

MULTIDIMENSIONAL FAMILY THERAPY FOR ADOLESCENT DRUG ABUSE: RESULTS OF A RANDOMIZED CLINICAL TRIAL

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ABSTRACT

Random assignment was made of 182 clinically referred marijuana- and alcohol-abusing adolescents to one of three treatments: multidimensional family therapy (MDFT), adolescent group therapy (AGT), and multifamily educational intervention (MEI). Each treatment represented a different theory base and treatment format. All treatments were based on a manual and were delivered on

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a once-a-week outpatient basis. The therapists were experienced community clinicians trained to model-specific competence prior to the study and then supervised throughout the clinical trial. A theory-based multimodal assessment strategy measured symptom changes and prosocial functioning at intake, termination, and 6 and 12 months following termination. Results indicate improvement among youths in all three treatments, with MDFT showing superior improvement overall. MDFT participants also demonstrated change at the 1-year follow-up period in the important prosocial factors of school/academic performance and family functioning as measured by behavioral ratings. Results support the efficacy of MDFT, a relatively short-term, multicomponent, multitarget, family-based intervention in significantly reducing adolescent drug abuse and facilitating adaptive and protective developmental processes.

There can be no doubt that adolescent substance abuse is a public health problem of considerable national importance (1, 2). The United States achieves the dubious distinction of having the highest rate of adolescent drug abuse among the industrialized nations of the world (3, 4). The immediate costs and developmental consequences of adolescent drug problems on the youth, his or her family, and society are well documented: school failure, delinquency, motor vehicle accidents, arrests and incarceration, and increased risk for human immunodeficiency virus (HIV) and other physical illnesses (5–7). Long-term consequences of drug misuse include impaired psychological functioning, including mental health problems, serious criminal involvement, marital problems and divorce, and job instability (8). Moreover, the consequences of adolescent drug abuse extend to the next generation (9). Longitudinal studies reveal that substance-abusing parents show deficiencies in parenting and have children with drug problems and/or behavioral difficulties as well (cf. 10–12). Writing about at-risk youths, Dryfoos (13) claims the following:

A new class of “untouchables” is emerging in our inner cities, on the social fringes of suburbia, and in some rural areas: young people who are functionally illiterate, disconnected from school, depressed, prone to drug abuse and early criminal activity, and eventually, parents of unplanned and unwanted babies. These are the children who are at high risk of never becoming responsible adults. (p. 72)



**INTERVENTION FOUNDATIONS: PSYCHOSOCIAL
FACTORS AND DEVELOPMENTAL PROCESSES
ASSOCIATED WITH ADOLESCENT SUBSTANCE ABUSE**

Considerable scientific progress has been made in understanding the causes and correlates of adolescent drug problems. We know a great deal about the ingredients, sequence, and interactions that predict initial and increased drug involvement (14), and the clinical usefulness of this expanded knowledge base has become increasingly apparent (15). Adolescent substance abuse develops on several, sometimes intersecting, pathways (7), hence its designation as a multidimensional and multidetermined phenomenon (16) requiring interventions that address these multiple domains of functioning (14, 17). The accumulation of empirically based knowledge yields a new conceptualization of adolescent substance abuse that is more complex than in previous historical periods (18). Drug problems are now understood through the filter of one or several theoretical lenses. Social cognitive factors; psychological functioning, personality, and temperament; values and beliefs; family factors; peer relationships; environmental influences such as school and neighborhood; and sociocultural factors such as norms and media influences have empirical links to the development and maintenance of adolescent drug abuse (7).

The clinical picture of adolescent drug abuse is as complex as its etiology. Drug abuse can be conceived both as a stimulus that creates problems in one or more developmentally important areas and as a response to past or current life circumstances. Adolescent drug abuse co-occurs with other clinical problems with alarming frequency. Conduct disorder, depression, anxiety disorders, sexual acting out, and academic problems co-occur with adolescent drug problems with significant regularity (19).

Family Factors

Family factors are influential in the genesis and exacerbation as well as in the protection against adolescent drug abuse and behavioral problems (20, 21). Parent and sibling substance abuse, parental attitudes that minimize the dangers of drug use, poor relationships with parents, and inadequate child-rearing practices are closely linked to adolescent drug problems (22–24). Several studies have demonstrated the direct effect of parental monitoring on levels of adolescent substance abuse (25). Parental monitoring and changes in parenting practices prevent or delay drug involvement and are related to a decrease in adolescent drug use even after a pattern has been established (26, 27). One mechanism for this influence process is the management role of parental monitoring vis-à-vis



the adolescent's peer environment (28). The extent and nature of parental contact limits an adolescent's access to and opportunity for connection with antisocial and drug-using peers and contexts not supervised by adults (28, 29).

Additional aspects of how a positive parent-adolescent relationship facilitates adaptive developmental outcomes are also becoming apparent. In one of the largest studies to date on adolescent health, family relationship variables such as feeling connected to and cared for by one's parents, high parental expectations about school performance, and parents' presence and interest in the adolescent's life all were strong predictors of positive adolescent development (30). Findings from longitudinal studies demonstrate that problems in family functioning commonly pre-date the initiation of adolescent problem behaviors (31–34). Taken together, these findings have established the family's critical role in facilitating and maintaining developmental outcomes.

Individual Factors

Although family variables have demonstrated their centrality in the causes and potential solutions for adolescent drug problems, other factors also contribute to the development and maintenance of adolescent substance abuse (35). Several longitudinal studies found personality variables, such as shyness and aggressiveness, predict the development of adolescent drug problems (36). For example, Shedler and Block (35) found a personality syndrome marked in interpersonal alienation, poor impulse control, and manifest emotional distress to characterize teens who were frequent drug users. Other personality traits, such as high novelty seeking and low harm avoidance (37), significantly predict early onset of substance use. Impulsivity and poor emotion regulation in childhood and adolescence are also correlates of adolescent drug use and abuse (38). An adolescent's attitudes and beliefs, such as perceived harmfulness and perceptions about the extensiveness of drug use by same age cohort, have also been found to be related to the onset and continuation of adolescent substance use (14).

Peer Factors

Strong evidence exists for the direct and indirect influence of peer relationships on the development and deepening of adolescent substance use and abuse. Perhaps the most robust finding in this area concerns how drug-using teenagers associate with teenagers who also use illicit substances. Longitudinal research has demonstrated that peer affiliations in adolescence are shaped by a dynamic social, family, and individual process that includes social stratification, family functioning, and individual behavioral predispositions (39). How peers influence



the adoption of drug-using attitudes and behaviors is complex. For example, although rejection by nondeviant and nonantisocial age mates begins in childhood (40), antisocial and drug-using adolescents are not without friends. While these friendships tend to be less stable than those between non-drug-using and nonantisocial peers, real friendships between antisocial adolescents exist. One characteristic of these relationships is a negative reciprocal coercion—a tendency to respond to negative interchanges with an escalating negativity. This process is effective in teaching new antisocial behaviors and solidifying existing antisocial beliefs.

Peers are not only instrumental in the antisocial initiation process, they also provide the context for the systematic escalation of problem behaviors (41). Using behavioral coding research strategies, Dishion, Patterson, and Griesler (42) studied the relational patterns of antisocial boys. This study revealed that connection and positive affect between adolescent boys is organized around rule-breaking topics (42). These studies and others using fine-grained process analyses, including those in the family interaction area (43–45), have particularized problem-producing processes among teenagers, giving treatment developers rich and empirically established knowledge to inform intervention design.

Interaction of More Than One Risk Factor

A breakthrough in our understanding of adolescent drug abuse occurred when studies began to examine multiple factors in relation to each other, as well as their sequential and dynamic interaction with each other through time [an excellent example is the psychobiological, maturational conceptual model by Tarter et al. (46)]. Recent advances have mapped a process of multidirectional influence among various developmental contexts, such as self, peer, and family (47). For instance, parenting behaviors can be understood in terms of factors such as the psychological functioning of the parent (17) or the different temperament characteristics of the teenager. Carlo, Roesch, and Melby (48) found that parents react differently and have different expectations of teens who are, for example, aggressive or sociable. Moreover, parental responses and expectations in combination with adolescent temperament led to different behavioral outcomes for the teenager. In other work, as early theorists suggested (49, 50), adolescent distress can derive from parental distress and compound it, and parent distress can derive from adolescent distress and compound it as well.

In a related vein, Mounts and Steinberg (51) present an ecological analysis of the interaction of peer and parent influence on adolescent school functioning and drug use. These researchers found that, if an adolescent had parents who were less authoritative, the impact of having a drug-using friend was stronger than with teens whose parents offered more optimal parenting. Another example



of the complex etiological picture that emerges when we consider multiple risk factors in dynamic relation to each other is found in the longitudinal research of Brook and colleagues (52). Family relationship factors and peer relationships were found to be direct mediators of neighborhood and school effects in the progression of adolescent drug problems. Adversarial parent-adolescent relationships are connected to and precede a teen's association with deviant peers (53–55). Moreover, the passage of time interacts with and predicts increases in illicit drug involvement as well. The cumulative effect of stressful life experiences over time can lead to a pronounced escalation of drug use in adolescence (56).

In sum, given the fact that an adolescent's association with deviant peers elicits drug use tendencies (57) and the well-documented importance of family relationship and antisocial peer connections in the development and exacerbation of deviance, interventions that can change these multiple and interacting processes are important to develop and test. Research strongly recommends the level of comprehensive (16, 58), developmentally sensitive (59) treatments that not only ameliorate symptoms, but also facilitate protective and prosocial processes, and that these new therapies be tested according to contemporary, state-of-the-science criteria (60).

Selection of the Three Treatments

Perhaps nothing is more important in the design of a randomized clinical trial than the decision concerning which treatments will be compared (61). The treatment conditions of a controlled trial should represent commonly used interventions and test the theoretical underpinnings of a treatment (62). A controlled trial should also reflect the stage of knowledge development in a field. Above we outlined the causes and correlates of adolescent drug abuse. This knowledge base, particularly as it pertains to the contributions made by families and peers in adolescent health and psychopathology, has informed the selection of the treatments for the present study. We examined the efficacy of multidimensional family therapy (MDFT) (63, 64) in reducing adolescent drug use and associated problems such as delinquent behaviors, school failure, and maladaptive family functioning by comparing it to two alternative treatments: adolescent group therapy (AGT) (65) and multifamily educational intervention (MEI) (66). The two comparison treatments, group and multifamily educational therapy, were selected because of the theory-based contrasts they could provide. Briefly, MDFT and MEI are both family-based interventions that aim to change, among other things, parenting behaviors and family interactions. However, MDFT works with one family at a time, and MEI works with several families at once. MDFT derives from more of a family therapy or psychotherapy tradition than does MEI, which is both more structured and more psychoeducationally focused than MDFT. MDFT



and AGT, although using vastly different treatment formats (MDFT uses family and AGT uses adolescent peer group), both focus on the individual adolescent (e.g., psychosocial developmental issues [including self-efficacy and social skills]) to a considerable degree. Finally, both MEI and AGT utilize peer group support delivered mainly through a semistructured therapeutic group format in which peer influence is the putative primary change mechanism.

As the most comprehensive treatment in the study, MDFT targeted more of the known determinants of adolescent substance abuse and other problem behaviors (see Refs. 67, 68) than either of the comparison treatments. Although there is considerable discussion on the importance of comprehensiveness in treating adolescent drug problems, there have been few empirical tests of this particular factor in accounting for efficacy (69). We hypothesized that youths who received MDFT would show significantly greater reduction in drug use, antisocial and delinquent behaviors, and negative family functioning at termination than youths who received either of the other two treatments. Moreover, we hypothesized, again on the basis of the targeting of multiple developmental systems by MDFT (15), empirically established determinants of dysfunction, and facilitating protective processes (27, 43), that symptom reduction and prosocial improvement would be maintained in MDFT subjects at the two follow-up periods, 6 and 12 months following termination.

In this study, we were interested in testing the effectiveness of drug abuse treatments that might be stand-alone alternatives to those based on a chemical dependency philosophy and approach. This interest was not guided by an ideological bias against chemical dependency or 12-step-focused models, but rather in the scientific quest to test the influence and limits of treatments that were developed from psychotherapy rather than drug counseling traditions. A previous comparison of this nature (psychotherapy and drug counseling treatments) was carried out with adult cocaine-abusing patients (70).

METHOD

Participants

Eligible participants were adolescents between 13 and 18 years old, with no history of mental retardation or organic dysfunction, who did not require inpatient detoxification, and who were using any illegal substance other than alcohol at least three times per week. Alcohol use could be greater or less than three times per week. Youths and their families were referred from the juvenile justice system and secondarily through schools and health and mental health agencies. To be eligible for the present study, youths could not be involved in any other form of psychotherapy-oriented drug treatment or any Alcoholics Anonymous (AA) or



Narcotics Anonymous (NA) treatment at the time of referral. The mean age of the adolescents was 15.9 years ($SD = 1.4$), and 80% were male. There were 51% white, non-Hispanic; 18% African-American; 15% Hispanic; 6% Asian; and 10% other. Thirty-one percent came from two-parent households, 48% from single-parent households, and 21% from stepfamilies. Youths had an average of 1.29 siblings. The median yearly family income from all sources was approximately \$25,000. Of the adolescents, 51% were polydrug users, while 49% were strictly marijuana and alcohol users. Adolescents had been using drugs for an average of 2.5 years. Reflecting delinquent behaviors in addition to drug abuse problems, 61% were on juvenile probation at intake.

Treatment Conditions

Youths were randomly assigned to one of three treatments: MDFT, MEI, or AGT. Treatment dosage and duration were equalized across the three intervention groups. Each of the three treatments consisted of a minimum of 14 and a maximum of 16 weekly sessions, which occurred over a period of 5 to 6 months in a clinic setting.

Multidimensional Family Therapy

MDFT is an outpatient, family-based treatment for adolescent substance abuse (71). It was influenced by the strong tradition of family therapy models in the substance abuse field (21, 72, 73). Different versions of the treatment have been developed and tested in treatment outcome studies (74). Treatment development goals (e.g., testing the model under different treatment delivery parameters, such as treatment dose or intensity), adolescent sample characteristics (e.g., age, comorbid status, gender), and a variety of scientific questions (e.g., transporting the approach to regular clinical settings) are among the factors that have led to the development of different versions and tests of MDFT (75). Treatment process studies of MDFT have helped to define outcome related within therapy content themes, family interactional patterns, therapist-family member interactions, and therapist techniques (27, 43, 76–78).

Developmental psychology and developmental psychopathology have also significantly influenced the MDFT treatment. MDFT interventions are based on research-derived knowledge about adolescent and family development and adolescent drug abuse and problem behavior formation (67, 68). Assessment and intervention are fully informed by contemporary research on the causes and correlates of adolescent substance abuse. At the same time, the established protective factors that can combat the influence of risk- and dysfunction-producing pro-



cesses are also used to guide interventions. Another influence is family systems theory generally and the family therapies of Minuchin (79) and Haley (80) in particular.

MDFT is a family-based, developmental-ecological, multiple systems approach (81). It is a comprehensive and multicomponent, stage-oriented therapy. Treatment addresses the individual characteristics of the adolescent (e.g., cognitive mediators such as perceptions of the harmfulness of drugs; emotion regulation processes [drug use as coping or as a manifestation of distress]), the parent(s) (e.g., parenting practices, parental stress), and other relevant family members (e.g., presence of drug using adults); as well as the interactional patterns (e.g., emotional disconnection) (82) that link to the development and continuation of drug use and related problem behaviors.

In the present study, MDFT consisted of 16 total sessions delivered on a weekly basis in an office-based setting over an average of 5 months. Individual and family sessions were used throughout, frequently on the same treatment occasion. Individual sessions with the parent and/or adolescent might have preceded a family session on any particular day or evening. Engagement and establishing a foundation for treatment were major emphases in the first treatment phase (1 month). Establishing multiple therapeutic alliances with the adolescent, parent(s), other family members, and even extrafamilial sources of actual or potential influence was vital in this stage as well (76). Using knowledge of normative and atypical development, including the generic themes of family life with teenagers, the therapist explored and crafted content themes that were personally meaningful to each family member (67, 83). This process helped the parents and teenager to articulate an agenda and objectives that made the treatment personally relevant for each of them (77). Individualized treatment objectives were defined through a negotiation *and* integration of these personal agendas with the generic goals of the treatment program. Examples of generic goals would be the improved functioning of the teenager in the form of stopping or decreasing drug use and movement from a drug-using lifestyle to one characterized by prosocial activities and development-enhancing activities and relationships.

Since MDFT is a therapy of multiple subsystems, a comprehensive, multi-systemic assessment is a critical component of the first phase of treatment. Each area of the adolescent's life is assessed. The multiple reports of the adolescent, family members, relatives/extended kin, and important adults involved with the teenager, including school personnel or friends of the family, paint a portrait of the teenager's current life circumstances, as well as the therapy-relevant pieces of his or her history. By the end of treatment's first 3 to 4 weeks, the therapist has established relationships with those persons most relevant to the adolescent. Within three key intervention domains—the adolescent, parent, and parent-adolescent interaction—the attempt is made to accomplish particular tasks (e.g., relationship formation, agenda establishment, definition of and motivation to attempt



treatment, renewal of parent's connection to the adolescent or the teenager to the parent) as prerequisites to and foundations for the more demanding and stressful directive behavioral change strategies (42, 84).

The approach builds social competence, prosocial behaviors, antidrug use attitudes and behaviors, a nondeviant peer network, and more developmentally facilitative family relationships. To accomplish these goals, the clinician seeks direct access to the youth's functioning in multiple domains (e.g., access to the youth's emotional life and thinking processes, access to interactions with the youth's parents, access to the youth's parents directly). The approach works aggressively to win the cooperation of family members (e.g., Ref. 76), who are enlisted in strong efforts to reorganize the youth's daily environment.

The middle phase of treatment lasts about 2 months, and it addresses, in a problem-solving way and in a manner that promotes new areas of functioning, the clinical themes and individualized objectives outlined in the first month. The treatment format involves individual and family sessions. Change is facilitated with the adolescent and other family members at intrapersonal and interpersonal levels, and change in each of these realms is understood in the context of change in the other. During individual sessions, the therapist and adolescent work on important developmental tasks such as decision making and mastery. Encouraging important aspects of development, the therapist helps the adolescent acquire new communication skills to express thoughts, feelings, and experiences. Problem-solving skills that address life stressors are also taught in an individualized way. Discussions and problem solving concerning job skills and vocational training or GED (general equivalency diploma) facilitation are also frequent areas of work during this treatment phase.

Certain parenting styles and belief systems as they pertain to children have been shown to be related to adolescent drug abuse, and as such, they are prime intervention targets. Therapists help parents to examine their current relationship with their teenager since the quality and tone of this relationship influence an adult's parenting styles. Parents learn to distinguish influence from control, and they learn to accept that not everything can or needs to be changed to have a developmentally appropriate influence on their child. Compared to the opening phase of treatment, this phase involves more directive change attempts of family interactional patterns through the clinical method called enactment (79). Positive and deleterious aspects of family relationships are expressed through behavioral interactional patterns or repetitions that are linked to the development and continuation of dysfunction. Enactment, as a technique, gives an *in vivo* picture of existing family relationships and a technique to shape new kinds of family interactions (81).

Therapists coach parents on new ways of reaching out to their teenagers (e.g., expressing their concerns about their teen's development, taking a stand against deviant peers and against drug use). Therapists help adolescents address



the issues that stand between them and their parents. Sometimes, these are present-focused issues such as conflict over autonomy, but frequently they involve historically powerful family disagreements or crises (77). Therapist techniques in this phase are action oriented rather than reflective. The therapist prompts new transactional alternatives within the family as well as between the adolescent and his or her social world. Drug taking is defined in lifestyle terms, and thus it is the complex of drug taking and the youth's connection to the antisocial peer network that we seek to help the adolescent reject and replace with a prosocial lifestyle.

The third phase lasts the final month and involves the transitioning away from a weekly therapy-involved and focused lifestyle to one that bridges the new ideas, skills, and behaviors begun in treatment to real-world environments. Generalization and maintenance of change are emphasized during this phase, with special focus on articulating for future use and reference the new ways of thinking, responding, and interacting.

Multifamily Educational Intervention

The MEI treatment blended features of psychoeducational and multifamily interventions. Multifamily groups have a strong history in family therapy. Variations of this approach have been found effective with diverse clinical problems such as chronic disease and alcoholism (73). Psychoeducational interventions also have a noteworthy track record with patients with major mental illness and with their families (85).

The multifamily educational intervention (66) consisted of groups of three to four families. This treatment was guided by theoretical principles from family systems and social support theory generally and from psychoeducational approaches to family intervention in particular. The intervention format consisted of focused and structured, content-specific group discussions, didactic presentations that included handouts, skill-building exercises, individual family problem solving within a group meeting of several families, and homework assignments. Intervention content consisted of learning alternative forms of stress reduction, family and individual risk and protective factors, improving family organization rules and limit setting, and improving family communication and problem-solving abilities.

The multifamily groups attempted to facilitate a supportive interfamily group process. Families were encouraged to help each other and to use themselves as examples for mutual problem solving. There was a consistent message of family and personal empowerment in all of the activities. The peer influence of the group was as useful with adults as with adolescents. As part of the group social support process, families were encouraged to bring food to share and to celebrate



goals met and changes made during the course of the program. The group also functioned as an extended family for single parents or for families that were isolated in the community.

Each 90-minute session was structured in three parts: (a) didactic presentation (informal and conversational vs. formal lecture) by the leader, (b) topic-focused intrafamily and/or interfamily group discussion, and (c) skill-building exercises. Families received workbooks with content summaries of the session foci and activities. Homework assignments encouraged the practicing of new skills. The MEI therapist's role was one of educator and facilitator of inter- and intrafamily communication processes. Leader presentations focused on the program topic of the week. The topics reflected research on adaptive family and individual developmental processes during the adolescent life cycle stage. The nine topics were

1. Understanding the family as a social system and the family life cycle
2. Enhancing individual and family strengths
3. Negotiating rules, privileges, and developing effective discipline
4. Promoting household cooperation
5. Understanding emotions in the context of the family
6. Improving problem solving skills
7. Improving communication skills
8. Managing stress
9. Understanding adolescent substance abuse and adolescent development

Family and group discussion focused on learning about the week's topic and on reviewing the results of homework assignments. According to the focus and goals of the unit, discussions sometimes involved adolescents and siblings only, with parents present but only listening. On other occasions, only parents were involved. Some discussions involved only one family, while others involved talk among several families. Skill-building exercises were handled in much the same way as the group discussions. Skills included learning a model of problem solving, the application of natural and logical consequences, devising ways to divide household responsibilities, learning to use "I messages" or make self-representational statements, and using constructive ways to express feelings.

In addition to the multifamily groups, individual crisis sessions were available to families on request of the family or the therapist in the case of emergencies. These sessions were limited to two sessions per family in the 16-week period.

Adolescent Group Therapy

Although group treatment for teenagers has not always been effective (86), and at least one study reports iatrogenic results from a group intervention for



drug-involved youths, evidence for the effectiveness of group therapy has been found for a variety of adolescent problems (87). In this study, the group therapy approach was an adaptation of Beck's (88, 89) group therapy model. This intervention is based on phases of group development, with different therapeutic tasks and goals assigned to each phase (also see Refs. 90 and 91 for a discussion of the phases of group therapy with adolescents). The emphasis was on developing individual social skills such as communication, self-control, self-acceptance, and problem solving, as well as building social support among group members. Didactic presentations, group discussions, and group skill-building exercises were initiated in a decidedly noncoercive manner to establish participation and trust. Groups of between six and eight adolescents were led by two therapists for 90 minutes.

Treatment began with two individual family sessions to enlist cooperation, outline the goals and format of the treatment, and discuss group rules and procedures. In these family sessions, the therapist tried to enlist and facilitate parental support of and cooperation in the treatment. Parents were requested to facilitate actively the adolescent's attendance at the weekly group sessions. Making verbal reminders, providing bus or train fare, or driving the teen to group were the most frequent areas identified by parents as ways they could support the teen's participation in treatment. The therapists also had an individual meeting with each teenager to gather personal history information, provide an introduction to the group therapy process, and initiate the motivation enhancement procedures believed to be critical to group attendance. An individual needs assessment was conducted from which the adolescent set personal goals, and the therapist-adolescent alliance was begun.

Phase 2 of the AGT model had four structured adolescent group therapy sessions that began with member introductions and discussions of confidentiality and limit setting. Structured activities facilitated self-disclosure. Past and current problem areas and strengths/accomplishments were shared. Phase 2 also included communication skill-building exercises. When the process was successful, trust among the adolescents and a group identity had been established by the end of this phase.

Phase 3 was the skill-building phase. The goal of the structured activities and homework assignments was to develop the adolescents' social skills. The content included developing drug refusal, conflict resolution, and anger management skills; communication and problem solving with peers, parents, and other adults; clarification and communication in the affective realm (e.g., anger, assertiveness); and developing prosocial interests and behaviors. Group support processes (e.g., support for a drug-free lifestyle), a fundamental hypothesized mechanism of change, were facilitated in every session, and members received homework assignments to practice their skills. Reviewing homework assignment results was an important part of Phase 3 sessions.

Phase 4 emphasized generalization and maintenance of new skills. Skill



behaviors were refined; continued practice of these skills was encouraged; members assessed their progress; and relapse prevention and termination issues were discussed.

Therapists

Therapists were nested within each treatment condition—they were trained and conducted therapy in the modality in which they had the most expertise and allegiance (92). All therapists had similar levels of previous experience and educational backgrounds prior to working on this study. Study therapists were recruited through local professional organizations and several community clinics. We selected therapists who were working in community agencies to add to the generalizability of the study to those practice settings (92). Project therapists worked part time on the research project and continued to work in their community clinic positions throughout the study.

The therapists who delivered the treatment were divided evenly between men and women, and 80% were white, non-Hispanic. There were 80% with master's degrees, and 20% had doctoral degrees. They had an average of 7 years of experience working with teenagers, 3 years of experience with adolescent substance abusers, and 6 years working within the therapeutic modality they delivered in the present study (family therapy, multifamily therapy, or adolescent group therapy). Each therapist worked with an average of four cases. Multivariate analyses of variance (MANOVAs) revealed no significant differences as a function of therapist or of therapist-by-treatment condition. Hence, there was no therapist-effect variable included in the evaluation of treatment effects (92).

Treatment Integrity

To ensure that the study results reflect the effects of the three distinct, manual-guided treatments, all study treatments need a high degree of internal model consistency (93). To maintain treatment integrity, each treatment developed a treatment manual and model-specific training videotapes. The treatment manual was used in the training phase and throughout treatment.

Supervisors were experts in the particular modality and were principal developers of the models tested in the study. Close supervision is a well established aspect of any efficacy study (94, 95), and empirical support exists for the relationship between adherence to a well-defined treatment model and clinical outcomes (96). All therapy sessions were videotaped for supervision and treatment adherence purposes. Supervision methods included case review, videotape review, and live supervision. Supervision time averaged 1 hour per week for each therapist



throughout the study. Although no rating scale was used to monitor treatment adherence to the respective manuals, the close supervision, which included the videotapes of therapy sessions, prevented drift from the manuals. This process allowed supervisors to correct deviations from the treatment protocols on a weekly basis.

Research Procedures

Families who were referred to the study were contacted by telephone and screened for initial eligibility. They were informed that a 1.5-hour research assessment would be conducted prior to treatment, immediately after termination, and again at 6 and 12 months following termination. It was emphasized that participation was voluntary, and that subjects had the right to discontinue participation in the research at any time. Research assistants received 20 hours of initial training and additional ongoing supervision to standardize data collection procedures and minimize circumstances that might threaten the validity of the data (e.g., client/family resistance, reading problems). The research assistant explained the general procedures and purpose of the assessment and obtained written consent prior to the first assessment session.

Outcome Measures

Attrition

Attrition was measured as client-initiated termination after the first session and before session 14 or refusing to return for the posttreatment assessment battery.

Drug Use

Multiple sources of information—a standard in substance abuse treatment research (97)—adolescent self-report, collateral report (parent report), and urinalysis data were gathered for each adolescent. Using a structured interview guide that asked about the youth's frequency of drug use over the prior 30 days, assessors separately interviewed youth and parents. Information gathered from the interviews and urinalyses reports were independently reviewed by three experienced clinician-raters (two master's level and one doctoral level individuals). These raters, blind to treatment condition and assessment phase (intake, termination, follow-up), reviewed each adolescent's dossier of information about (a) type



of drug(s) used, (b) frequency of use, and (c) number and combination of different drugs used as determined by the three data sources of adolescent self-report, parent report, and urinalysis results.

The raters then rated the severity of drug use on a Guttman-type scale designed to reflect both existing knowledge about adolescent drug-using patterns (98) and specific drug-using patterns in the current sample. The raters examined the evidence presented in each dossier and then classified drug use consumption on a 15-point scale; a rating of 1 indicated no drugs used, and each subsequent scale point indicated gradually increasing seriousness of drug use, ending at 15, which indicated daily marijuana use and more than twice per week use of other substances, excluding alcohol. See Table 1 for a complete listing of the drug use classification scheme. Interrater reliability was assessed using the intraclass correlation coefficient (ICC) for random judges (99). The ICC was .92, indicating excellent agreement among raters.

The measure of drug consumption used in this study evidenced concurrent criterion-related validity by its correlations with criteria that are known to be associated negatively with drug use among adolescents, namely, perceived harmfulness of drugs and perceptions of friend disapproval of drug use as assessed by measures employed in the Drugs and American High School Students surveys (100). At intake, drug use was negatively correlated with youth perceptions of both the harmfulness of drugs ($-.30$), and their friends' disapproval of drug use ($-.44$).

Table 1. Adolescent Drug Use Scale

1 = No drug use
2 = Alcohol or marijuana; a single drug used not more than 1 time/month
3 = Alcohol or marijuana used 2–3 times/month
4 = Marijuana used 3–4 times/month
5 = Marijuana used 5–6 times/month
6 = Marijuana used 1–2 times/week
7 = Marijuana used 3–4 times/week
8 = Marijuana used 5–6 times/week
9 = Marijuana used daily or more
10 = Marijuana used daily or more, plus single other drug used less than once/month
11 = Marijuana used daily or more, plus single other drug used 1 time/month
12 = Marijuana used daily or more, plus other drug(s) used between 2 and 3 times/month
13 = Marijuana used daily or more, plus other drug(s) used between 4 and 6 times/month
14 = Marijuana used daily or more, plus other drug(s) used between 1 and 2 times/week
15 = Marijuana used daily or more, plus other drug(s) used more than 2 times/week

Note. Points 4–15 may include consumption of alcohol. Usually, youth consumed marijuana in combination with alcohol. Points 1–15 notation of “other drug” includes any and all drugs with the exception of alcohol.

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ADOLESCENT SUBSTANCE ABUSE**667****Problem Behaviors**

Problem behaviors were measured by the Acting Out Behaviors (AOB) Scale (101) derived from the Devereux Adolescent Behavior Rating Scale (102), which was administered to the adolescent's primary parent. The AOB Scale identifies the extent of poor anger control, interpersonal problems, impulsivity, mood swings, and antisocial, aggressive, and sexual acting out behaviors. The AOB Scale has been found to be internally consistent with an average coefficient alpha of .87 (101). Cronbach's coefficient alpha in the current study was .93, indicating excellent internal consistency. External and concurrent validity have also been demonstrated (103).

School Performance

School performance was assessed by the adolescent's grade point average (GPA). School records were gathered for the semester immediately before treatment, immediately after treatment, and during the follow-up period between 6 and 12 months following treatment. One concern in conducting analyses was that a raw GPA score does not account for many differences associated with improvement. That is, the range restriction of GPA potentially confounds important change. Specifically, there are important meanings attached to and consequences of improving the GPA one point or more among youths who are failing at intake. For example, earning a grade of 2.0 or above indicates that, at a minimum, the youth had to attend classes, pay attention, and pass tests. Moreover, a 2.0 average allows the student to enter college preparatory courses and access extramural activities such as sports. To reflect these meanings best, analyses were conducted on transformed GPAs. The transformation was a simple inverse logarithm (base 10) of GPA to overcome the range restriction of the variable. This transformation was conducted to account for the important qualitative differences observed between a GPA below 2.0 and GPAs above 2.0. However, data were transformed back to customary GPAs for presentation (cf. 104).

Family Functioning

Family functioning was measured by a rating scale that assesses the degree of health and dysfunction of behavioral family transactions, the Global Health Pathology Scale of the Beavers Interactional Competence Scales. This scale has demonstrated adequate reliability and validity in previous studies (e.g., 105, 106). The Global Health Pathology Scale is rated from 1 (optimal functioning) to 10 (severely dysfunctional) and is based on general systems theory, clinical work



with families, and research investigating family relationship qualities that correlate with family health or dysfunction (107). The global scale characterizes the overall level of family competence/health by focusing on features of family structure, communication, and expression. Detailed descriptions of each of the 10 anchor points are provided in the scale's manual (107). Research assistant raters trained by the developers of the scale rated videotaped family interaction. Raters viewed 20 minutes of videotaped family interaction in which families responded to three standardized family interaction tasks (108). The format asked the families to (a) plan a menu for dinner, (b) discuss what they like and dislike about each other, and (c) talk together about a family argument or fight. Raters made their ratings after viewing the entire segment. Interrater reliability was assessed using the ICC for random judges (99). The ICC was .85, indicating excellent agreement among raters.

RESULTS

Preliminary Analyses

First, we examined whether subjects assigned to each of the three treatment groups differed at intake on measures of adolescent symptomatology and demographic characteristics. ANOVAs and chi-square tests revealed no significant differences among the three treatments at intake on adolescent age, gender, ethnicity, juvenile justice/probation status, family structure, family income, mother's education, and nature and extent of adolescent symptomatology. However, youths assigned to MEI had significantly higher family competence than youths assigned to MDFT ($p = .03$) as measured by the Beavers Interactional Competence Scales. In addition, we ran these same analyses on youths who completed treatment and obtained the same pattern of results. Also, no differences were found on intake status characteristics (i.e., demographic and outcome variables) between those adolescents who completed treatment and those who dropped out prior to the posttreatment phase.

Attrition

There were 182 cases assigned to treatment, with 30 (16%) classified as treatment refusers since they failed to attend even one therapy session. Of the remaining 152 cases, 47 were assigned to MDFT, 52 to MEI, and 53 to AGT. There were 30% who did not complete MDFT ($n = 14$), 35% ($n = 18$) dropped



from MEI, and 47% ($n = 25$) dropped from AGT. The overall chi-square analysis revealed a small effect, $\chi^2(2) = 5.06, p = .08, V = 0.03$. No significant difference was found between the two family-based treatments (MDFT and MEI): $\chi^2(1) = 0.71, p = .40$. However, a significant difference in attrition was found between MDFT and the AGT, $\chi^2(1) = 4.79, p = .03, V = 0.06$.

Treatment Effectiveness

Intake to Termination

Repeated measures ANOVAs were used to evaluate intake-to-termination changes. Separate ANOVAs were conducted for the drug use scale, AOB Scale, GPA, and Beavers Family Competence Global Scale. The means and standard deviations for the measures at intake and termination are presented in Table 2. Significant ANOVAs for the effect of time were found on the measure of drug use, $F(1, 92) = 53.15, p = .0001, \eta^2 = 0.36$; and acting out behaviors, $F(1, 92) = 12.55, p = .0006, \eta^2 = 0.12$; but not for family competence, $F(1, 70) = 0.33, p = .56$ or GPA, $F(1, 72) = 3.73, p = .076$.

Differential effects due to treatment condition are shown by the Time \times Condition interactions. The ANOVA for the measures of drug use, $F(2, 92) = 6.61, p = .002, \eta^2 = 0.12$, and family competence, $F(2, 70) = 4.48, p = .01, \eta^2 = 0.11$, showed a significant interaction. The interaction between treatment and time was not significant for either acting out behaviors, $F(2, 92) = 1.16, p = .32$, or GPA, $F(2, 72) = 1.83, p = .17$. With respect to drug use and family functioning, examination of the means shows that adolescents receiving MDFT, on average, showed the most improvement from intake to termination.

Intake, Termination, and Follow-Up

Table 3 presents the repeated measures ANOVA with type of treatment as the single between-subjects factor and time as the within-subjects factor. Tests of the sphericity assumption have been questioned by a number of authors (e.g., 109). Hence, we followed Keppel's (110) suggestion to assume a violation of the sphericity assumption. Standard guidelines concerning violation of the sphericity assumption to adjust the degree of freedom of the F test by the Huynh-Feldt epsilon if epsilon is greater than 0.75 and to use the more stringent Greenhouse-Geisser adjustment if epsilon is less than 0.75 were followed (111). With respect to all four analyses presented below (drug use, acting out behaviors, GPA, family com-

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Table 2. Analysis of Variance (ANOVA) Results, Group Means, and Standard Deviations on Outcome Variables for the Three Treatments from Intake to Termination

	Mean (SD)		ANOVA Results					
	Termination		Time			Condition × Time		
	Intake	Termination	F	p	η^2	F	p	η^2
Drug use ^a								
MDFT	9.85 (3.77)	4.54 (3.10)	53.15	.0001	0.36	6.61	.002	0.12
AGT	8.90 (2.82)	7.28 (3.30)						
MEI	10.29 (3.18)	7.76 (5.10)						
Acting out ^b								
MDFT	81.67 (22.46)	71.48 (17.46)	12.55	.0006	0.12	1.16	.32	—
AGT	72.93 (26.78)	69.53 (26.46)						
MEI	83.62 (23.74)	77.73 (22.64)						
Grade point average ^c								
MDFT	1.27 (.93)	1.91 (1.15)	3.73	.076	—	1.83	.17	—
AGT	1.54 (.79)	1.52 (1.36)						
MEI	1.61 (1.07)	1.52 (1.07)						
Global family competence ^d								
MDFT	6.15 (1.27)	5.07 (1.31)	0.33	.56	—	4.48	.01	0.11
AGT	5.39 (1.78)	5.61 (1.69)						
MEI	4.65 (1.36)	5.10 (1.99)						

MDFT, multidimensional family therapy; AGT, adolescent group therapy; MEI, multifamily educational intervention.

^a Planned comparisons at termination revealed MDFT to be significantly different from AGT and MEI ($t = -3.33, p = .002; t = -3.11, p = .003$); no differences between AGT and MEI ($t = -43, p = .67$).

^b Comparisons were nonsignificant at termination.



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Table 3. Analysis of Variance (ANOVA) Results, Group Means, Standard Deviations on Outcome Variables for the Three Treatments from Intake to 12-Month Follow-Up

	Mean (SD)						ANOVA Results						
	Intake	Termination	6-Month		12-Month		Time		Condition × Time		η^2		
			Follow-Up	Follow-Up	Follow-Up	Follow-Up	F	p	F	p			
Drug use ^a													
MDFT	9.89 (3.79)	4.79 (3.20)	5.04 (3.77)	4.25 (2.98)			31.45	.000	2.68	.01	0.05		
AGT	8.83 (2.76)	7.33 (3.41)	6.21 (3.66)	5.08 (3.71)									
MEI	10.03 (3.45)	7.26 (5.05)	6.87 (3.79)	7.26 (3.97)			12.55	.001	1.15	.32	—		
Acting out ^b													
MDFT	83.34 (20.62)	71.87 (17.59)	67.22 (17.15)	63.56 (20.14)									
AGT	75.80 (26.61)	72.68 (26.02)	66.36 (21.11)	61.80 (16.92)									
MEI	83.42 (24.09)	77.45 (22.93)	75.51 (24.29)	71.57 (23.44)									
Grade point average ^c													
MDFT	1.77 (1.80)	2.56 (2.59)		2.62 (2.47)			2.95	.09	3.17	.05	0.09		
AGT	1.85 (1.78)	2.44 (2.63)		2.26 (2.09)									
MEI	1.98 (2.20)	2.05 (1.89)		1.925 (1.78)									
Global family competence ^b													
MDFT	6.15 (1.33)	5.18 (1.32)	4.70 (1.32)	4.70 (2.00)			0.70	.56	3.66	.002	0.16		
AGT	6.00 (1.27)	5.67 (1.94)	6.78 (1.94)	5.83 (1.71)									
MEI	4.31 (1.36)	4.77 (1.84)	5.23 (1.75)	5.35 (2.14)									

MDFT, multidimensional family therapy; AGT, adolescent group therapy; MEI, multifamily educational intervention.

^a Planned comparisons at 12 months revealed MDFT to be significantly different than MEI ($t = -3.59, p = .0006$) and AGT to be significantly different from MEI ($t = -2.36, p = .02$).

^b Comparisons were nonsignificant at 12 months.

^c Post hoc tests at 12 months also revealed MDFT to be marginally significantly different from MEI ($t = 1.80, p = .08$).



petence), epsilon was greater than 0.75; thus, a univariate approach with the Huynh-Feldt correction to the F test was used to minimize the type I error rate (112).

Changes in drug use and acting out behaviors across time from intake to termination to the follow-up periods for all subjects were significant ($p < .001$). As a group, all participants showed decreased drug use and acting out behaviors over time. No main effects (treatment condition or time) were observed for GPA and family competence.

The interaction of Time \times Treatment was significant for adolescent drug use, $F(6, 240) = 2.68, p = .01, \eta^2 = 0.05$; GPA, $F(2, 64) = 3.17, p = .05, \eta^2 = 0.09$; and family competence, $F(6, 117) = 3.66, p = .002, \eta^2 = 0.16$, with youths who received MDFT showing the most improvement. The interaction of Time \times Treatment was not significant for acting out behaviors [$F(6, 261) = 1.15, p = .32$].

Clinical Significance

Treatment research has been criticized for its overly narrow focus on reporting only tests of difference—statistically significant group mean or average differences between compared treatment conditions. Contemporary recommendations underscore the need to include clinical significance indicators in controlled trials (113, 114). Two features of the present study can be discussed in this regard: inclusion of (a) prosocial and competence measures (as complementary pieces of the multidimensional picture of change we hope to render) and (b) an estimator of clinical significance.

For this study, we judged a meaningful indicator of clinical significance to be reduction in the youths' drug use below the preestablished eligibility criteria for entry into the study. Youths were accepted into the study by virtue of their drug use. The drug use eligibility level was marijuana use at least three times per week over the last 30 days or single use of hard drugs (alcohol use could be present, but was not the primary study entry criterion). Hence, an indicator of clinical significance would be that, at termination or follow-up, the youth no longer met the symptomatic criteria that prompted their referral for drug treatment. Another marker of clinically meaningful change concerns the important prosocial domain of school competence, a robust predictor of adolescent problems generally and adolescent drug abuse in particular (14, 115). For GPA, we defined criteria for clinical significance in this domain to be passing grades—at least a 2.0 GPA.

At termination, 42% of the youths who received MDFT, in comparison to 25% in AGT and 32% in MEI, reported clinically significant reduction in drug use. At the 1-year follow-up, 45% in MDFT, 32% in AGT, and 26% in MEI



demonstrated clinically significant change in that their drug use was below initial treatment entry criteria. With respect to GPA, at intake only 25% of the youths assigned to MDFT had GPAs of 2.0 (C average) or better; 43% of AGT youths and 36% of MEI youths had GPAs of 2.00 or better. One year after treatment, 76% of the youths in the MDFT treatment condition had a C average or better, while 60% of AGT and 40% of MEI youths had a C average or better. While the three groups did not differ significantly with respect to the percentage of youths having a C average or better at intake [$\chi^2(2) = 1.47, p = .48$], the groups did differ significantly at the 1-year follow up [$\chi^2(2) = 5.99, p = .05$].

DISCUSSION

Comparative intervention effects were evaluated on four adolescent outcome indicators in a clinical sample of youths referred for drug abuse treatment. Two measures of symptomatic impairment and improvement measured drug use and problem behaviors. Two other measures assessed empirically established protective factors: school performance and family competence. These are aspects of prosocial functioning and development that mitigate an adolescent's deepening involvement in antisocial and drug-using lifestyles. The four assessment domains provide a multidimensional view of treatment outcomes.

The general pattern of results indicates an overall improvement among youths in each of the three manual-guided treatments. Parents of youths in each treatment reported similarly on their adolescents' acting out behaviors, indicating significant improvement over time in problem behaviors. However, differential outcomes among the three treatments also were found. Results concerning adolescent drug use, GPA, and family functioning bring the differences between the three treatments into relief, rendering a portrait in which those receiving MDFT showed the most improvement, followed by those receiving AGT and then MEI.

At the end of treatment, participants in MDFT showed a sharp reduction in drug use, and these treatment gains were maintained during the 6- and 12-month follow-up periods. Thus, MDFT produced a rapid (16 once-a-week treatment sessions over a period of 5 to 6 months) and dramatic reduction in drug use. Importantly, youths not only showed a reduction in drug use, but also demonstrated improved prosocial functioning, evidenced by improved academic achievement and family functioning. From intake to follow-up, youths who received MDFT showed considerable improvement in school performance. These youths went from below average grades to passing grades in just over 1 year. Whereas particular educational and psychosocial interventions have been shown to improve academic achievement of at-risk elementary and secondary school students (e.g., 116, 117), as far as we know, there have been only two other treatment studies that demonstrated improved educational performance in a clini-



cal sample of secondary school students evidencing academic failure, moderate to heavy drug use, and behavior problems (118, 119). These findings run counter to the pessimism many educators have expressed about the likelihood of improving the academic performance of failing high school students who use drugs or evidence behavior problems (120).

As hypothesized, the MDFT treatment also produced significant improvement in family functioning. This is important since the adolescent's family environment (specifically family support, parenting practices, and the parent-adolescent relationship) is an empirically established predictor not only of adolescent drug problems, but also of adolescent drug treatment success (121). From intake to follow-up periods, the observable transactional patterns of MDFT parents and adolescents became more functional and developmentally facilitative according to behavioral ratings of videotaped family interactions. MDFT families moved from the behaviorally incompetent to the competent range, while AGT cases showed no change, and MEI families deteriorated on the family functioning scales. These findings are consistent with findings from an earlier MDFT study on the parenting behaviors of parents of clinically referred drug-using teens. In that study, we demonstrated that MDFT changed targeted parenting practices, and that these changes in parenting were correlated with reductions in the adolescent's drug abuse and problem behaviors (27). Taken together, the findings of the present study, along with those of the aforementioned process study, support a core premise about a potential mechanism of change in MDFT, namely, that model-specific changes in the family environment are associated with reductions in adolescent drug taking.

Although some studies that tested group approaches with drug-using teens had mixed (122) and, in one case, iatrogenic results (123), adolescent group therapy in the current study showed a certain potential that should not be overlooked. Although results indicate that MDFT was superior to AGT in retaining youths in treatment and in improving family and school performance outcomes, youths who completed AGT showed a gradual decline in drug use from intake to follow-up. One year after treatment, AGT teens' drug use was as low as for those who participated in MDFT. It appears that there is a sleeper effect with the AGT subjects by which the impact of therapy is not immediate, but rather shows itself at some time later. A finding of this nature is not uncommon in the drug treatment literature (see Refs. 124, 125). Perhaps there is a latent positive response to the skills learned during group therapy intervention. Immediately after treatment, adolescents may have been unable or unwilling to utilize these skills for individual, interpersonal, or other contextual reasons.

At the same time, the findings for AGT need to be understood in the context of the high dropout rate for this intervention. Treatment dropout is a severe problem, and its consequences are disastrous for treatment providers and researchers. Winters (126) found that treatment completers are 2 to 3 times more likely to



have significant substance abuse reductions than noncompleters. Of the teens assigned to AGT, 48% failed to complete the treatment. This compares to a drop-out rate of 30% for MDFT and 34% for MEI. Retaining adolescents in outpatient drug treatment remains a challenge for the field. Kaminer and coworkers (127), although obtaining relatively positive results in their group therapy model, had difficulty retaining drug-using teens in group treatment. Almost half of the adolescents in group therapy dropped out prematurely.

Additional aspects of the findings are apparent if we consider the differential foci and content of the three treatments. Both the MDFT and AGT, but *not* MEI, spent considerable treatment time working individually with the adolescent. MDFT focuses on developmental aspects of the self of the adolescent, as well as the teen vis-à-vis the family and, indirectly, the peer context. Adolescent group therapy focuses on the self of the adolescent directly in a peer context. Both treatments, however, aim to facilitate the adolescent's competent voicing of his or her concerns and acquisition of developmentally appropriate life skills—including communication, negotiation, perspective taking, and problem solving. MDFT builds on these competencies in individual adolescent and parent sessions and in family sessions. Obtained changes in each of these subsystems are brought to bear, *leveraged* in a sense, in the other contexts in which change is being worked (18). The group therapy approach achieved these foci in peer group sessions, in which peer feedback and interaction prompted acquisition of these skills and behaviors. Although MEI addresses all of these focal areas, perhaps it falls short of the other two treatments because of its structured, educational format and its focus on a sequenced content in the context of several families meeting together. It could be that this format does not provide sufficient individual time for the adolescent or for the issues particular to each family to be developed and tailored to each individual teen and family.

Given the pattern of results, it seems reasonable to suggest that an important ingredient for the successful treatment of adolescent drug abuse is the simultaneous focus on the family and the individual youth in an individualized, case-tailored manner. The psychoeducationally oriented MEI intervention focused on adolescent-parent communication and improving parenting skills, and it showed limited success in comparison to the other two treatments. Although the inclusion of family members, particularly parents, in adolescent drug abuse treatment is commonly accepted [indeed, it is seen as instrumental in some practice guidelines such as the CSAT TIPS (128) and AACAP Practice Guidelines (129)], these results suggest that only family-based interventions with particular features will be maximally effective with treatment of adolescent drug abuse. AGT, with its focus on peer support and adolescent skill building, showed a certain, albeit slow-acting, success in decreasing the teen's drug involvement. However, the group treatment did not change the adolescent's family environment, nor did the teens in this treatment improve their school performance as impressively as did the



adolescents in the MDFT treatment. It is MDFT, with its multiple targets of the adolescent's and parent's individual functioning, and individualized attention to parenting practices, family relationships, and the adolescent's extrafamilial environment that showed the overall best results.

Developmental or Historical Context of the Findings

Additional perspective about the findings of the current study is gained if we place these results in the developmental context of the adolescent drug treatment specialty. Early-stage studies evaluating outpatient adolescent substance abuse treatment yielded mixed results. For example, in a state drug treatment outcome study, adolescents with serious drug problems increased their drug use following treatment (130). The DARP (131) and TOPS (132) studies showed reductions in behaviors associated with drug use, such as criminal activity the year after treatment, but drug outcomes were disappointing. Adolescents continued to use marijuana and alcohol after treatment and at the 1-year follow-up point (133). The adolescent drug treatment specialty is vastly different today. We now have adolescent-specific therapies [the Rush study (130) reported on adult-oriented treatments to which teenagers were assigned], that are manual guided, can be taught to community therapists, and can be implemented in community agency settings.

Metanalyses (134, 135) and comprehensive reviews (136–138) have concluded that certain empirically tested family-based therapy models appear to yield the best outcome results in terms of substance use reduction at termination and follow-up. But, for new treatments to be maximally useful in practice and influential at a policy level, they must not only significantly reduce dysfunction, but also increase positive and adaptive functioning. Ideally, this complex of change—the decrease of target symptomatology and the facilitation of prosocial behaviors and protective factors—should show stability or even growth if possible after treatment ends. In the current study, the MDFT approach achieved superior overall outcomes relative to the comparison treatments since it not only created significant adolescent drug reductions, but also had an impact on other critical domains of individual and family system functioning. Given what we know about the important protective and adaptive developmental functions served by positive family relations and a teenager's success in school, the changes achieved by MDFT in these domains must be considered significant.

Another important aspect of the MDFT findings pertains to the durability of the obtained changes. Given previous research demonstrating that between 50% and 71% of all teens relapse to consistent marijuana and alcohol abuse within 90 days after ending treatment (139, 140), in this light, the findings in this study about the stability of changes brought about by the MDFT treatment are noteworthy as well. In addition, Bry and Kripsley (141), among others, have



written about the possibility of including booster, posttreatment interventions to shore up the obtained changes in adolescent family-based treatment. The current study design did not include booster sessions or contacts of any kind for any of the three tested treatments. The measured changes in the MDFT cases—the positive outcomes in important symptom and prosocial domains—were of a treatment that was delivered consistently and coherently in one package, within a 5–6-month, outpatient therapy regimen.

Limitations

Although the results are very encouraging, the study has certain limitations. First, the results are limited by the absence of data on comorbid conditions and a DSM substance abuse or dependence diagnosis. Although the intake data (amount and types of drugs used, 2.5-year history of use, legal problems due to juvenile justice system involvement, and other demographic characteristics) indicate that this is a relatively seriously impaired sample, the absence of clear diagnostic criteria limits generalizability of results.

Next, the sample is heterogeneous in terms of ethnicity and gender. While this improves generalizability of the results to clinical populations of referred adolescents, the subgroups that could be constituted by ethnicity and gender are too small to examine the outcomes by these important variables adequately.

CONCLUSION

When evaluated in the context of research design and procedures considered necessary in contemporary controlled trials, the study evidences many strengths (142). Subjects were clinically referred adolescents, and they were representative of cases clinicians see in community settings. Full randomization was achieved. The measurement strategy conforms with contemporary standards; we used multiple measures from different respondents to assess different theory-related and empirically derived domains of interest, including measures of target symptom measures and prosocial functioning. Community therapists, representative of clinicians in clinical settings, were used. The treatments were delivered in community clinical settings rather than in a research clinic or lab. Each treatment was manual guided, and each of the three therapies tested in the study (family-based therapy, group therapy for teenagers, and multifamily psychoeducationally oriented groups) represents frequently used interventions for adolescent drug abuse. No weak treatments or attention conditions were used. The tested treatments represented strong versions of their respective modality and clinical tradition. Treatment manuals guided each intervention, and weekly supervision



of the clinicians in each treatment monitored adherence and shaped clinician behavior on model-specific parameters.

In conclusion, this study contributes to the growing body of work on the treatment of adolescent substance abuse (143). This literature indicates that certain family-based treatments can engage and retain youths and their families in treatment and reduce drug consumption more effectively than non-family-based treatments (135, 136). The family-based therapy tested in this study stands out in its success in not only reducing drug abuse and related serious functional impairments, but also promoting prosocial behavior, school performance, and family functioning, all in a relatively brief period of time (4–5 months). And, these treatment effects were stable; indeed, in some cases, they accelerated over the 1-year posttreatment follow-up period.

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