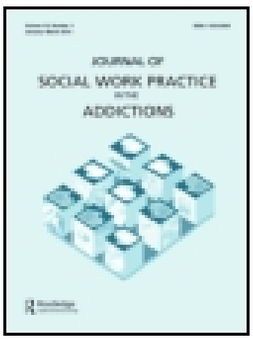

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The Seven Challenges: An Effective Treatment for Adolescents with Co-Occurring Substance Abuse and Mental Health Problems

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ABSTRACT. Recent developments in the provision of the substance abuse treatment for adolescents has included a focus on age appropriate treatment with consideration for adolescents' relatively low level of motivation for treatment and high incidence of co-occurring substance use and mental health problems. This study examines 3- and 6-month substance use and mental health outcomes for youth (n = 36) participating in The Seven Challenges Program. Results indicate significant reductions in both substance use and mental-health-related measures at 3 months with all measures except substance abuse frequency continuing

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to improve at the most distal 6-month assessment. The Seven Challenges treatment model is presented along with a discussion of the findings.
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INTRODUCTION

Historically, providers of adolescent substance abuse treatment typically used treatment approaches geared toward adults and adult patterns of substance use, with only minimal modifications (Dasinger, Shane, & Martinovich, 2004; Dennis, Dawud-Nourski, Muck, & McDermeit, 2003a). Recently, however, providers have begun to modify treatment to more effectively address the distinct complexities associated with adolescent substance abuse (Cavanaugh & Muck, 2004; Stevens, 2005). Likewise, until recently evaluations of adolescent treatment practices in the community have been few and methodologically limited (Dennis et al., 2003a; Young, Corley, Stallings, Rhee, Crowley, & Hewitt, 2002). To address the gap in knowledge, the Center for Substance Abuse Treatment (CSAT) established the Adolescent Treatment Models (ATM) Program designed to identify existing models of adolescent treatment that were thought to be exemplary, to evaluate their effectiveness, and to formalize models into disseminable manuals. The programs selected for inclusion in the ATM program offered a wide range of levels of care: outpatient; short-term and intensive inpatient; step-down models (brief residential followed by outpatient); residential; and modified therapeutic communities. They utilized a broad spectrum of clinical approaches, each with a defined theoretical basis for providing treatment for adolescents (Stevens & Morral, 2003).

In Tucson, Arizona, one of the programs that the University of Arizona ATM research team selected to evaluate was the Seven Challenges Program; an adolescent substance abuse treatment program offered by Providence Service Corporation. At the core of the Seven Challenges Program is the position that youth often enter substance abuse treatment apprehensively–believing that they are not in need of treatment. Treatment approaches, thus, should consider this along with a concurrent awareness of the developmental challenges faced by adolescents.

Early Stages of Change

Adolescent substance abusers have special treatment needs. Compared with their adult counterparts, adolescents entering substance abuse treatment generally have used drugs for fewer years and have had fewer treatment episodes. Adolescents typically exhibit a different pattern of drug use with more drug and alcohol binging and more frequent periods of abstinence. Most adolescents do not voluntarily seek substance abuse treatment; rather they are brought to treatment by parents, schools, and most frequently, the courts (Dennis et al., 2003a; Stevens, Hasler et al., 2003). This may be attributable to the fact that many youth do not perceive that they have a problem with drugs and are reluctant to give up the perceived benefits of their drug use behavior (Schwebel, 2004; Stevens, Furhiman, & Ruiz, 2005). Two principal reasons contribute to this perception. First, adolescents see their substance use as normative, which statistically could be considered accurate (Laviola, Marci, Morely-Fletcher, & Adriana, 2003; SAMHSA, 2004), and time-limited to the teen years, as they argue, "I can quit whenever I want." Second, considering the high incidence of co-occurring problems (Ruiz, Stevens, McKnight, Godley, & Shane, 2005; Stevens, Estrada, Murphy, McKnight, & Tims, 2004; Tomlinson, Brown, & Abrantes, 2004), many youth may be using drugs to cope with life; thus contributing to their perception that their lives would not be better without drugs (Stewart-Sabin & Chaffin, 2003).

Applying the Transtheoretical Model, which asserts that individuals encounter various stages (from pre-contemplating change to maintaining the desired behavior) when attempting to change a troubling behavior (Prochaska, Norcross, & DiClemente, 1992, 1994), one might expect adolescents to be in the early stages of change–pre-contemplation or contemplation–particularly, given that most do not enter treatment voluntarily. Although there is limited research on stage of change among adolescent substance users entering treatment, a few studies have shown that youth are typically in the early stage of change at treatment entry. In a study by Stevens and Murphy (1999), youth enrolled in a Seven Challenges Program reported, on average, to be in a contemplative stage of change. On an 8-point scale (1 = Pre-contemplative to 8 = Maintenance), the average stage at treatment entry was 3.2; "I have a problem with alcohol and other drugs and am almost ready to make some changes or I have already made some small changes." Even among those who do see a reason to change, many doubt their self-efficacy in being able to change, perhaps rightfully so, because they lack the preparation and requisite skills for successful coping without drugs.

The Expectation of Immediate Abstinence

Adult substance abuse treatment typically demands immediate and total abstinence (Denning, Little, & Glickman, 2004). Historically, adolescent drug treatment has followed suit, setting similar expectations upon youth (Stevens, 2001). Typically, youth are expected to immediately stop using drugs and are drug tested for evidence of their drug-free status as a result of juvenile justice involvement or other external reasons. Furthermore, sometimes abstinence is a requirement for admission to a program. The expectation of immediate abstinence might be effective with those motivated youth who are seriously concerned about the consequences of their drug use, prepared to quit using, and capable of successfully coping without alcohol or other drugs. However, this expectation could be problematic for others, including youth who do not think they have a problem with drugs, youth who are not prepared or do not see a way to cope with co-occurring psychological or other problems without drugs, and youth who lack a sense of self-efficacy and who doubt their abilities to maintain abstinence.

Harm reduction approaches (Ruefli & Rogers, 2004) acknowledge that abstinence may not be the goal of some individuals entering substance abuse treatment. Thus, approaches based on harm reduction look for ways to decrease harmful behaviors (e.g., drug use; risking behaviors) while increasing positive behaviors (e.g., treatment engagement; pro-social activities). Although practitioners may still view the ultimate goal of treatment as abstinence, a process for moving youth from use to nonuse may be more appropriate, particularly for those adolescents who have not yet embraced the benefits of abstinence.

Recently, some adolescent treatment programs have begun to address the client's motivation for treatment. For example, within the ATM Programs, Epoch (Battjes, Sears, Katz, Kinlock, & Gordon, 2003) added brief motivational enhancement, and Mountain Manor Treatment Center (Fishman, Clemmey, & Adger, 2003) added motivation enhancement to assist clients in identifying the "unmanageability" of their drug use. In *The Seven Challenges Manual*, Schwebel (2004) suggests that the history of high drop-out rates and disappointing outcomes of youth enrolled in drug treatment (Kaminer, 2001; Hser et al., 2001) can be explained, perhaps in part, by the initial expectation of immediate abstinence or the expectation of a rapid commitment to abstinence following brief motivational enhancement. This expectation may not closely match the stage of change of much of this client population–many of who are mandated to treatment.

The expectation of immediate abstinence for all clients might also work against making progress in important developmental challenges faced by adolescents, including the interrelated tasks of (1) defining their own independent

identities (Erikson, 1963) and (2) mastering formal logical thinking (Inhelder & Piaget, 1958). Identity development is one of the major tasks of adolescence. Research indicates that young adolescents who have problems with identity development are more likely to use drugs (Jones, 1992, 1994). Given that adolescents tend to internalize a sense of identity constructed with their peers (Pugh & Hart, 1999), alcohol or other drugs can be a major part of their identity if substance use is part of their norm. Programs that dictate or attempt to control substance use are likely to be met with resistance by adolescents whose identity at the time of treatment entry is defined by drug use and wrapped within a peer group that embraces substance use (Rowe, Parker-Sloat, Schwartz, & Liddle, 2003). Young people need an opportunity to think things through for themselves and to reach their own conclusions–a successful program would likely guide youth through this process.

Adolescents may need more time and different strategies than adults to understand the disconnect between their substance use and their life goals. In the past decade, with improved methodologies, investigators have found that adolescent brains are far less developed then previously believed (Rosser, Stevens, & Ruiz, 2005). Delayed development is reliably noted in the prefrontal cortex, which is the mediator of behavioral planning and reasoning (Kwon, 1998), in attentional processes (Foster, Eskes, & Stuss, 1994), in impulsivity (Murji & DeLuca, 1998), and in response inhibition (Roberts, Hager, & Heron, 1994). Hence, mastering formal logical reasoning is a challenge for adolescents. Therefore, by virtue of their brain development, substance abuse treatment strategies need to allow for additional time and include concrete thinking and specificity.

Furthermore, the expectation of immediate abstinence for all adolescent clients may not take into account the complexity of substance abuse. We know that mental health problems frequently co-occur with substance abuse (Bootzin & Stevens, 2005; Ruiz et al., 2005; Shedler & Block, 1990; Stevens et al., 2004) and that, adolescents by virtue of their age and developmental status have added challenges in addressing their substance use and related mental health problems. By narrowly focusing on the immediate cessation of drug use, attention to the psychological underpinnings of the problem is minimized or overshadowed. Adolescent clients may be asked to commit to abstinence before they have the requisite life skills or psychological ability to successfully maintain their drug-free status.

Finally, insistence upon immediate abstinence could undermine the therapeutic relationship as counselors operate from the assumption that the client has a drug problem and attempt to impose the goal of commitment to immediate abstinence, both of which may be incongruent with the client's perspective and aspirations. The development of a positive client-counselor relationship is

important, as past research indicates that positive client-counselor relationships and treatment alliances enhance psychotherapy outcomes (Brent & Kolko, 1998; Horvath & Luborsky, 1993; Messer, 2003). Incongruence in this area could result in a contentious relationship characterized by argumentative exchanges or by dishonesty, in which adolescents merely pretend to make a decision to quit using drugs.

The Seven Challenges Program

The Seven Challenges® Program was developed specifically for adolescents–paying heed to their stage of change and developmental challenges. An underlying concept is "to start where youth are at (usually in the early stages of change)," not where professionals "might wish they would be and not where youth might pretend to be (ready, willing, and able to be drug free)" (Schwebel, 2004). The program provides a framework for respectfully challenging youth to engage in self-evaluation and a decision-making process. Motivational approaches (Miller & Rollnick, 2002) and other more directive strategies are used to increase awareness of harm from drug use without increasing defensiveness. Concurrently, The Seven Challenges Program works with adolescents to address co-occurring mental health problems, empowering them to cope in positive ways without drugs. Schwebel (2004) writes: "In this program youth make informed, internally motivated, and committed decisions to change. They are taught the skills needed to succeed in overcoming drug abuse and drug dependency problems, and then supported in successfully making changes" (p. 3).

Youth who choose to be abstinent right away–either because this is required of them by the court or other authorities, or because they feel it is in their best interest–are immediately supported with relapse prevention, although the emphasis is simultaneously on helping to ensure that the decision is solidified by progressing through the rigorous Seven Challenges decision-making process. Through counseling sessions, supported by readings and interactive journals, The Seven Challenges Program assists young people in evaluating their lives, including the needs they are attempting to satisfy by using drugs, and the risks, harm, and potential harm from their drug use. This leads to decision-making about drug use, and finally, successful implementation of the changes they wish to make.

The overarching framework of The Seven Challenges is based on the cognitive/emotional public health model of decision-making (Janis & Mann, 1977) in which individuals weigh the benefits versus the costs of particular behaviors, in this case the use of drugs. The core of the program consists of seven distinct challenges which are addressed in treatment. Because most adolescents

are in the early stage of change when they enter AOD treatment, decisions about using or not using drugs may be deferred in The Seven Challenges Program. Rather, initial efforts are directed toward establishing the therapeutic relationship in order to work toward congruence of perspective and goals. Therefore, the first of The Seven Challenges focuses on developing an open and honest relationship between the counseling staff and youth, and the remaining challenges can be conceptualized in terms of the public health decision-making model.

Challenge One states: "We decided to open up and talk honestly about ourselves and about alcohol and other drugs." In Challenge One great care is taken to create a climate of openness and trust that allows for honest dialogue and, thereby, an opportunity for healthy, informed decision-making, and behavior change.

Challenge Two states: "We looked at what we liked about alcohol and other drugs, and why we were using them." In Challenge Two the adolescent client is asked to identify the perceived benefits of drugs–the needs they are satisfying or attempting to satisfy through their drug use. This increased understanding helps clients prepare for informed decision making and also helps the client and counselor plan a compensatory program in which they learn healthier, alternative ways to cope with life and meet their needs.

Challenge Three states: "We looked at our use of alcohol or other drugs to see if it had caused harm, or could cause harm." In Challenge Three adolescents identify the harm from their drug use and potential harm; that is, harm that could occur due to high-risk behavior, such as driving under the influence, violating laws under the influence, or sex under the influence.

Challenge Four states: "We looked at our responsibility and the responsibility of others for our problems." In Challenge Four shame and excessive self-blame are addressed by giving clients an opportunity to put their problem behavior in the perspective of life circumstances and experiences–those they have endured and those they may have been deprived of. Excessive external blame (blaming the world for everything) is also countered. Adolescents who either feel excessive shame or externalize all responsibility for problems find it hard to acknowledge their own mistakes and move forward with personal change.

Challenge Five states: "We thought about where we seemed to be headed, where we wanted to go, and what we wanted to accomplish." In Challenge Five the developmental task of preparing for adulthood is considered. It helps adolescents anticipate future harm that might accompany continued drug use, thereby tipping the decisional balance toward change. This challenge also helps adolescents think about and visualize a more positive future. Optimism and anticipation of a better life are important in motivating people to move

from the contemplation stage to preparation, and finally to action (Prochaska, Norcross, & DiClemente, 1994).

Challenge Six states: "We made thoughtful decisions about our lives and about our use of alcohol and other drugs." In Challenge Six adolescents are asked to make their own decisions about both their life in general and about their drug use.

Challenge Seven states: "We followed through on our decisions about our lives and drug use. If we saw problems, we went back to earlier challenges and mastered them." In Challenge Seven, progress is monitored and success is acknowledged. Preparation for learning from and dealing with inevitable setbacks is addressed along with strategies for preventing lapses or relapses, when possible.

Outcome Expectations

It was expected that youth in the program would learn to make informed, internally motivated, and committed decisions to change, thus leading to substantial reductions in substance use and related problems. Moreover, it was thought that The Seven Challenges Program would be especially effective in helping youth with their co-occurring mental health problems, as the program does not narrowly focus on substance use but, rather, on the entirety of the adolescents' lives. Finally it was expected that the perceived need for treatment would reduce over time in relationship to adolescents' reduction in substance use and mental health problems.

METHODS

Study Overview

The ATM initiative began in 1998 and was designed to evaluate 10 existing substance abuse treatment programs found to be promising models for replication. These programs were considered promising models because they were able to provide at least 2 years of evaluation findings demonstrating successful treatment outcomes. In addition to these 10 treatment programs, some sites were able to include a second treatment program in their evaluation study. As mentioned earlier, The Seven Challenges model was one of the two treatment programs selected for review by the University of Arizona research team. Although the Seven Challenges Program did not have the 2 years of evaluation data to be considered as a promising model, it had achieved good outcomes from an earlier 9-month evaluation study (Stevens & Murphy, 1999) and thus

was included as the second Tucson, AZ program to be evaluated. The University of Arizona's Institutional Review Board provided initial and annual approvals of the studies' protocols. In addition, a Certificate of Confidentiality was applied for and received from the Substance Abuse and Mental Health Services Administration for further protection of the evaluation data.

Participants

Participants for the present study were recruited from Providence Service Corporation, a community-based social service agency that was using The Seven Challenges curriculum in a 2-month intensive outpatient adolescent substance abuse treatment setting. All were adolescents between the ages of 13 and 17 years, who were referred to the program for alcohol and/or drug problems. They were eligible to participate in the study if they consented, had parental consent, and were enrolled in the substance abuse treatment program. Ninety-five percent of the adolescents (and parents) entering the substance abuse treatment program elected to participate in the evaluation.

Assessment Procedures

Adolescents enrolled in the study were informed that they would participate in five interviews. These interviews were conducted at baseline and at 3, 6, 9, and 12 months post-baseline. The baseline assessment was completed within 7 days of enrollment into the program. A trained research technician employed by the University of Arizona administered the assessments. Training of the research technician was completed in a 1½ day training facilitated by a certified Global Appraisal of Individual Needs (GAIN; see measures described later) trainer. Ongoing quarterly training and monitoring was provided to ensure staff adherence to study protocols.

Measures

The GAIN (Dennis, Titus, White, Unsicker, & Hodgkins, 2003b) was administered during an individual interview by a research technician. It is the primary data source for the present study. The GAIN is a standardized bio-psycho-social assessment designed to assist clinicians and/or researchers in obtaining information for diagnosis, placement, treatment planning and outcomes monitoring that can be used for research, clinical practice, and administrative purposes (Dennis et al., 2003b). The content of the GAIN is divided into eight areas: background and treatment arrangements, substance use, physical health, risk behaviors, mental health, environment, legal, and vocational.

The GAIN has repeatedly demonstrated excellent internal consistency on core scales related to the frequency of substance use ($\alpha = 0.80$), alcohol use ($\alpha = 0.90$), drug use disorders ($\alpha = 0.90$), and alcohol use disorders ($\alpha = 0.90$) (Dennis, 1999). Excellent internal consistency has also been established for measures of general mental distress, PTSD, ADHD, conduct disorder, traumatic victimization, social support, environmental risk, illegal activity, and school problems (Dennis, Funk, McDermeit, Godley, Scott, & Godley, 1998). The following scales and subscales were computed from the GAIN-I and were used for the present study:

Substance Problem Scale (SPS) is composed of 16 recency items (e.g., "When was the last time you . . .?"), of which 7 are based on DSM-IV criteria for dependence, 4 for abuse, 2 for substance-induced health and psychological problems, and 3 on lower severity symptoms of use (hiding use, people complaining about use, weekly use; $\alpha = 0.87$). Higher scores on this scale represent greater severity of drug problems. A score of 4 or more generally suggests dependence.

Substance Frequency Scale (SFS) is an 8-item measure of frequency and severity of alcohol and other drug use and days of problems associated with that use ($\alpha = 0.79$). Higher scores represent increasing frequencies of substance use in terms of days, days staying high most of the day (i.e., high risk of problems) and days in which drugs caused other related problems. People with scores over 0.14 may have considerable difficulty stopping without significant assistance and/or a controlled environment.

Treatment Motivation Index (TMI) is a 5-item index that provides a count of items endorsed regarding the client's perception of his/her own need for treatment, support for treatment and hope for help through treatment. Higher scores on this scale suggest more internal and/or external motivators for the individual to be in and continue treatment ($\alpha = NA$).

General Mental Distress Index (GMDI) is a 22-item index based on the Symptom Checklist (SCL-90) and exhibits high internal consistency ($\alpha = 0.88$). Higher scores indicate a greater breadth and severity of internal (e.g., somatic, depression, anxiety) mental distress. Scores from 4 to 6 are considered to be clinically significant, while scores above 7 suggest acute mental distress.

Depressive Symptom Index (DSI) is a 9-item index that provides a count of past year symptoms commonly associated with depression, with higher levels also suggesting increasing "indecisiveness" and "hopelessness" ($\alpha = 0.77$).

Anxiety Symptom Index (ASI) is a 12-item index that provides a count of past year symptoms commonly associated with an anxiety disorder, with higher levels also suggesting increasing "psychoticism" ($\alpha = 0.77$).

Analysis

Data for this study were analyzed using the software, Statistical Package for the Social Sciences (SPSS), version 11.0. Frequencies and percentages were used to analyze the baseline descriptive characteristics of the participants gathered from the GAIN. Data reduction techniques were used to develop computed variables (SPS, SFS, GMDI, DSI, ASI, and TMI) for data collected from the GAIN. As detailed already, variables used in this study are in two primary domains including: (1) substance-related issues, and (2) mental health issues.

The computed variables were used to conduct paired sample *t*-tests from baseline to 3 months and baseline to 6 months. The *t*-tests confidence interval was set at 95% and significance was determined using a 2-tailed test. Data were used only if a case had a complete set of data (baseline, 3- and 6-month). Those cases that did not meet that criterion were eliminated from the analysis. Although 42 youth participated in the baseline assessment, 36 of them (86%) also participated in the 3- and 6-month assessment. Consequently, these 36 cases were used in this analysis.

RESULTS

Participant Description

A description of the study participants is provided in (Table 1). The majority of the youth who participated in The Seven Challenges study were White (53%), and male (75%). The plurality of youth (33%) entered treatment at the age of 16 years; with an average age at baseline of 15.4 years old. The majority of the youth (61%) reported their legal guardian was someone other than their parents together (e.g., single parent; other family member; county or state custody).

Alcohol (71%), medical (60%), drug (60%), and psychological (57%) problems plagued the families of youth participating in the Seven Challenges Program throughout their lives. Given the fact that these youth have been surrounded by alcohol, medical, drug, and psychological problems in their family, it may not be surprising that during the 90 days prior to treatment almost all of them had used alcohol and marijuana (83% for each). A smaller percentage of them reported "harder drug use" during the 90 days prior to treatment (Cocaine/crack = 33%; Downers = 28%; Speed = 22%).

At baseline, 64% of the youth scored in the "dependence level" for substance problems, 75% scored above the cut point (0.14) for substance frequency, which

TABLE 1. Participant Descriptions (n = 36)

	N	%
Race/Ethnicity		
Caucasian	19	53
Latino/Hispanic	11	31
Bi-racial	6	17
Gender		
Male	27	75
Female	9	25
Mean age at baseline		
13	2	6
14	7	19
15	8	22
16	12	33
17	7	19
Legal custody other than parents together	22	61
Family history of[a]		
Alcohol problems	24	71
Medical problems	21	60
Drug problems	21	60
Psychological problems	20	57
Alcohol and drug use (past 90 days)		
Alcohol	30	83
Marijuana	30	83
Cocaine/crack	12	33
Downers	10	28
Speed	8	22
Outcome variables at baseline[b]		
Substance Problem Scale (SPS)	23	64
Substance Frequency Scale (SFS)	27	75
Treatment Motivation Index (TMI)	21	61
General Mental Distress Index (GMDI)	29	81

[a]Sample size reduced due to missing data. Percentages calculated based on valid data.
[b]SPS reflects the percent of youth who scored 4+ which generally suggests dependence.
Notes: SFS reflects the percent of youth with scores over 0.14 which suggests considerable difficulty stopping use. TMI reflects the percent of youth who scored 3+ which indicates greater motivation for treatment; GMDI reflects the percent of youth that reported scored 4+ which is considered in the clinical and acute ranges for mental distress.

indicates that youth may have difficulty stopping their use of substances, 61% reported having moderate to high motivation for treatment, and 81% scored in the clinical range for general mental distress (e.g., depression; anxiety).

3-Month Outcome

The results from baseline to 3 months on the substance-related and treatment motivation outcomes are displayed in Table 2. The two substance-related variables (SPS and SFS) showed significant decreases in scores (SPS, $p = 0.038$; SFS, $p = 0.001$), which indicates decreased substance severity and a positive outcome. At 3 months the SPS and SFS scores were still at the cut-off point for dependency and higher frequencies of use; however, they had significantly improved. The TMI also demonstrated a significant reduction ($p = 0.002$) from baseline to 3 months. This reduction indicated that youth perceive their need for treatment being greater at baseline than at 3 months. As shown in Table 2, the sample size decreased from 36 to 33. This was an expected decrease given that youth in this study often reported "that they are getting the treatment they need," which led to "not applicable" responses to the yes/no items. These "not applicable" responses were coded as missing data and the cases were excluded from the TMI analysis. However, even accounting for the missing data, there remains a significant reduction in the participants' perception of their need for treatment at 3 months.

The results from baseline to 3 months on the mental health outcomes are presented in Table 3. All three variables (GMDI, DSI, and ASI) reflected significant reductions in scores from baseline to 3 months at $p < 0.001$. These decreases indicated improved mental health as reported by the youth. Like the

TABLE 2. Substance Related and Treatment Motivation Changes from Baseline to 3 Months Post Baseline

	N	Baseline	3-Month Post	Significance
Substance Problem Scale (SPS)	36	5.97	4.58	0.038*
Substance Frequency Scale (SFS)	36	0.22	0.14	0.001**
Treatment Motivation Index (TMI)	33[a]	2.94	2.21	0.002**

*$p < 0.05$, **$p < 0.01$.
[a]The sample size is reduced due to missing data for any of the five items.
Notes: SPS comprises 16-recency items. Higher scores on this scale represent greater severity of drug problems. A score of 4 or more generally suggests dependence. SFS is an 8-item measure of frequency and severity of alcohol and other drug problems. Higher scores represent increasing frequencies of substance use. Youth with scores over 0.14 may have considerable difficulty stopping. TMI is a 5-item measure that counts the clients perception of his/her need for treatment. Higher scores represent more internal and/or external motivators to be in and continue treatment.

substance-related variables, the mental health scores at 3 months were still in the "clinically significant" range; however, they reflected statistically significant reductions (improvements) over time.

6-Month Outcomes

The results from baseline to 6 months on the substance-related and treatment motivation outcomes are presented in Table 4. The SPS showed a significant decrease in its score ($p = 0.004$) and the SFS showed a marginally ($p = 0.055$) significant change. Youth reported decreases (improvements) in SPS from baseline to 3 months and from baseline to 6 months. Furthermore, at 6 months, the mean score for the SPS decreased out of the severe range. Regarding the SFS, significant changes from baseline to 3 months and from baseline to 6 months were also

TABLE 3. Mental Health Changes from Baseline to 3 Months Post Baseline

	N	Baseline	3-Month Post	Significance
General Mental Distress Index (GMDI)	36	8.53	4.36	0.000***
Depressive Symptom Index (DSI)	36	3.36	2.03	0.000***
Anxiety Symptom Index (ASI)	36	3.33	1.56	0.000***

***$p < 0.001$.
Notes: GMDI is a 22-item index. Higher scores indicate a greater breadth and severity of internal mental distress. Scores from 4 to 6 are considered to be clinically significant while scores above 7 suggest acute mental distress. DSI is a 9-item index that provides a count of symptoms commonly associated with depression. Higher scores indicate a greater number of depression type symptoms endorsed by the youth. ASI is a 12-item index that provides a count of symptoms commonly associated with anxiety. Higher scores indicate a greater number of anxiety type symptoms endorsed by the youth.

TABLE 4. Substance Related and Treatment Motivation Changes from Baseline to 6 Months Post Baseline

	N	Baseline	6-Month Post	Significance
Substance Problem Scale (SPS)	36	5.97	3.42	0.004**
Substance Frequency Scale (SFS)	36	0.22	0.15	0.054
Treatment Motivation Index (TMI)	31[a]	2.94	2.03	0.005**

**$p < 0.01$.
[a]The sample size is reduced due to missing data for any of the five items.
Notes: SPS is comprised of 16-recency items. Higher scores on this scale represent greater severity of drug problems. A score of 4 or more generally suggests dependence. SFS is an 8-item measure of frequency and severity of alcohol and other drug problems. Higher scores represent increasing frequencies of substance use. Youth with scores over .14 may have considerable difficulty stopping. TMI is a 5-item measure that counts the clients perception of his/her need for treatment. Higher scores represent more internal and/or external motivators to be in and continue treatment.

detected. However, there is a slight, nonsignificant, increase from 3 to 6 months; reflecting a slight increase in the frequency of reported substance use. Similar to the 3-month outcomes, the TMI also detected a significant reduction from baseline to 6 months. This reduction indicated that youth perceive their need for treatment being greater at baseline and reducing at 6 months ($p = 0.005$). The TMI shows the same steady reductions over time as the SPS.

The results from baseline to 6 months on the mental health outcomes are presented in Table 5. All three variables (GMDI, DSI, and ASI) detected significant reductions ($p = 0.000$) in scores from baseline to 6 months. All of the scores steadily reduced over time and at 6 months were well below the clinically significant and acute ranges.

In summary, all the 3-month outcome variables (SPS, SFS, TMI, GMDI, DSI, and ASI) demonstrated statistically significant positive changes. Moreover, all but one (SFS) of the 6-month outcome variables detected significant positive changes; with positive changes even more evident at 6 months post-baseline.

DISCUSSION

Demographic characteristics of the 36 youth included in this study were typical of adolescents enrolled in other substance abuse treatment programs located in Tucson, Arizona (Stevens et al., 2003). Measures related to baseline substance use were also reflective of youth who enter substance abuse treatment. Compared with adolescents enrolled in other treatment programs in the same geographical area the baseline mental health scores of youth participating in The Seven Challenges Program were slightly worse (Stevens et al., 2003).

TABLE 5. Mental Health Changes from Baseline to 6 Months Post Baseline

	N	Baseline	6-Month Post	Significance
General Mental Distress Index (GMDI)	36	8.53	1.92	0.000***
Depressive Symptom Index (DSI)	36	3.36	0.94	0.000***
Anxiety Symptom Index (ASI)	36	3.33	0.61	0.000***

***$p < 0.001$.
Notes: GMDI is a 22-item index. Higher scores indicate a greater breadth and severity of internal mental distress. Scores from 4 to 6 are considered to be clinically significant while scores above 7 suggest acute mental distress. DSI is a 9-item index that provides a count of symptoms commonly associated with depression. Higher scores indicate a greater number of depression type symptoms endorsed by the youth. ASI is a 12-item index that provides a count of symptoms commonly associated with anxiety. Higher scores indicate a greater number of anxiety type symptoms endorsed by the youth.

Overall, the data indicate that at baseline the Seven Challenges participants had serious problems related to their drug and alcohol use–suggesting drug dependence and, most would have had difficulty stopping their use without treatment. In spite of this, more than one-third had low motivation for treatment adding to the accumulating evidence that many adolescents are in an early stage of change when entering substance abuse treatment. When looking at mental health problems at baseline, the data suggest that they are considerable–with the average general mental health score in the range for acute mental distress.

The research literature indicates that substance abuse and dependence and measures related to mental health generally evidence significant reductions from treatment entry to treatment discharge or shortly thereafter (Dennis, 2006). Likewise, the 3-month substance and mental-health-related outcomes for Seven Challenges showed significant improvements–following the 2-month intensive outpatient program. However, unlike other adolescent treatment outcome studies in which more distal effects typically show a gradual return to baseline levels (Dennis, 2006), outcomes for this Seven Challenges study did not. In fact, except for frequency of drug use, substance-related problems along with the three mental health measures (GMDI, DSI, and ASI) all continued to improve at the 6-month follow-up.

Reasons for the continued improvement in substance abuse and mental-health-related problems at 6 months remains somewhat unclear. However, the authors believe that The Seven Challenges treatment model with its initial focus on client-counselor treatment alliance, attention to adolescents' early stage of change, developmentally appropriate curriculum, and emphasis on the entirety of the adolescent's life contribute to those positive findings. It is particularly interesting that these 6-month outcome findings occurred together with the slight (0.14-0.15) increase in the frequency of substance use at 6 months. It may be that these adolescents have either altered the type of drug used or reduced the amount of drug used on each occasion (frequency is determined by drug use occasions) resulting in fewer problems associated with their drug use.

Given such positive outcomes, one may question whether positive peer contagion effects might have occurred. A substantial body of research indicates peer contagion effects for deviate and health risk behaviors (Prinstein & Wang, 2005). Moreover, past research has indicated that group interventions may have iatrogenic effects (Dishion & Dodge, 2005). Further research is needed to allow for more complex analysis of the assumptions of treatment relatedness noted above as well as to clarify the complexities of the research findings.

The significant reduction in treatment motivation at both the 3 and 6-month follow-up points may, in part, be due to missing data from the "not applicable" response (n = 5). The "not applicable" response was selected when participants chose the response "that they were getting the treatment they need."

Still, this is a highly significant finding indicating reductions in internal motivators (e.g., perception of drug problem; drug dependency) and/or reductions in external motivators (e.g., court, school, parental pressure). Given the positive outcomes in the substance use and mental-health-related variables, the decrease in treatment motivation was interpreted as a positive effect. Further research is needed to illuminate the relationship between treatment motivation and behavior change.

LIMITATIONS

There are limitations to this study. First, the sample size was very small and thus the findings must be cautiously considered. Second, although the study was conducted by an outside evaluator, the data included in the analysis were gathered by self-report. Third, due to financial limitations, collateral information could not be collected for the Seven Challenges cohort. Finally, because this research was part of a national study, the investigators were asked to use the Treatment Motivation Index. Although closely related to "stage of change," the authors caution that the two concepts may not be completely synonymous. Additional research is needed to test both the replicability and generalizability of the study's findings.

CONCLUSION

Regardless of the limitations of this study, the substance use and mental health outcomes at both 3 and 6 months post-treatment entry are positive. These outcomes, together with the adaptability of the program for use in various settings (outpatient; residential; school-based), indicates that Seven Challenges is an encouraging approach for intervening with substance involved youth with co-occurring mental health problems.

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