32$). See Figure 2 for a description of each proposed feature.

Expected client use: Substance abuse counselors reported that their clients would be likely to use an online program like the one proposed in the prototype they viewed ($M = 5.67$, $SD = 0.98$). Although almost half of the respondents said that access to computers was a potential barrier to use, they also said that clients would likely use this type of online program at home (87%), or at the treatment center (67%), or another location (e.g., school, library, outreach program, cell phones; 27%). The substance abuse counselors indicated that it was likely that the opportunity to use the Community feature ($M = 5.40$, $SD = 1.06$) and the Music feature ($M = 5.07$, $SD = 1.44$) will increase clients' motivation to return to the program.

Expected consequences of client use: Substance abuse counselors indicated that the type of online relapse prevention program presented in the prototype is likely (i.e., 5.00+ on 7-point scale) to enhance counselors' relationship with clients ($M = 5.80$, $SD = 1.08$), improve treatment outcomes ($M = 5.80$, $SD = 0.94$), enhance the types of referrals counselors' make for their clients ($M = 5.73$, $SD = 1.62$), and help clients become more engaged in treatment ($M = 5.80$, $SD = 0.94$). They also reported that the community feature would be very helpful ($M = 6.40$, $SD = 0.83$) for their clients to build new, positive social networks.

We also asked about potential negative consequences of use to facilitate our understanding of clinicians' concerns so that we could try to address them during program development. Although 67% of the respondents (11/16) reported there could be unintended adverse consequences from clients using the program, each counselor provided a different potential consequence. For example, one said teens may share information about using or experiences with drugs, and one said that teens may share inappropriate photos of themselves. Another said that overuse of the Internet could impact relationships.

Expected counselor use: Substance abuse counselors indicated that they would be likely to use this type of program as a supplement for treatment ($M = 5.53$, $SD = 1.41$) but 27% expressed concern that that counselor training on the program would be time-consuming. Therefore, the program would have to be designed to be intuitive and user-friendly for counselors, as well as for clients.

Features desired by substance abuse counselors included: 1) to both receive messages from and send messages to their clients (87%) and b) to be able to manage tasks (e.g., assign skill building activities) for clients one at a time (87%), all clients at once (67%), and/or a specific group of clients (67%).

Study 2 with Adolescent Substance Abuse Clients

Method

Participants—Twenty-four adolescent substance abuse clients in early recovery were recruited through the following two locations: a recovery high school in the northeast and an inpatient hospital in the south. The following details about this inpatient hospital are provided per the recently published Group Care Reporting Standards (Lee & Barth, 2011; Weems, 2011): The goal of this program is to take these youth out of the environment for 60 days and to change how they respond to life stressors. This is achieved by teaching them a new way of thinking and living through education, chemical dependency, life skills, and relapse prevention. There are approximately 24–27 boys and 15 girls in the program; they live in separate units. The program is located in an urban setting in Texas.

Inclusion criteria for participation were: a) met the DSM-IV criteria for substance abuse or dependence, as determined in the treatment setting, b) between the ages of 13 and 18, and c) able to read and write English.

An on-site Research Assistant (RA) at each location first completed Office for Human Research Protections (OHRP) certification and then was trained to: screen for the inclusion criteria, assent or consent participants, collect parental consents, and schedule the sessions with the researchers. For an adolescent to participate in this study, the following was required: a signed consent (for participants age 18) or adolescent-signed assent plus signed parental consent (for participants less than age 18) indicating that they understood that study participation was voluntary and would not affect access to treatment. The final sample included five females and 19 males, of which 17 (70.8%) self-identified as minority race or ethnicity (i.e., Black or Hispanic). Their mean age was 15.8 years ($SD = 1.26$). See additional demographic information for these participants in Table 3. Participants were paid with a \$50 gift card. An Institutional Review Board reviewed and approved this study.

Procedures—Adolescents participated in satisfaction testing and a focus group.

Satisfaction testing: Participants met face-to-face with a research team member for an hour and a half to complete testing. Individual participants were presented with the prototype of the online relapse prevention program on a laptop computer and asked to go interact with the prototype as though it was a fully functional website and complete an example of skill-building activity. After they viewed the program prototype, they completed a Satisfaction Questionnaire developed by the researchers that contained 24 items. Using a Likert scale (i.e., 1 = Didn't like it at all to 7 = Liked it a lot), participants were asked to rate the degree to which: (1) they liked different proposed features of the program (e.g., "How much did you like the *Goals* feature?"; (2) whether they believed such a program would be helpful in avoiding relapse and staying connected to their counselor; (3) and whether or not the content was easy to understand. In addition, adolescent clients rated their overall level of satisfaction with the prototype they viewed and quality of the design. The alpha for this scale was .85. We required at least 80% of participants to rate their satisfaction with the program prototype between 5 and 7 on the Likert scale to conclude that this key stakeholder group was "satisfied."

Focus groups: Lastly, the research team convened three separate one-hour focus groups with these participants; each group had seven or eight participants. Questions covered two topics: experience with technology and experiences in peer relationships. The focus group was facilitated by a research psychologist while a research team member took notes. These notes were reviewed for the different concepts included in the responses to each question.

Results

Satisfaction testing—We exceeded our pre-established 80% acceptability criterion: An average of 84% of the adolescent substance abuse clients rated their satisfaction with the program prototype between 5 and 7 on a 7-point Likert scale (e.g., 1=Didn't like it at all through 7 = Liked it a lot) on the Satisfaction Questionnaire. In addition, all of the 24 items received a mean of 5 or better (overall $M = 5.74$).

Features and design: The highest rated items were the overall program concept ($M = 6.33$, $SD = 0.82$), the ability of the Community feature to help teens build new and sober friendships ($M = 6.21$, $SD = 1.25$), and the helpfulness of the Goals feature in planning goals during early recovery ($M = 6.21$, $SD = 0.93$). The other highly rated features included: the Client Profile ($M = 5.67$, $SD = 0.92$), the Counselor Profile ($M = 5.50$, $SD = 1.22$), the Journal ($M = 5.42$, $SD = 1.25$), and the MY SOS homepage (i.e., an engaging and informative page that provided a summary of client activity in the program; $M = 5.38$, $SD = 1.13$). More than two thirds (70%) of the 24 adolescent clients rated the interactive skill-building activities between 5 and 7 on the scale of 1 through 7 ($M = 5.04$, $SD = 1.73$).

Expected client use: The adolescent clients said that they would be likely to use an online program like the one presented in the prototype they viewed ($M = 5.08$, $SD = 1.38$) and that they would use it at home (54%), the treatment center (25%), or another location (e.g., school, library, outreach program, cell phones; 17%). In addition, teens said they were very likely to use the Music feature ($M = 6.08$, $SD = 1.69$) and Text Me feature ($M = 5.63$, $SD = 1.79$) and that they would be more likely to use the Journal feature if they could choose the type of journal entry ($M = 6.08$, $SD = 1.10$). Clients also said that they were very likely to use the Community feature ($M = 5.08$, $SD = 2.02$).

Overall comments: Adolescent substance abuse clients indicated that an online relapse prevention program such as this would be very helpful to them in avoiding relapse and staying connected to treatment and their counselor ($M = 5.75$, $SD = 1.28$). The design of the prototype was also rated very highly (Look and feel [$M = 6.00$, $SD = 1.28$]). Twenty five percent of the participants reported that what they liked most about the proposed program was that it offered them the ability to communicate with their counselor within the online program and the option to participate in the online Community.

Focus Groups—We conducted three separate focus groups. One group included eight adolescents: three females and five males. Another group included seven adolescents: all males. The last group included seven adolescents: one female and six males.

Experience with technology: Ninety percent of the adolescents raised their hands in response to the question “Who uses the Internet?” They use the Internet for social networking (e.g., MySpace), music, shopping, games, and videos. They prefer sites that they can personalize (e.g., design own background) and sites they can interact with (e.g., community, games). The participants in the two groups at the inpatient setting reported that they do not look for resources on the Internet to support their recovery. A few members in the third group (students at a recovery high school) said that they use the Internet to find AA meetings and sober-free events through Google searches. Some adolescents reported using the Internet to find information on a) how to clean their system pre-drug test, b) research for a paper for probation, and c) a specific drug pre or post use (e.g., pillreport.com).

Adolescents were asked: “What would keep teens coming back to our program?” They responded: games, opportunities to get social support, information about what drugs do to one's body, information about how to find fun things to do, customizable features (e.g.,

home page), and music. They said that they would like the content to be presented in video, audio, pictures, and cartoons.

Text messaging was also discussed as an avenue to relay relapse prevention information. Adolescents indicated that they use text messages to make plans and send jokes and pictures to their friends and to communicate with their families (e.g., where they are, when they will be home). Most have “unlimited” texting service. Many indicated that they would use a text messaging feature in the program and that they would also like to receive texts about sober events in their area.

Experiences in peer relationships: When asked about times they have been pressured to use, they responded that they typically gave into that pressure – unless it was a drug that they did not want to use (e.g., meth or cocaine). One strategy that has worked to reject offers is to be on probation – “friends respected that.” Other strategies that worked were leaving the situation or staying away from peers who use. The participants also have experience pressuring their peers to use – and have been very successful in getting their peers (including younger siblings) to use with them.

Participants talked about where to go to make non-using friends: church, AA meetings, drug use prevention classes, sober events, online communities, sports games, afterschool activities. They said it was hard to make non-using friends because: most people are using, non-users are judgmental and patronizing, and the parents of non-users do not like former and/or current users.

Participants explained that finding fun and sober things to do is difficult because: 1) they do not know what they like to do sober (e.g., “scary at first when you try something that you used to love to do when you were high”), 2) activities seem to be more fun when they are high and are not as much fun when they are sober, and 3) sometimes they experience feelings of frustration with trying to accomplish the task at hand (e.g., some smoke before doing homework because they feel like it helps them to focus).

Other peer relationship issues the participants said they have experienced included: 1) difficulties in finding new friends (e.g., “Been through so much together. You just don’t what to drop them.” and “Getting away from your old friends who still use [is an issue]”); 2) challenges with romantic relationships (e.g., “Girlfriends break up with me because I use,”); and 3) managing non-using friends and using friends in the same space. Recovery groups help some of these adolescents with their sobriety because they include drug testing and offer accountability. They said an online program could help adolescents like themselves to meet peers who are not using, set goals, and learn how to interact with friends who are still using.

Discussion

We conducted two small studies to test the feasibility of the idea of an online relapse prevention program for adolescents. The first study was with counselors to identify content areas and features and evaluate their satisfaction with a prototype of the program. The second study was with adolescents in substance abuse treatment to find out what they liked or did not like about the prototype of the program and get their input on peer relationship-related content that should be included in an online relapse prevention program. The results from these studies suggest that both counselors and adolescent clients in substance abuse treatment centers liked the concept of an online relapse prevention program. Adolescent participants were excited about the opportunity to become involved with a program that allowed them to explore new social networks that could support recovery, and have one on one communication with their counselor within the online program after treatment.

Evidence from randomized controlled trials indicate that active aftercare is more effective than lack of aftercare in reducing alcohol use relapse and, more importantly, aftercare interventions (i.e., in-person and telephone) were equally effective (Burleson et al. 2011). Today, 93% of adolescents are using the Internet (Lenhart et al., 2009) to stay connected with friends, create new friendships, to find sources of entertainment, as well as for educational purposes (Lenhart, 2007). A recent survey from Pew Internet and American Life Project reported that the 73% of 12–17 year olds who are using the Internet are using social networking sites (Lenhart et al., 2010). This indicates that there is an opportunity to move towards creating online relapse prevention programs that include the features that teens are using most. Counselors in this study reported that this program could help adolescents cope more effectively with the challenges of recovery

One feature that adolescents really liked in this study's program prototype was text messaging. The proposed text messaging feature provides an opportunity for adolescents to maintain contact with treatment ideas and objectives; for example, pre-set text messages may include affirmations or reminders about their goals. This type of communication would be helpful to adolescent clients not only when they are in treatment but, most importantly, when they have left treatment. According to a 2008 Pew Internet Survey: 1) 71% of adolescents have cell phones, 2) ownership of a cell phone does not vary by gender or race and only slightly by socioeconomic status, 3) 76% of those who have cell phones have sent text messages, and 4) text messaging is the most popular form of daily text-based communication among teens (Lenhart, 2009). Researchers have begun to assess the feasibility and efficacy of using this medium for health promotion and intervention: e.g., a smoking cessation program (Rodgers et al., 2005), an aftercare program for bulimia nervosa (Robinson, Perkins, Bauer, Hammond, Treasure, & Schmidt, 2006), an intervention for college alcohol use (Weitzel, Bernhardt, Usdan, Mays, Glanz, 2007), and a resource for sexual health questions (SEXINFO; Levine, McCright, Dobkin, Woodruff, & Klausner, 2008). Findings from these studies suggest that teens will use cell phones for health information, and their use can have significant positive impacts on decision making about their health behaviors.

In addition, this feasibility project focused specifically on developing ideas for relapse prevention content about peer relationships because peers influence adolescents in many ways (e.g., aggression, disordered eating, depressive symptoms; Dishion & Tipsord, 2011). The adolescents in this study discussed both how substance-using peers have negatively influenced them (e.g., pressured to use), methods to meet non-substance-using peers (e.g., church), and the challenges of befriending non-substance-using peers (e.g., feel judged).

Limitations—This study had several limitations: It included a small, convenience sample, thus it has limited generalizability. The reactions of the participants to the proposed features were limited to our representation of those features in the prototype of the online relapse prevention program. The focus of the content and feature development was limited to peer relationships, and did not cover the full spectrum of the diverse needs of adolescents in treatment (e.g., family relationships, mental health, etc.). Future studies are necessary to build these other areas of content as well as to test the program's impact on adolescents and their ability to maintain sobriety.

Conclusions—With high relapse rates among adolescents, there is a need for more intensive and innovative relapse prevention programs that meet the unique needs of adolescents. Providing adolescents with access to resources that help them build skills on how to cope with issues around peer relationships may facilitate the use of aftercare services by this population. Adolescents who are able to secure healthy social networks and have good relapse prevention skills are more likely able to handle difficult peer situations. A

NIDA-funded follow up project is currently being conducted to develop the full relapse prevention program and test its efficacy to increase adolescents' motivation and efficacy to stay clean.

In closing, the online relapse prevention program concept has feasibility according to key stakeholders. In addition, this study provided ideas for content regarding peer relationship issues that could be addressed in an online aftercare program.

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Figure 1.

This is the eight cluster concept map of skill-building activities for adolescents in recovery based on sorting and rating by counselors (N=15*). The dots represent specific items.

Note. One counselor did not complete Concept Mapping tasks.

Table 1Demographic Data for Substance Abuse Counselors ($N = 16$)

Characteristic	n	%
Gender		
Male	8	50.00
Female	8	50.00
Race		
White	12	75.00
African American	3	18.75
Other – Indian (born in India)	1	6.25
Education		
Did not complete high school	1	6.67
Graduated high school or GED	2	13.33
Associates Degree	1	6.67
Bachelor's Degree	5	33.33
Master's Degree	4	26.67
Doctoral Degree	2	13.33
Title		
Addictions Counselor	12	75.00
Psychologist	1	6.25
Director	3	18.75
Type of Clinic		
Outpatient	9	56.25
Intensive outpatient	2	12.50
Inpatient	4	18.75
Residential treatment	1	6.25

Note. One expert did not provide educational background.

Table 2Three Highest Rated Statements by Cluster with Means ($N=15$)

Cluster Statement by Cluster	<i>M</i>
1. Setting Boundaries in Peer Relationships	
How to identify potential triggers related to peer relationships	4.67
How to handle difficult situations with using peers	4.67
How to stay away from using peers	4.60
2. Health Education	
Sex education	4.07
How to handle school social events (e.g., dances, sports games)	4.00
STD education	4.00
3. How to Achieve and Maintain Healthy Relationships	
How to develop new friendships with non-using peers	4.80
How to develop positive peer relationships	4.53
How to leave an unhealthy romantic relationship	4.27
4. Developing Peer Support for Recovery	
Drug free social activities	4.47
Information about safe places to go	4.33
How to find resources to help with peer issues	4.27
5. Educational Activities	
A community section where kids can post and read messages	4.27
Allow kids to express themselves with their talents i.e. art, music	4.20
Healthy support through other avenues (e.g., music)	4.13
6. How to Follow Through with Decisions	
How to deal with and avoid triggers	4.93
What to do after a relapse	4.80
How to develop refusal skills	4.73
7. Figuring Out What You Really Want	
Information on what to do if you need help	4.60
How to find recovery meetings that best assist teens	4.53
How to find an outlet for your anger	4.47
8. Working with a Counselor or Sponsor	
Immediate access to counselor via Web site	4.53
Ways to get questions answered quickly and confidentially	4.40
How to find and choose a mentor/sponsor	4.33

Note. One counselor did not complete Concept Mapping tasks.

Table 3

Proposed features of online relapse prevention program for adolescents.

Feature	Description
My Goals	The My Goals feature is designed to help teens learn how to take steps to achieve what they want (i.e., state a goal, describe plan to achieve that goal, set a deadline).
My Journal	The My Journal feature is aimed at encouraging teens to reflect on their experiences and their recovery progress.
Text Me	The Text Me feature is aimed at providing supportive messaging to teens at regular intervals or at times in the near future that they may be tempted to enter a risky situation.
My Community	The goal of the My Community feature is to increase the likelihood of teens returning to the site. It also offers them the opportunity to share information about sober events and activities. Most importantly, the Community is a place where teens can find peer support for their recovery.
My Music	Clients who have reached a certain level in their treatment will be able to upload play lists and listen to music while completing tasks in the program.
My Profile	This feature is an opportunity for teens to create their profile for the site
My SOS Page	This feature is intended to work like a homepage where teens can find all the components of the website as well as their saved goals, journal entries, and activity in the community section.
Interactive Lessons	This feature is intended to provide interactive educational information to help teens develop their decision making skills.
Counselor Profile	This feature is intended to allow counselors to organize their clients' tasks, as well connect with other counselors.
Counselor Resource Page	This feature is intended to provide counselors a list of local resources to which they could refer their clients for wraparound care.

Table 4Demographic Data for Adolescent Substance Abuse Clients ($N = 24$)

Characteristic	n	%
Gender		
Male	19	79.2
Female	5	20.8
Ethnicity and Race		
Non-Hispanic White/Caucasian	7	29.2
Non-Hispanic Black/African American	2	8.3
Hispanic White or Black	15	62.5
Days of Sobriety		
0–30 days	13	54.2
Between 31 – 90 days	8	33.3
91 days or more	3	12.5
Frequency of Internet Use		
Less than once a week	3	12.5
Weekly	8	33.3
Daily	13	54.2