RESEARCH REPORT

Five outpatient treatment models for adolescent marijuana use: a description of the Cannabis Youth Treatment Interventions

Guy Diamond, Susan H. Godley, Howard A. Liddle, Susan Samp, Charles Webb, Frank M. Tims & Robert Meyers

University of Pennsylvania, Children's Hospital of Philadelphia, Chestnut Health Systems, Center for Treatment Research on Adolescent Drug Abuse, University of Miami School of Medicine, University of Connecticut Health Center, State University of New York, Operation PAR, Inc. and Center on Alcoholism, Substance Abuse and Addiction (CASAA), University of New Mexico, USA

Correspondence to:
Guy Diamond
Center for Family Intervention Science
Department of Psychiatry
Children’s Hospital of Philadelphia
34th and Civic Center Blvd
Philadelphia
PA 19104
USA
Tel: +1 215 390 7350
Fax: +1 215 390 74110
E-mail: gdiamond@psych.upenn.edu

ABSTRACT

The five manual-guided treatment models tested in the Cannabis Youth Treatment study funded by the Center for Substance Abuse Treatment are described. The five models include (a) a 6-week intervention consisting of two sessions of individual motivational enhancement therapy plus three sessions of group cognitive behavioral therapy (MET/CBT5); (b) a 12-week intervention consisting of two sessions of motivational enhancement therapy plus 10 sessions of group cognitive behavioral therapy treatment (MET/CBT12); (c) a 12-week intervention consisting of MET/CBT12 plus the family support network (FSN), a multi-component intervention that includes parent education, family therapy and case management; (d) a 12-week intervention based on the adolescent community reinforcement approach (ACRA), an individual behavioral treatment approach designed to help adolescents and their parents reshape their environment and learn new skills; and (e) multi-dimensional family therapy (MDFT), a multi-faceted, developmentally and contextually oriented family-based model targeting individual, family and social systems. For each model, we describe the treatment background and/or its empirical support, its theoretical underpinnings, its goals and proposed treatment mechanism and the structure and content of each treatment. Procedures used for maintaining treatment fidelity and monitoring quality assurance are also described. These interventions represent the first readily available, manual-guided interventions to be evaluated in a large randomized field study for this population. Consequently, these manuals have the potential to advance treatment and research for adolescents with substance use disorders.

KEYWORDS Adherence, adolescent substance use, treatment manuals

INTRODUCTION

During 1998, close to 150,000 adolescents sought treatment for substance use disorders through the United States public treatment system and 80% of these admissions were to outpatient settings (Dennis et al., 2002). Adolescent substance abuse is no less problematic in other countries as well (WHO, 1997; Kraus & Bauernfeind, 1998). Unfortunately, few randomized clinical trials exist to offer guidance to treatment providers about the most effective interventions for this population (Titus & Godley, 1999; Williams & Chang, 2000). A number of small- to medium-sized randomized clinical trials of outpatient treatment have compared diverse interventions, including cognitive behavioral therapy, family therapy approaches, family education, group therapy, parent...
support group and supportive counseling (Szapocznik et al. 1986; Friedman 1989; Lewis et al. 1990; Henggeler et al. 1991; Joanning et al. 1992; Azrin et al. 1994; Kaminer et al. 1998; Liddle et al. 2001). The most frequently evaluated interventions have included a family component, but none have undergone the rigorous testing recommended for a therapy to be considered efficacious (Chambless & Hollon 1998) or been designed specifically to address cannabis disorders. Recognizing the need for more scientifically supported interventions for adolescents, and especially ones that target adolescent cannabis abuse and dependence, the Center for Substance Abuse Treatment funded the Cannabis Youth Treatment (CYT) study, the first multi-site randomized field trial ever conducted with this population.

The CYT executive committee selected these interventions for two primary reasons. First, we relied on the existing clinical and research literature to identify the most promising treatments for this population (e.g., family-based treatments, see Oczkowski & Liddle 2000). Due to the paucity of empirically-tested treatments for adolescents, we decided to adapt successful treatments for adult substance use (e.g. cognitive behavioral therapy) for use with adolescents. Secondly, we hoped to test two questions critical to the design of community treatment programs: (a) what is the added clinical and cost value of incrementally increasing the dose of therapy and adding different treatment components? and (b) what is the comparative clinical and cost value of three alternative treatments that primarily employ different treatment strategies and target different treatment goals (e.g. cognitive skill building versus improving family communication)? To examine these questions, two study arms (incremental and alternative) were conducted, with each arm being evaluated at two sites. In both arms, a university or hospital-based provider was paired with a community-based treatment provider. The incremental study (arm 1) was conducted at Operation PAR in St Petersburg, Florida, and the University of Connecticut Health Center. The alternative study (arm 2) was conducted at Chestnut Health Systems in Madison County, Illinois and The Children’s Hospital of Philadelphia. More details on the research design and methodology are provided elsewhere in this supplement (Dennis et al. 2002).

As a general overview of each treatment model, Table 1 details the range of modalities within each treatment, their intended dosage, and study arm. The incremental study (arm 1) included motivational enhancement therapy/cognitive behavioral therapy (MET/CBT5), a five-session treatment, motivational enhancement therapy/cognitive behavioral therapy-12 (MET/CBT12), consisting of MET/CBT5 with seven additional CBT groups sessions (12 total sessions), and the family support network (FSN), which added to MET/CBT12 six sessions of parent education classes, four home visits family sessions and case management for a potential total of 22 sessions. In the alternative study, arm 2, treatments included MET/CBT5, 12 weeks of the adolescent community reinforcement approach (ACRA) (14 sessions) and 12 weeks of multidimensional family therapy (MDFT; 15 sessions).

The combination of individual MET and group CBT was used in three interventions (MET/CBT5, MET/CBT12 and FSN). FSN, ACRA and MDFT each included sessions with family or parents and had some common goals (e.g. improve parenting practices, increase cohesion), but used different methods, contact time and degree of emphasis. The ACRA, FSN and MDFT models each included case management as needed, although the intended amount and provider varied by condition (FSN had a separate case manager, while in ACRA and MDFT the therapist conducted the case management). Therapists in all interventions performed urine testing at least twice during treatment. How this information was used varied by treatment and is articulated in each treatment manual.

<table>
<thead>
<tr>
<th>Study arm Type of service</th>
<th>Both arms MET/CBT5 1</th>
<th>Arm 1 MET/CBT12 2</th>
<th>Arm 1 FSN 3</th>
<th>Arm 2 ACRA 4</th>
<th>Arm 2 MDFT 4</th>
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<td>2</td>
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<td>6</td>
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<tr>
<td>Family sessions/home visits</td>
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<td>12</td>
<td>22</td>
<td>14</td>
<td>15</td>
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<tr>
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<tr>
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<td>As needed</td>
<td>As needed 1</td>
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<td>Total expected contacts</td>
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<td>12</td>
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1 Motivational enhancement therapy/cognitive behavioral therapy-5 session model. 2 Motivational enhancement therapy/cognitive behavioral therapy-12 session model. 3 Family support network. 4 Adolescent community reinforcement approach. 5 Multi-dimensional family therapy.
Below we provide a more detailed description of the five interventions including the background for each model, if (and how) the treatment was modified for adolescents for this study, the clinical theory underlying the model, hypothesized mechanisms of change and the treatment’s structure. It should be noted that while these interventions were designed to target marijuana abuse and dependence, a majority of the adolescents participating in the study also had alcohol disorders and a small number used other drugs infrequently. Each intervention was adaptable to address alcohol and other drug use (besides cannabis) if needed.

MOTIVATIONAL ENHANCEMENT THERAPY/COGNITIVE BEHAVIORAL THERAPY 5-SESSION (MET/CBT5)

Background and rationale for selection

MET/CBT5 (Sampl & Kadden, 2001) is a five-session intervention that combines two sessions of individual motivational enhancement therapy (MET) with three sessions of group cognitive behavioral therapy (CBT). Both MET and CBT have been successful in treating adults with substance use disorders (e.g. Miller et al. 1995; Carroll 1996; Project MATCH Research Group 1997). Motivational interviewing has shown some limited promise with adolescent smokers in a hospital setting (Colby et al. 1998) and in reducing alcohol-related consequences for adolescents admitted to a hospital for alcohol-related problems (Monti et al. 1999). Other researchers have begun to study the application of CBT with adolescents in randomized clinical trials (Kaminer et al. 1998; Waldron et al. 2001). The combination of MET and CBT has never been evaluated. The CYT steering committee, however, hypothesized that two initial MET sessions might help engage treatment resistant adolescents and foster receptivity to the group work. More generally, the steering committee wanted to develop and test a brief intervention that met the demands of managed care.

Theory

MET is an application of motivational interviewing and was developed to enhance client motivation to change. It is based on the hypothesis that individuals will achieve greater change when motivation comes from within themselves rather than when others attempt to impose it (Miller & Rollnick 1991). MET uses Prochaska & DiClemente’s (1984) five stages of change model to help assess and guide the client. These stages consist of precontemplation (little consideration to making a change), contemplation (considering changing), determination (making the decision to change), action (taking steps to change) and maintenance. Recognizing that change is incremental, the MET approach assists the adolescent in moving through the various stages toward maintenance. The CBT component then focuses on helping adolescents develop the coping skills needed to recognize and manage common risk situations that typically lead to drug use. Within this model, skill deficits are viewed as a primary cause of relapse. Therefore, group process focused on teaching and rehearsing these skills.

Goals and treatment mechanisms

Five core principles that are hypothesized to enhance motivation (Miller & Rollnick 1991) underlie the therapist’s approach to the adolescent. (1) Therapists use empathic listening and accurate reflection (Rogers 1957). In contrast to a confrontational agenda, the therapist’s primary goal is to make the adolescent feel understood and accepted. (2) The therapist highlights discrepancies between adolescents stated life goals and the negative effects of marijuana. This is accomplished by reflecting back the adolescent’s own concerns about problems related to marijuana (e.g. school failure, legal consequences, etc.). (3) The therapist avoids argumentation in order to avoid provoking resistance. (4) Therapists use a technique called ‘rolling with resistance’ that involves responding to resistant verbal statements with empathy rather than confrontation. (5) The therapist attempts to bolster the adolescent’s self-efficacy (i.e. confidence in his/her ability to stop using marijuana) by identifying past successes with quitting or reducing drug use, identifying mastery of other life problems and praising current progress toward change.

The primary goal of the CBT component is to provide alternative skills for coping with situations that might otherwise lead to marijuana use (Monti et al. 1989). The group CBT format provides a context for behavioral modeling, rehearsal and feedback, as well as habituation to social anxiety. Group discussions provide opportunities for therapists to normalize individual members’ struggles with avoiding use and/or relapse and for participants to try out new social behaviors. Finally, developers hypothesized that group members could become part of a recovery network for each other.

Structure and content of treatment

Treatment begins with two individual MET sessions. The first session focuses on building rapport, explaining treatment expectations, assessing and building motivation and reviewing the adolescent’s personalized feedback report (PFR). The PFR presents information from the intake assessment that outlines the adolescent’s
substance use, related problems and reasons for quitting. The therapist employs MET strategies in discussing the PFR with the adolescent, with the goal of developing the adolescent’s motivation for change. Each adolescent’s frequency of use is compared with national norms, in order to provide a new perspective on his or her level of use. During the second session, the therapist reviews progress since the last session and helps the adolescent complete a personal goal worksheet related to quitting marijuana. A functional analysis of marijuana is completed which helps the adolescent identify triggers, thoughts and feelings and behaviors, and results from use. Finally, the therapist prepares the adolescent for the group CBT sessions that will follow.

In sessions 3, 4 and 5, the adolescent joins a group of five to six adolescents for CBT skills training. To teach these skills, therapists use brief didactic presentations, modeling, role-playing and homework exercises. The first CBT session (treatment session 3) focuses on developing skills for refusing offers to buy or use marijuana. During a discussion of social pressure, participants learn how to say ‘no’ quickly and convincingly, suggest an appropriate alternative activity and avoid using excuses. Role-plays are used to demonstrate passive, aggressive, passive-aggressive and assertive ways of responding. The fourth session focuses on enhancing patient’s positive social support network and reducing associations with substance-using peers. Participants identify the kinds of support needed to live a drug-free life-style and specific people who could assist in this challenge. Methods for increasing social supports and prosocial activities are reviewed. The last meeting (session 5) concentrates on planning for unanticipated high-risk situations and coping with relapse. Participants identify events that could precipitate marijuana use and learn coping strategies to avoid or manage these high-risk situations.

Adaptations for adolescents

The five principles that are used in MET (i.e. expressing empathy, developing discrepancy, avoiding argumentation, rolling with resistance and supporting efficacy) did not need to be adapted for adolescents. They are fundamental therapy skills relevant for most age groups. Therapists were, however, sensitized to the types of age appropriate goals that would most probably arise. For example, adolescents are concerned more with parents than spouses, with school more than work and with peer pressure than with ambition. Secondly, we anticipated less capacity for abstract thinking and more concern with concrete issues. Therefore adolescents found more motivation to reduce use when considering the negative impact of the current cost of cannabis use rather than how reduced use might improve their quality of life in the future. Thirdly, the PFR was modified to address issues relevant for adolescents. For example, participants were provided with data regarding how their use compares with others in their age group and the list of problems and reasons for quitting included items appropriate for adolescents (e.g. getting in trouble at school).

In addition to the kinds of modification mentioned above, CBT was modified from its typical individual format to a group format for two specific reasons. First, studies and descriptions of existing adolescent treatment programs reveal that most programs offer treatment in a group format. Therefore we hoped that a CBT group format would increase the likelihood of future dissemination (Hser et al. 2001; Battjes et al. 2002; Godley et al. 2002a; Stevens et al. 2002). Secondly, it was hypothesized that a group approach could leverage the importance of peer influence to reinforce treatment goals (Nowinski 1990).

More generally, in adapting both MET and CBT components for adolescents, modifications were made to the wording and appearance of handouts, training vignettes and practice exercises to increase their adolescent ‘friendliness’. In attempts to increase the adolescents’ attention, more visual components were added to materials and posters were developed for CBT sessions. To motivate compliance, prizes were offered for completion of practice exercises.

MOTIVATIONAL ENHANCEMENT TREATMENT/COGNITIVE BEHAVIORAL THERAPY 12-SESSIONS (MET/CBT12)

Background, theory, goals, treatment mechanisms and rationale for selection

MET/CBT12 includes a greater dose of the group CBT sessions. Its background, underlying theory and hypothesized treatment mechanisms are the same as described above. It was hypothesized, however, that MET/CBT12 would have more potent effects due to the opportunity to provide additional relapse coping skills training in the additional sessions. The evaluation of a 12-week version of MET/CBT was also supported by studies of existing community-based treatment for adolescent outpatient programs that revealed longer planned lengths of stay than the 6 weeks being evaluated with MET/CBT5. For example, studies have shown planned lengths of stay from 1 to 6 months and median actual lengths of stay from 1.6 month to 3 months (OAS 1995; Hser et al. 2001).

Structure and content of treatment

MET/CBT12 (Webb et al. 2002) adds seven additional sessions of group CBT to MET/CBT5. After two sessions of
individual MET, the adolescent receives 10 sessions of CBT delivered in a group format. The first three CBT sessions are the same as in MET/CBT5. The sixth session focuses on effective problem-solving skills that serve as the basis for the remainder of the program. A five-stage problem-solving model is presented consisting of (a) general orientation, (b) problem identification, (c) generating alternatives, (d) decision-making and (e) verification. The seventh and eighth sessions focus on anger management. Initially the group focuses on anger awareness skills, highlighting both internal and external cues and triggers. The focus then shifts to techniques for managing anger. The group leader teaches different strategies including the use of calm-down phrases and anger-reducing thoughts. The ninth session concentrates on communication skills. Participants learn techniques for active listening, assertiveness and positive ways of responding to criticism. The goal is to improve interpersonal relationships with both peers and family members.

The 10th session offers a menu of coping options for cravings and urges for marijuana. Participants are encouraged to keep a daily log of the intensity, length and source of urges and alternative ways to resist them. The 11th session focuses on managing depressed feelings. Participants receive education about the impact of negative emotions and the role of negative automatic thoughts. Techniques for substituting positive for negative thoughts are then reviewed and rehearsed. The last session (treatment session 12) returns to the primary focus of managing thoughts about marijuana. In this session, the group leader reviews the 12 most common excuses for relapse and discusses termination.

Adaptations for adolescents

The seven additional CBT sessions were subjected to similar modifications as described for MET/CBT5. This included attention to assuring that both process and content would be engaging and relevant for adolescents. Anecdotally, therapists reported that it was more challenging to maintain the adolescents’ interest over nine-group sessions than it was for the three sessions included in MET/CBT5.

**FAMILY SUPPORT NETWORK (FSN PLUS MET/CBT12)**

**Background and rationale for selection**

FSN (Hamilton et al. 2002) was designed as an adjunct to the 12-week MET/CBT12. The multi-component treatment structure was based on recommendations made by an expert panel on adolescent substance abuse and treatment (CSAT 1993). This group recommended for consideration 20 treatment components, including individual therapy, family therapy, case management, didactic groups or group therapy and multi-family groups. Because the MET/CBT12 intervention already included a type of individual therapy (i.e. MET) and a therapy group (i.e. group CBT), a logical extension was to test the additional family-based treatments (parent psychoeducation and family therapy) as well as case management. Earlier randomized clinical trials had suggested that the involvement of families could enhance patient retention and outcomes (Henggeler et al. 1991; Liddle et al. 2001). In addition, some studies have demonstrated that positive outcomes were related to stronger family support and better family relationships (Barrett et al. 1988; Brown et al. 1994). In addition to the CSAT panel recommendations, several research reviews have encouraged more evaluation of the contribution of family treatments to treatment outcome (Kaufman 1994; Liddle & Dakof 1994; Steinglass 1994; Stanton & Shadish 1997). Case management has also been recommended strongly and even tested for adult substance abusers (McLellan et al. 1999; Siegal & Rapp 1996) and initial work has begun in articulating possible models for adolescents (Godley et al. 1994; Godley, Godley & Dennis 2001).

**Theory**

Several assumptions underlie the FSN intervention. First and most generally, it is hypothesized that retention and outcomes for the adolescent will be improved if the family is involved in the treatment process. Secondly, it is hypothesized that both in-home family therapy and a family education component that addresses adolescent substance use and the recovery process will help promote recovery and reduce relapse. Thirdly, case management is hypothesized to aid retention by reducing barriers to treatment participation. Fourthly, FSN is based on the belief that a single treatment modality, possibly regardless of duration, is not intensive and comprehensive enough to reduce a persistent and multi-faceted problem such as adolescent substance use disorders. Instead, it is hypothesized that a multi-component treatment package may be needed for maximum treatment effectiveness.

**Treatment goals and mechanisms**

The treatment goals and mechanisms of MET/CBT12 remain the same as described above. There are four general goals related to the family components. Therapists seek to (a) include family members in the recovery process, (b) enhance family communication and general relationship quality, (c) improve parents’ behavioral management skills and (d) increase adolescents’ and
parents' commitment to the recovery process. The parent education sessions are intended to build a support system for parents and educate them about adolescent development, adolescent drug-use patterns and family management. Home visits are intended to enhance commitment to treatment and help adolescents and their families individualize skills learned in the parent education and MET/CBT12 sessions to their specific needs and family dynamics. The purpose of the case management component is to foster the engagement of families into the treatment process by reducing barriers to treatment participation (e.g. transportation, childcare, etc.).

Structure and content of treatment

MET/CBT12, family components and case management components are provided concurrently and, in this study, by different providers trained in that specialty. The parent education sessions consist of six 1-hour didactic sessions followed by brief discussions. The four 90-minute home visits are scheduled during the weeks that families do not have group sessions. Throughout the treatment episode, the case manager uses a number of procedures designed to maintain treatment participation.

To encourage participation, parent groups use a circle seating arrangement. Each session is didactic, highly structured and focuses on specific topics. During the first session the therapist discusses both normal and deviant adolescent development patterns and describes how parents might influence this trajectory. Parents are taught the importance of balancing their adolescents’ need for connection to the family and their need for autonomy. During session 2, the therapist defines adolescent substance abuse and dependency and discusses how family and peer pressures can contribute to these problems. Parents are encouraged to stay involved in the treatment process and provide support for recovery. Session 3 focuses on relapse signs and recovery, emphasizing the role that parents can play in detecting and preventing relapse. During session 4 the therapist emphasizes family functioning and discusses establishing appropriate boundaries, discipline and the need for parental authority. Session 5 addresses family organization with a specific focus on communication and conflict resolution. Group leaders review techniques for active listening, reducing criticism and remaining focused on one problem at a time. The final parent-group session provides information about family systems principles including, for instance, how rigid family roles may contribute to family conflict.

On the first home visit therapists assess the family environment, encourage family member participation in the family education and home visit components and plan for future visits. During the second visit therapists lead a discussion about family rules, roles and routines. The third and fourth visits are less structured and are used to assess and reinforce treatment progress and commitment. Every session focuses on strengthening the alliance between the family members and the FSN treatment providers/program.

Towards the goal of maintaining treatment participation, case management visits can include weekly phone calls to discuss attendance, transportation and childcare arrangements. Families with multiple or complex needs are provided more intensive case management for 2 months that include connecting the adolescent or caregivers to other support services in the community (e.g. housing, school, work programs, etc.). After 2 months of intensive case management, families are stepped down to regular case management focused on support and barrier reduction.

Adaptations for adolescents

The home visit component of FSN drew from family systems approaches that were already adolescent focused. Developers adapted the family education components from existing adult psychoeducational approaches modifying content and skills to be more family- and adolescent-focused. Case management had to be adapted to take into account the multiple systems that adolescents interact with including family, school, welfare and criminal justice. Developers wrote guidelines for coordinating the multiple service providers who are typically involved with these deep end troubled teens.

ADOLESCENT COMMUNITY REINFORCEMENT APPROACH (ACRA)

Treatment rationale

ACRA (Godley et al. 2001b) is a behavioral therapy that focuses on rearranging environmental contingencies such that non-using (substance) behavior is more rewarding than using behavior. ACRA is an adaptation for adolescents of the community reinforcement approach that was initially developed for the treatment of adult alcoholics (CRA; Meyers & Smith 1995; Meyers et al. 1999; Miller, Meyers & Tonigan 1999). In a number of early studies by Azrin and colleagues, CRA and its various components were found to be superior to standard inpatient and outpatient approaches (Hunt & Azrin 1973; Azrin 1976; Azrin et al. 1982; Mallams et al. 1982). More recently, CRA techniques have been adapted for helping individuals to work effectively with a significant other’s drinking (Meyers et al. 1996; Meyers & Smith 1997), combined with contingency management for the treatment of cocaine addiction (Higgins et al. 1991, 1993;
Shaner et al. (1997), used in the treatment of homeless alcohol-dependent individuals (Smith et al. 1998), combined with an assertive aftercare approach to enhance maintenance following residential treatment (Godley et al. 2001a) and used in combination with a voucher system for treating adolescents with substance use disorders (Henggeler, personal communication). In one of the few randomized field studies of adolescent substance abuse treatment, Azrin and colleagues (Azrin et al. 1994) compared the effectiveness of a behavioral outpatient treatment program for substance-abusing adolescents with a supportive counseling program. The behavioral treatment program included procedures designed to eliminate environmental risk for drug use and to enhance social control. It incorporated parent attendance at all treatment sessions. When compared with the supportive counseling condition, the behavioral condition proved superior for reducing drug and alcohol use and improving school and work attendance. The CYT experiment is the first large-scale test of the effectiveness of the CRA approach adapted for use with adolescents needing outpatient treatment for marijuana abuse and dependency. The steering committee was also interested in evaluating CRA because it offered a primarily behavioral and individual alternative treatment.

Theory

ACRA integrates an operant conditioning model with skills training and a social systems approach to teach adolescents new ways of handling life’s problems without using drugs or alcohol. For many adolescent marijuana users, their social environment encourages marijuana use. Therefore, the therapist helps the adolescent maximize family/peer/community resources and activities to reward non-drug-using behavior. ACRA therapists help adolescents recognize that their drug use is incompatible with other short or long-term reinforcers (e.g., parental approval, staying out of criminal justice system, having a girl/boyfriend). Therapists also work to increase alternative positive, non-drug-related social/recreational activities, while teaching social skills (e.g., problem-solving, drug refusal, etc.) that will increase the likelihood of success in these endeavors.

Goals and treatment mechanisms

In individual sessions with the adolescent, the therapist has several objectives. Therapists promote abstinence from marijuana, alcohol and other drugs, participation in prosocial activities and positive relationships with friends and care-givers. The functional analysis of substance use helps to identify the antecedents, behaviors and consequences of drug abuse for use in discussions about substance use. The functional analysis of prosocial behavior helps to identify current or desired prosocial activities; this information is then combined with other procedures to motivate increased participation in prosocial behaviors. Skills training in relapse prevention, communication and problem-solving offers additional techniques that can be used to address the treatment goals.

Building on prior CRA models that include significant others in the treatment process (Sisson & Azrin 1986; Meyers et al. 1996; Meyers & Smith 1997), one of the adaptations of the model for adolescents has been the addition of parent/care-giver involvement in four treatment sessions. The goals for these sessions include motivating care-giver participation in the treatment process and educating them about parenting practices that can help decrease the adolescent’s potential for relapse. For example, care-givers are provided with information about research that indicates that their own alcohol and drug use behavior can influence their adolescent’s recovery, the value of parental monitoring and positive communication skills and the importance of their involvement in promoting positive prosocial activities. In addition to individual and parent goals, therapists focus on improving adolescents’ circumstances in the larger social system. Essentially, therapists serve as advocates in resolving problems and increasing resources in the community (e.g., school, mental health, probation, employment, etc.).

Treatment structure and content

The treatment is composed of 10 sessions with the adolescent alone and four sessions with care-givers. Two sessions are with the care-givers alone and two include the adolescent and care-givers together. While the manual recommends a sequencing of procedures, the order of delivery is flexible and based on individual needs of the adolescents. Three procedures make up the unique core of the model, each of which are revisited and updated frequently throughout the treatment. First, therapists use the functional analysis of substance use to identify the internal and external triggers that lead to substance use, document these behaviors and identify consequences of these behaviors. Therapists use this process to illuminate how an adolescent may avert relapse by controlling antecedent behaviors that have led to substance use before. Similar attention is given to the analysis of prosocial activities. Secondly, adolescents frequently complete a happiness scale rating the their degree of happiness with 14 different life domains (e.g., drug use, school, peers, etc.). Therapists use this tool to guide conversations about the adolescent’s satisfaction with life and as a means to monitor treatment progress. Thirdly, based on information from the functional analyses and the happiness scale,
therapists and adolescents together formulate the ACRA treatment plan. This tool helps to identify specific treatment goals and helps in developing concrete plans for achieving them. Because all 14 areas of the happiness scale are discussed, this process expands the focus of treatment beyond the use of marijuana and other drugs.

Once the functional analysis of substance use, an initial happiness scale and an ACRA treatment plan have been completed, sessions focus on assessing progress and skill-building based on the adolescent's experiences between sessions in his or her natural environment. With the adolescent, therapists focus on prosocial recreation, relapse prevention, communication and problem-solving skills. With the care-givers, skill building may focus on rapport building, motivation and communication. In addition, three optional procedures are described in the manual that can be used as needed: dealing with failure to attend treatment, anger management and job-finding.

Adaptations for adolescents

As noted above, ACRA is an adaptation of the community reinforcement approach that was developed originally for adults with alcohol problems. The adaptations made for adolescents included (a) adding the four parent/care-giver sessions that involved training and practice in communication and problem-solving skills for parents and their adolescents; (b) adapting the happiness scale and goals of counseling to assess satisfaction with life areas most developmentally appropriate for adolescents and (c) using examples and dialogue in the treatment manual appropriate for adolescents to illustrate all ACRA procedures.

MULTIDIMENSIONAL FAMILY THERAPY (MDFT)

Background and rationale for selection

MDFT is a family-based, multi-systems, multi-component, developmentally and ecologically oriented approach designed specifically for the treatment of adolescents with substance abuse and related problems (Liddle, 2002a; Liddle & Hogue 2000). The approach has been tested in several randomized trials, is manualized and has a published treatment adherence scale (Hogue et al. 1998; Liddle & Hogue 2000; Liddle et al. 2001; Rowe et al. 2002). Several studies of the therapeutic process have illuminated core aspects of MDFT. These studies have examined the links between changes in parenting and reductions in adolescents' drug and behavior problems (Schmidt et al. 1996), improving poor therapist-adolescent alliance (Diamond et al. 2000), culturally specific themes to engage African American males in therapy (Jackson-Gilford et al. 2001), gender-based treatment issues (Dakof 2000), in-session patterns of change associated with parent-adolescent conflict resolution (Diamond & Liddle 1996, 1999) and predictors of treatment completion (Dakof et al. 2001). The committee chose MDFT as one of the alternative treatments to evaluate because of its record of empirical development, the findings achieved in previous studies, and because family therapy approaches have been the most frequently and positively evaluated out-patient approach for adolescents with substance use disorders.

Theory

The theory base of MDFT resides in several areas (Liddle 1999). First, adolescent drug abuse is understood contextually and as a multi-dimensional phenomenon. A number of factors, including individual, family, social and environmental characteristics as well as their interaction over time, can contribute to drug problems. Literature on risk and protective factors are used to identify the many forces that can produce dysfunction as well as those that can reverse or protect against it (Liddle & Hogue 2000). Secondly, the knowledge offered by developmental psychology and developmental psychopathology provide important conceptual and practical foci for assessment and intervention (Liddle et al. 1998, 2000). Thirdly, structural and strategic family therapies and integrative therapy models (e.g. Stanton & Todd 1982), developed and tested an integrative family therapy approach with adult heroin addicts in a controlled trial in the late 1970s, have informed this model. Treatment focuses on four areas: (1) individual characteristics of the adolescent (e.g. perceptions about the harmfulness of drugs; drug-taking behaviors including coping with urges to use, and emotion regulation processes); (2) the parent(s) (e.g. parenting practices and the self of the adult caretaker(s) beyond their role as a parent); (3) family interactional patterns; and (4) extra-familial sources of influence and development (e.g. school, juvenile justice, medical and legal systems).

Goals and treatment mechanisms

The overarching goal of treatment is to re-establish normative developmental processes and challenges in an adolescent's life. Goals and interventions target multiple levels (e.g. individual, family and extra-familial functioning) and are worked simultaneously. These goals intersect so that progress in one realm potentiates and facilitates progress in others (Liddle 1999). Goals and focal areas with the adolescents include building competency, reducing involvement with a deviant peer network, increasing
participation in prosocial activities and developing better coping skills regarding affective regulation and problem-solving. For the parent(s), goals include reducing psychiatric distress, drug use, economic stress and improving social support and parenting practices. At the family level, treatment focuses on rekindling developmentally appropriate parental connection-commitment to the adolescent and adolescent attachment to the parent and increasing family organization, warmth and emotional investment. These goals should lead to the re-establishment of the family as a developmentally facilitative context.

**Treatment structure**

Treatment is phasic, as is the working of specific change strategies (Liddle 1999). The first phase of treatment emphasizes three areas. First, the therapist works to establish therapeutic alliances with all relevant participants in the system: the adolescent, parent(s), other family members and other providers (e.g. teachers, probation officers, etc.). This is essential to creating conditions conducive to change. Secondly, using developmental knowledge and research-based knowledge about the risks and protective factors at play in a teen’s life, the therapist makes a comprehensive, multi-systemic assessment of each area of the adolescent’s life. Therapists elicit and evaluate each participant’s point of view, level of commitment and willingness to change their own behavior in the service of helping the adolescent. Direct observation of adolescent–parent/other interaction usually provides the richest source of information. Finally, phase 1 should conclude with a strong therapist–system relationship, clear and mutually acceptable treatment goals, and a commitment to repairing the parent–adolescent connection (Diamond & Liddle 1996, 1999). Although the treatment plan is individualized, common and core generic themes from developmental research on adolescents, parents and families informs substantially the treatment goals (Liddle et al. 1998; Liddle et al. 2000). In this regard, the therapeutic agenda emerges from the interaction between the therapist’s conceptual framework and information and observations about the adolescent, the family and extra-familial people and their interactions.

The mid-phase of treatment focuses on working the clinical themes identified in phase 1. Sessions with the adolescent alone identify and attack barriers to participation in normative developmental activities. These sessions focus on imparting new motivation, ideas and problem-solving skills that will facilitate a decrease in drug-using and antisocial activities and an increase of prosocial behaviors at home and socially. Discussions can focus on drug use history, motivation, patterns, urges, circumstances and perceived benefits and disadvantages of drug use. Therapists also teach communication, problem-solving and relationship skills, job or vocational training or facilitate pursuing a GED. Therapists also help adolescents address the conflictual issues that stand between them and their parents. This may include conflict over autonomy or long-standing family disagreements or crises (Diamond & Liddle 1999). Sessions alone with the parents focus on the self-of-the-parent, apart from their parental role, including motivations, social supports and psychiatric distress. These sessions must also examine parenting philosophy and styles (Schmidt, Liddle & Dakof 1996). Parents learn to distinguish influence from control, and that not everything can or needs to be changed in order to have an appropriate influence on their child. During this second phase, the therapist becomes more action-oriented rather than reflective, seeking to prompt new transactional alternatives (e.g. enactments) between the adolescent and his/her family and social world. The final phase of treatment focuses on generalization and maintenance of change with a special focus on making specific and overt, new ways of thinking, responding and interacting.

**Adaptations for adolescents**

MDFT is an approach that was already developed for this population (Liddle, 2002b). Modifications for this study included structuring the treatment for a 12-week time period and increasing the emphasis on practical implementation procedures for providers.

**QUALITY ASSURANCE/IMPLEMENTATION FIDELITY PROCEDURES**

**Therapist selections**

Therapists were interviewed and hired at each site by the site principal investigator. Each treatment model developer defined the experiential and educational criteria appropriate for the intervention and was involved in the therapist selection process. The steering committee expected that selection criteria would vary by model and that this would be reflected in subsequent cost analyses of the various interventions. MDFT and FSN family therapy providers were required to have at least a master’s degree while MET/CBT and ACRA therapists were required to have at least a bachelor’s degree. The educational level of therapists also varied based on local markets and whether a site was located at a medical center or a community-based organization. So, for example, MET/CBT's in Philadelphia and Connecticut was provided by doctoral and master's level therapists, while it was provided by bachelor's and master's level therapists in Florida and
Illinois. Principal investigators gave preference to therapists who had experienced working with adolescents and with drug and alcohol treatment and who appeared to be a good match to the therapy they would deliver. For example, therapists with a background in family systems were preferred for MDFT and therapists who had a behavioral orientation were preferred for ACRA and the MET/CBT interventions. During interviews for therapy positions, candidates were told that they would be delivering a manual-guided intervention and their receptivity to this structure was a factor considered in the selection process. Each model leader was allowed to veto a therapist candidate or to judge a therapist as not certifiable. Having the degree requirement match the needs of the treatment model, rather than requiring a standard educational level across all treatments, is a standard used increasingly in clinical trials (Cris-Cristoph 1993).

By the end of the project, 17 therapists had been certified to provide treatment in the study. Of these 17 therapists, five were male, 13 were Caucasian and three were African American. Therapists had an average of 7.8 years of experience working with adolescents and this ranged from 4 months to 22.25 years. They averaged 7.1 years of experience providing substance abuse counseling and this ranged from 0 to 22.5 years. Three therapists held a PhD, 11 had a master’s degree and three had a bachelor’s degree. About 25% of the staff had worked in previous randomized clinical trials with manual-based treatment.

In the incremental arm, five therapists provided both MEF/ CBT5 and MEF/CBT12, three therapists provided the family education and home visits and five individuals provided case management. Out of the five case managers, three had bachelor’s degrees and one had less than a bachelor’s degree, one was male and three were Caucasian. In the alternative arm, at one site, one therapist provided two of the interventions (MDFT and MEF/CBT5), the other eight therapists provided only one intervention (either MEF/CBT5, MDFT or ACRA). Over the course of the study, five of 20 therapists and four of six case managers resigned for a variety of reasons, including returning to graduate school, to take a new job, or family relocation. Two therapists left the project for new jobs prior to certification and one therapist was not certified and asked to leave the project. The therapists' reactions to providing manual-guided therapies in this study are described elsewhere (Godley et al. 2002b).

Therapy supervisor/Coordinator

Each treatment site had a local therapist coordinator who functioned as an administrative supervisor. They monitored each therapist's activities, case-loads and record-keeping in addition to providing onsite support and general support for management of cases. Each treatment also had a cross-site clinical supervisor who had responsibility for ongoing clinical supervision of each case. Clinical supervisors provided oversight only to the one intervention they specialized in (i.e. MEF/CBT, FSN, ACRA and MDFT) and did not supervise across interventions. Clinical supervisors also participated in the initial training related to the intervention he or she supervised, oversaw the therapist certification process and provided weekly supervision and adherence monitoring. Each supervisor was either one of the model developers or selected and trained in-depth by the model developer.

Therapist training and supervision

Initially, all therapists attended a 2-day training session in their respective models that was provided by the model developer and clinical supervisor. Depending on the model, these training sessions consisted of lectures, reviews of video or audiotape examples of the model used in actual therapy sessions, role-plays and an intensive review of the treatment manual. Each therapist then began treating cases with every session being reviewed either through a live observation or via video/audio tape. Therapists were certified in the intervention after the clinical supervisor judged their work to be sufficiently faithful to the model based on these session reviews, usually after treating one or two full cases. One therapist was not certified and asked to leave the study.

To maintain treatment fidelity, therapists received at least 2 hours a week of supervision (for case-loads of eight to 12 cases). One hour was an individual supervision session conducted in-person or by phone. The second hour was a cross-site group supervision conducted by phone since sister sites were located thousands of miles apart. Supervision included feedback on video or audiotape segments of treatment, review of manual guidelines and discussion of implementation by other therapists delivering the same intervention.

Treatment adherence

Several procedures were developed to monitor treatment adherence and fidelity. First, supervisors of each intervention rated two sessions for each therapist per month using a general therapist skillfulness scale. The data from this measure will allow a comparison across interventions regarding the basic level of therapeutic skills used by each therapist and adherence to a specific intervention model. It consisted of 11 statements that were rated on a five-point Likert scale. Examples of scale items are: (a) did the therapist following the session format; (b) did the therapist use language and interventions consistent with this type of intervention; (c) did the therapist demonstrate expertise and competence; and (d) did the
therapist demonstrate, warmth and sensitivity and genuine concern?

Secondly, each intervention used either existing treatment adherence measures (in the case of MDFT), modified existing ones related to the specific interventions (in the case of MET/CBT and ACRA) or developed ones (in the case of FSN) that were completed by therapists after each session and by supervisors twice a month. These adherence measures varied by intervention and were often used as a supervision feedback tool. They will also be used to analyze levels of adherence at a later date. For example, MET/CBT5 had separate individual and group session forms that would be completed by therapists and supervisors depending on the type of session. A sample item from the MET supervisor rating of individual sessions is, "To what extent did the therapist attempt to elicit self-motivational statements from the client?"

Thirdly, a service contact log (SCL) was developed for each intervention and completed by the therapist or case manager after each contact. This form documented the type of contact (e.g. phone or face to face), location of contact (e.g. office, school, home, etc.), who was present in the session (e.g. patient, mother, etc.), and model specific treatment procedures delivered (e.g. functional analysis, taught drug refusal skills, parent education, case management, etc.). These forms were reviewed in weekly supervision. Twice a month, the supervisor or therapist coordinator independently reviewed one tape of each therapist and rated the session using the SCL. Comparisons were made between the supervisors and therapists' ratings in therapy supervision. This helped establish and maintain reliability to the therapist ratings. This measure will also be used to provide summary data on the actual treatment elements received.

CONCLUSIONS

The interventions evaluated in the CVT experiment represent distinct alternatives for adolescent substance abuse treatment in terms of modality (e.g. individual, group and family), orientation (e.g. cognitive, behavioral, psychoeducational, family systems), and dose (e.g. 6 weeks versus 1.2 weeks and five sessions versus 20 + sessions). They were implemented in a study that employed several features recommended for establishing efficacious behavioral interventions including: (a) the use of random assignment to condition; (b) tests of the interventions by independent research teams in different settings (including actual practice ones); (c) the use of treatment manuals and therapist training and monitoring procedures to ensure adherence to the procedures in the manuals; (d) the comparison of well implemented interventions; (e) the evaluation of their outcomes with a clearly defined target population that mirrors the population found in regular practice settings; and (f) a high percentage with completed follow-up data over a long follow-up period (Chambless & Hollon 1998). Because the outcome data have proven promising for each of these interventions, it would seem that they have the potential to advance the field of adolescent substance use disorder treatment by providing well-articulated, standardized, relatively brief treatment protocols that can easily be replicated in the field and in future studies.

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