

Effective Family-Based Interventions for Adolescents With Substance Use Problems: A Systematic Review

Ashley M. Austin

Mark J. Macgowan

Eric F. Wagner

Florida International University

Objective: This article is a systematic review identifying effective family-based interventions for adolescent substance use problems. *Method:* A substantive review of each intervention is conducted using guidelines for effective treatment for substance use problems. Additionally, a methodological review of each study is done using criteria for empirically validated treatments. *Results:* Treatment components of five interventions—Brief Strategic Family Therapy (BSFT), Family Behavior Therapy, Functional Family Therapy, Multidimensional Family Therapy (MDFT), and Multisystemic Treatment—were consistent with a majority of guidelines for effective treatment. Notable exceptions include no aftercare and poor treatment retention. MDFT and BSFT met criteria of probably efficacious treatment, whereas the other interventions represented promising treatments. Moreover, MDFT demonstrated clinically significant changes in substance use and large effect sizes at posttreatment and follow-up. *Conclusion:* To increase provision of effective adolescent substance abuse treatment, social workers should use these research findings to guide implementation.

Keywords: adolescent; substance use; family-based; treatment efficacy

Treatment for adolescent substance use problems is effective in reducing substance use and related problems among adolescents (Catalano, Hawkins, Wells, & Miller, 1991; Williams, Chang, and the Addiction Centre Adolescent Research Group, 2000). However, there is insufficient evidence to determine what interventions work for whom and under what conditions (Williams et al., 2000). Moreover, it is unclear which types of interventions may be the most effective for different subpopulations of adolescent substance abusers. In addition, treatment for adolescent substance use problems continues to be plagued by high rates of treatment dropout and posttreatment relapse to substance use. Specifically, research suggests that nearly half of adolescents never complete substance abuse treatment (Office of Applied Studies, 2000). Of those who do complete treatment, nearly two thirds relapse to substance use by 3-months to 6-months

posttreatment (S. A. Brown, 1993; S. A. Brown, Myers, Mott, & Vik, 1994; Cornelius et al., 2003). There is need for research to identify effective treatments for addressing adolescent substance use problems, including interventions that reduce treatment dropout and posttreatment relapse.

The purpose of this article is to offer a systematic review of empirically supported, family-based interventions for adolescent substance use problems. Initially used to describe traditional family therapy models based on family systems theory, the term *family-based* has evolved and expanded with time to reflect advances in treatment research (Ozechowski & Liddle, 2002). At present, family-based describes multiple adolescent substance abuse intervention approaches that are influenced by family systems theory as well as principles from numerous sources, including cognitive behavior theory, attachment theory, developmental theory, and social-ecological theory (Ozechowski & Liddle, 2002). In the present review, family-based adolescent substance abuse interventions will apply to any intervention that aims to address adolescent substance use and related problems through therapeutic interactions with both the adolescent and one or more family member. This review will assess

Authors' Note: Correspondence concerning this article may be addressed to Ashley Austin, Community-Based Intervention Research Group, School of Social Work, Florida International University, 11200 S.W. 8th Street, MARC 310, Miami, FL 33199; e-mail: aaus003@fiu.edu.

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the level of empirical support, as well as clinical support, of the identified family-based interventions. Recommendations for future research and applications to social work practice will be discussed.

Family-based interventions were selected for this review because they represent promising approaches to adolescent substance abuse treatment. A recent comprehensive review of the adolescent substance abuse treatment effectiveness research, which included all adolescent treatment outcome studies that reported substance use outcomes at discharge or posttreatment, was conducted by Williams et al. (2000). Findings from this review suggest that family-based interventions may have better treatment outcomes relative to other outpatient substance abuse treatment approaches. These findings were consistent with earlier review findings indicating that family-based treatments, when compared to non-family modes of adolescent outpatient treatment, appear to be the superior treatment approach (Waldron, 1997).

In addition to increasing empirical support for family-based treatments, family-based interventions for adolescent substance use problems are appealing because of their consistency with social work values. In particular, family-based approaches address adolescent substance use problems from an ecosystems perspective, which includes attention to relevant developmental, family, social, neighborhood, community, and cultural needs (Ozechowski & Liddle, 2002). Current family-based interventions acknowledge the important role of the family system in the development and maintenance of adolescent substance use problems (Muck et al., 2001). Furthermore, contemporary family-based approaches to adolescent substance abuse treatment recognize the potential importance of targeting a variety of familial factors, including communication skills, contingency management, and conflict resolution (Ozechowski & Liddle, 2002; Waldron, Slesnick, Brody, Turner, & Peterson, 2001), as well as multiple domains of adolescent functioning that may influence and are affected by adolescent substance use (Ozechowski & Liddle, 2002). Thus, family-based interventions for adolescent substance use problems are consistent with both developmental and social-ecological perspectives of adolescent functioning.

Despite findings that suggest the potential effectiveness of family-based interventions for the treatment of adolescent substance use problems, there remains a dearth of rigorous research in this area (Wagner, Brown, Monti, Myers, & Waldron, 1999). As such, the present study will address several limitations of earlier reviews of family-based treatments for adolescent substance use

problems. Previous reviews of interventions for adolescent substance use problems (Waldron, 1997; Williams et al., 2000) do not include the most recent treatment outcome studies (i.e., studies published since the latter half of 1999), which may represent some of the most rigorous research conducted in the area of treatment for adolescent substance use problems. Specifically, only one of the five intervention studies (Azrin, Donohue, Besalel, Kogan, & Acierno, 1994) included in the present review was also included in previously cited adolescent treatment research reviews. Moreover, results of previous reviews indicate that family-based interventions for adolescent substance use problems vary significantly across many factors, including therapeutic approach, target population, treatment duration and intensity, location of treatment, and types of services offered (Williams et al., 2000). Thus, there remains little known about which family-based interventions and what treatment characteristics associated with these interventions may be the most effective for treating adolescents with substance use problems. Finally, previous comprehensive reviews of family-based interventions for adolescent substance use problems have not examined issues related to effective implementation and delivery of empirically supported interventions in social work practice settings. This article will expand on previous reviews of family-based treatments for adolescent substance use problems by providing (a) an in-depth evaluation of only the most current and rigorous research of family-based interventions for adolescent substance use problems, (b) a systematic assessment of both empirical and clinical aspects of the identified intervention studies, and (c) a review focus that attends to issues relevant to social work theory and practice.

AIM

The primary aim of the present study is to examine the level of efficacy and effectiveness of the most current, empirically supported family-based treatment approaches for adolescent substance use problems. This aim is addressed through a systematic review designed to answer the following three questions: (a) Does the intervention include treatment components associated with effective treatment for adolescent substance use problems? (b) What is the level of empirical support for each intervention as an efficacious treatment of adolescent substance use problems? (c) What is the level of clinical change associated with each intervention?

METHOD

Review Criteria

To answer the first question, a substantive evaluation of the family-based interventions will be conducted. To build on previous research related to developing and implementing effective treatment for adolescent substance use problems, the current review will use a composite of guidelines for effective treatment for adolescent substance use problems adapted from recommendations by Williams et al. (2000) and Wagner and Kassel (1995) to assess the extent to which each identified intervention meets the established guidelines (Table 1). Although the National Institute on Drug Abuse (NIDA) has put forth *Principles of Effective Treatment* (NIDA, 1999), these principles apply to substance abuse treatment in general and not treatment for adolescent substance use problems specifically. Research indicates that adolescents with substance use problems are a unique population with distinct treatment needs (Etheridge, Smith, Rounds-Bryant, & Hubbard, 2001), and federal guidelines recommend that special programs and treatment services be designed to meet the specific needs of adolescents (Center for Substance Abuse Treatment, 1999). As such, we elected to use the guidelines for effective treatment for adolescent substance use problems set forth by experts in the area of adolescent substance abuse treatment research (Wagner & Kassel, 1995; Williams et al., 2000) rather than NIDA's (1999) general substance abuse treatment principals.

To answer the second question, each intervention will be evaluated according to the standards for empirically validated therapies set forth by Chambless et al. (1998). The evaluation criteria developed by Chambless et al. (1998) are based on the American Psychological Association's Division 12 Task Force on Psychological Intervention Guidelines, which defined well-established and probably efficacious treatments. According to these criteria, well-established treatments:

1. have at least two good between-group design experiments demonstrating efficacy in at least one of the following ways:
 - (a) superior (statistically significantly so) to placebo or another treatment or
 - (b) equivalent to an already established treatment in experiments with adequate statistical power (about 30 per group);
2. must be conducted with treatment manuals;
3. must specify the characteristics of the client samples; and
4. have effects that have been demonstrated by at least two different investigators or investigating teams.

The criteria for probably efficacious treatments should include:

TABLE 1: Treatment Components Associated With Effective Treatment for Adolescents With Substance Use Problems Using Criteria by Williams et al. (2000) and Wagner and Kassel (1995)

Guideline Criteria	Intervention				
	BSFT	FBT	FFT	MDFT	MST
Treatment is easily accessible	N	N	N	Y	Y
Incorporate procedures to minimize treatment dropout	Y	Y	Y	Y	Y
Successful in minimizing treatment dropout	N	Y	N	N	Y
Provide comprehensive services	Y	Y	Y	Y	Y
Employ empirically validated techniques	Y	Y	Y	Y	Y
Include a family therapy component	Y	Y	Y	Y	Y
Offer parent support regarding the nonuse of substances	Y	Y	Y	Y	Y
Offer peer support regarding the nonuse of substances	Y	N	N	Y	Y
Focus on meeting the individual needs of each youth	Y	Y	Y	Y	Y
Focus on key curative or protective factors	Y	Y	Y	Y	Y
Address developmental issues related to adolescence	Y	Y	Y	Y	Y
Provide or arrange after care services	N	N	N	N	N

NOTE: BSFT = Brief Strategic Family Therapy; FBT = Family Behavior Therapy; FFT = Functional Family Therapy; MDFT = Multidimensional Family Therapy; MST = Multisystemic Treatment; N = no; Y = yes.

1. two experiments showing the treatment is superior (statistically significant so) to a waiting-list control group; or
2. one or more experiments meeting the well-established treatment criteria 1a or 1b, 2, and 3, but not 4.

In addition, Chambless and Hollon (1998) specified methodological issues to be considered when determining efficacy. Using such criteria, the rigor of each family-based intervention study will be examined using the following methodological criteria:

1. Use of outcome assessment measures with demonstrated reliability and validity
2. Use of multiple methods of assessment (favored but not required)
3. Include follow-up results that demonstrate the enduring effects of different interventions, especially for disorders that have variable courses
4. Include all clients initially assigned to treatment in final analysis (especially when attrition is high)
5. Report on treatment adherence (favored but not required)

6. Report findings of between-group differences rather than draw conclusions based on pretest to posttest differences within each condition.

Finally, to answer the third question, we will evaluate the clinical significance of the changes in substance use associated with each intervention. As our definition of clinically significant change, we will use Kendall and Flannery-Schroeder's (1998) suggestion of a minimum criterion of 1.5 standard deviations from the dependent variable mean prior to treatment. In addition, the effect sizes associated with substance use changes will be evaluated according to the threefold classification proposed by Cohen (1988): small (.20 to .49), medium (.50 to .79), and large (.80 and above). We will calculate uncontrolled pre-treatment to posttreatment and follow-up effect sizes using the following formula (mean substance use behavior at pretreatment minus mean substance use behavior at posttreatment, or follow-up or pooled divided by standard deviation). Thus, this article evaluates the family-based outcome literature using several sets of criteria that assess both their efficacy and effectiveness.

SELECTION CRITERIA

Intervention studies for family-based treatment of adolescent substance use problems were identified by consulting previous reviews of treatment for adolescent substance use problems and by conducting keyword searches of the electronic databases ERIC, PsycINFO, MedLine, Social Services Abstracts, and Social Work Abstracts, using the terms *adolescent*, *youth*, *teen*, *substance abuse*, *drug abuse*, *alcohol abuse*, *treatment outcome*, *intervention*, and *efficacy*. In addition, a review of the Campbell Collaboration and Cochrane databases was undertaken to determine if relevant reviews or studies that met the criteria below were included.

The studies included in this review were required to meet the following six criteria. (a) To make determinations of treatment efficacy, only randomized clinical trials were included in this review. (b) Although substance use problems frequently co-occur with other problem behaviors during adolescence, treatment for substance use problems addresses multiple issues specific to the use and abuse of substances; as such, only intervention studies with a primary objective of reducing adolescent substance use and substance use problems were included. (c) To provide a timely and current review of treatment research in the area of adolescent substance use problems, only the most up-to-date intervention studies were included. Specifically, only peer-reviewed studies published in the past 10 years (1994 through March 2004)

were included in the review. (d) Because of the previously discussed strengths of family-based treatment as a treatment approach that is consistent with developmental and ecological perspectives inherent in social work practice, the selected studies were those examining the efficacy of family-based interventions for adolescent substance use problems. (e) The focus of the current review is to identify effective interventions for the treatment of existing substance use problems among adolescents. As a result, only studies testing treatment interventions for adolescent substance use problems were included in the review (no prevention studies were reviewed). (f) As identifying effective treatment for adolescents with substance use problems is the primary aim of this review, only studies examining treatments for youth ages 12 to 18 were included in the review.

RESULTS

A comprehensive search identified five family-based approaches reported in five studies that met the criteria discussed above. The intervention studies included in the review are as follows: Multidimensional Family Therapy (MDFT; Liddle et al., 2001), Functional Family Therapy (FFT; Waldron et al., 2001), Family Behavior Therapy (FBT; Azrin et al., 1994), Brief Strategic Family Therapy (BSFT; Santisteban et al., 2003), and Multi-systemic Treatment (MST; Henggeler, Pickrel, & Brondino, 1999). Although the efficacy of both MST and FFT has been demonstrated in previous clinical trials with juvenile offenders (Alexander, Pugh, Parsons, & Sexton, 1999; Bourdin et al., 1995; Henggeler, Melton, Brondino, Scherer, & Hanley, 1997), these studies did not have a primary focus of treating adolescent substance use problems and, as such, did not meet Criterion 2. This is an important distinction noted by both Wagner et al. (1999) and Henggeler et al. (1999). Waldron (1999) cites the absence of previous research evaluating the efficacy of FFT as a treatment for adolescents with substance use problems. In addition, despite previous positive outcome studies of MST with juvenile offenders (Bourdin et al., 1995; Henggeler et al., 1997), the described aim of the Henggeler et al. (1999) study is to "examine the potential viability of MST in treating substance-abusing and -dependent adolescents . . . [and] effectiveness of MST in reducing drug use, criminal behavior, and out-of-home placements in a sample of substance abusing and -dependent juvenile offenders and their families" (p. 172). Additionally, although the efficacy of BSFT has been demonstrated in early clinical trials (Szapocznik,

Kurtines, Foote, Perez-Vidal, & Hervis, 1983; Szapocznik, Kurtines, Foote, Perez-Vidal, & Hervis, 1986), consistent with Criterion 3, only recent research (studies published in the past 10 years) was examined in the present review. Thus, although there may be other published studies of the identified family-based interventions, in an effort to review only the most current and rigorous research related to treating adolescent substance use problems, only studies meeting all of the specified inclusion criteria are reviewed in the present study.

In the following review, each intervention will be described, along with a discussion of each study's characteristics, followed by a critical assessment of the extent to which the studies meet the criteria noted above regarding support for their efficacy and whether they include components associated with effective treatment for adolescent substance use problems.

Descriptive Review of Family-Based Interventions for Adolescent Substance Use Problems

BSFT. BSFT is a time-limited, family-based approach to adolescent substance use and related problems that relies on both strategic and structural interventions (Robbins & Szapocznik, 2000). BSFT is delivered to the youth and the entire family through Conjoint-Family Therapy or with the youth and one caregiver, One-Person Family Therapy, when engagement of the entire family is not possible. Both methods have been equally successful in achieving positive outcomes (Szapocznik et al., 1983; Szapocznik et al., 1986).

According to Robbins and Szapocznik (2000), BSFT is based on the fundamental assumption that family is the foundation of child development. As such, family interactions are assumed to play a critical role in the development of adolescent behavior problems, including substance use. Following these assumptions, family interactions are identified as a primary target for intervention in the BSFT model (Robbins & Szapocznik, 2000). BSFT also focuses on multiple domains of adolescent and family functioning, including relationships with the school, neighborhood, peers, and community resources. BSFT was developed initially to treat Hispanic youths and families, but ongoing efforts focus on assuring that the intervention can be individualized to meet treatment needs of youth and families across different ethnic and cultural groups (Robbins & Szapocznik, 2000).

BSFT is composed of three intervention processes: joining, diagnosis, and restructuring. A variety of empirically supported techniques are employed to facilitate each of the three phases. As the name implies, BSFT is a

short-term intervention; however, the approach is individualized to meet the diverse needs of families, and treatment length is extended whenever necessary.

Further efforts to individualize treatment, facilitate accessibility, and retain clients include the option to deliver treatment in the home or community. Additionally, research focused on improving family engagement in BSFT resulted in the development of an empirically supported engagement strategy, Strategic Structural Systems Engagement (SSSE; Santisteban et al., 1996). SSSE aims to increase engagement of the entire family by using the tenets of BSFT (diagnosing, joining, and restructuring) before treatment officially begins (i.e., from initial phone contact to the start of treatment). There is no aftercare included in the BSFT model.

Santisteban et al. (2003) conducted a clinical trial that compared BSFT to a participatory-learning group treatment condition (GC) that had a problem-solving focus. This study included 126 predominately male (75%) Hispanic adolescents ages 12 to 18 from Miami, Florida. The overall attrition rate was 32%, with 30% of youths dropping out of BSFT and 37% of youths dropping out of the GC condition. In the study, youths received between 4 and 20 1-hour per week therapy sessions ($M = 11.2$, $SD = 3.8$), with the number of sessions determined by their level of need. Four outcome measures were used to assess functioning across the following domains: psychiatric and psychosocial functioning (this measure includes drug use), problem behavior, structural aspects of family functioning, and family environment. Findings included statistically significant posttreatment differences for behavior problems (decreased rates of conduct disorder and socialized aggression; $p < .01$), marijuana use ($p < .05$), as well as family functioning ($p < .05$), with youths that received BSFT having better outcomes than youths in the GC. There were no significant effects for alcohol use. Changes were assessed at posttreatment only. Study characteristics are presented in Table 2.

Calculations reveal no clinically significant changes for alcohol or drug use associated with either BSFT or the GC condition. In addition, effect sizes associated with BSFT were small for both alcohol use (.21) and drug use (.25). Effect sizes associated with each intervention are presented in Table 3.

The statistically significant outcomes from this study are consistent with findings associated with earlier clinical trials of BSFT (Szapocznik et al., 1983, 1986) supporting the usage of BSFT for the treatment of substance use problems among Hispanic adolescents. However, changes in substance use were not clinically significant, and effect sizes associated with these changes were small.

TABLE 2: Study Characteristics

Characteristic	Intervention Study				
	BSFT	FBT	FFT	MDFT	MST
Comparison conditions	GC	SC	CBT, CBT and FFT, and group therapy	MEI and AGT	US
Sample size	126	29	120	152	118
Gender of participants					
Male	75%	77%	80%	80%	79%
Female	25%	23%	20%	20%	21%
Race and ethnicity of participants					
Hispanic	100%	19% (including Blacks)	47%	15%	1%
Black	0%	0%	18%	50%	
White	0%	0%	15%	16%	2%
Other	0%	0%	15%	16%	2%
Age of participants	12 to 18	13 to 18	13 to 17	13 to 18	12 to 17
Mean	15.6	16	15.6	15.9	15.7
Attrition rate	32% (overall) 30% BSFT 37% GC	10% (overall) 0% FBT 10% SC	14% (overall)	37% (overall) 30% MDFT 35% MEI 47% AGT	2% MST 78% US never entered treatment
Delivery of treatment	Clinic	Clinic	Clinic	Home or community	Home or community
Follow-up	post tx	post tx	post tx, 3 months	post tx, 6 and 12 months	post tx, 6 months
Outcomes of the clinical trial: substance use	Decreased marijuana use (past 30 days); no effect for alcohol use	Decreased drug and alcohol use by post tx (days per month and months used)*	Decreased marijuana use at post tx**; no between-group differences	Decreased substance use (past 30 days) at post tx and 12 months *	Decreased alcohol and other substance use at post tx** but not at 6 months
Outcomes of clinical trial: related problems	Decreased behavior problems*; improved family functioning*	Improved school attendance, parent satisfaction, behavior problems, and depression*; no effect for legal contacts or placement in an institution	No effect for internalizing or externalizing behavior; no effect for family conflict	Increased family competence at post tx*; GPA at 12 months**; no effect for acting-out behaviors at any assessment period	Decreased number of days in out-of-home placements at 6 months*; no effect for self-reported criminal activity or arrests at post tx or 6 months

NOTE: BSFT = Brief Strategic Family Therapy (Santisteban et al., 2003); FBT = Family Behavior Therapy (Azrin et al., 1994); FFT = Functional Family Therapy (Waldron et al., 2001); MDFT = Multidimensional Family Therapy (Liddle et al., 2001); MST = Multisystemic Treatment (Henggeler et al., 1999); GC = group treatment control; SC = supportive counseling; CBT = Cognitive Behavior Therapy; MEI = Multifamily Educational Intervention; AGT = Adolescent Group Therapy; US = Usual community services; GPA = grade point average; tx = treatment.

* $p < .05$ (significant between-group differences). ** $p < .05$ (significant within-group changes).

Another limitation is the failure to include follow-up assessments. As such, the longevity of treatment effects remains unknown. Finally, the dropout rate was high (32%), and no intent to treat analyses were conducted.

FBT. FBT is an intervention that addresses adolescent drug use and associated behavioral problems (Donohue & Azrin, 2001). As the name implies, FBT is based on a behavioral conceptualization of substance use and the

development of substance use problems, whereby drug use is considered a strong primary reinforcer, as it is reinforced by both physiological stimuli (i.e., dependence, tolerance) and situational stimuli (i.e., peer acceptance, stress).

The FBT approach uses multiple empirically validated techniques with an emphasis on contingency management and communication skills training to target multiple domains of functioning: drug use, conduct, problem-

TABLE 3: Effect Sizes Associated With Each Intervention

<i>Intervention</i>	<i>Sample</i>	<i>Duration and Intensity</i>	<i>Effect Size Value^a</i>	<i>Degree of Effect Size</i>
BSFT	126	4 to 20 sessions, 1 session per week (M = 11.2, SD = 3.8)	Post tx alcohol = 0.21 drugs = 0.25	Post tx alcohol = small drugs = small
FBT	29	Tx episode = 6 months, 2 sessions per week, then decrease to 1 session per week	Post tx alcohol = 0.30 drugs = 0.84	Post tx alcohol = small drugs = large
FFT	120	12 sessions, 1 session per week for FFT, CBT, and group; 24 sessions, 2 sessions per week for joint CBT and FFT	Post tx marijuana = 1.00 3 months marijuana = 0.41	Post tx marijuana = large 3 months marijuana = small
MDFT	152	16 sessions, 1 session per week	Post tx AOD = 1.46 6 months AOD = 1.28 12 months AOD = 1.66	Post tx AOD = large 6 months AOD = large 12 months AOD = large
MST	118	12 to 187 hours of tx provided for 3 to 6 months (individualized; M = 40 hours, M = 130 days)	Post tx alcohol and marijuana = 0.38 other drugs = 0.22 6 months alcohol and marijuana = 0.34 other drugs = 0.19	Post tx alcohol and marijuana = small other drugs = small 6 months alcohol and marijuana = small other drugs = small

NOTE: BSFT = Brief Strategic Family Therapy (Santisteban et al., 2003); FBT = Family Behavior Therapy (Azrin et al., 1994); FFT = Functional Family Therapy (Waldron et al., 2001); MDFT = Multidimensional Family Therapy (Liddle et al., 2001); MST = Multisystemic Treatment (Henggeler et al., 1999); CBT = Cognitive Behavior Therapy; AOD = alcohol and other drug use.

a. Effect sizes according to Cohen (1988) are as follows: small = 0.20 to 0.49, medium = 0.50 to 0.79, and large = 0.80 and above.

solving skills, family interactions, and communication skills. Standardized components of this program include the following: pretreatment engagement strategies, an assessment with the adolescent and the parents, drug analysis, dissemination of assessment and drug analysis results to the youth and parents, intervention selection by youth and family, and implementation of the selected interventions. In further efforts to affect multiple domains of adolescent functioning, adolescents in FBT are encouraged to involve siblings and peers in the therapy process. Although FBT is a standardized program, it is designed to accommodate a diverse population of youths with a variety of cultural, behavioral, and individual preferences. In the FBT program, youths and families are able to select from a list of intervention strategies, those strategies that will best meet their individual needs.

FBT is delivered in an office-based setting, which may be a limit to accessibility. As such, the FBT model includes an empirically validated method for increasing treatment engagement (Donohue & Azrin, 2001). This process consists of manualized telephone contact with both the youth and primary guardian by the interviewer 3 days prior to the first session and 2 days after the first meeting with the therapist. The initial phone interview

serves as both a reminder of the upcoming session as well as a rapport building process. The second phone interview serves to identify problems or concerns the youth or family might have and to verify the time and date of the second session. Food and beverages are also used to engage the youth and family during the initial assessment. Although there is a large focus on initial engagement and retention, there is no aftercare component included in the FBT approach.

FBT was examined in a clinical trial comparing FBT to supportive group counseling treatment (Azrin et al., 1994). The sample included 29 adolescents ages 13 to 18. Most of the adolescents in this study were White (81%) and male (77%; see Table 2). Treatment attrition was 10% and occurred only in the supportive counseling condition. Outcome domains examined in this study include drug and alcohol use, behavioral problems, depression, school attendance, and parent-child satisfaction with one another. FBT was provided during a 6-month time period. Initially, 1 hour of treatment was provided two times per week, but the frequency of sessions was decreased because it was determined that youths were making progress in treatment. None of the youths receiving FBT dropped out of treatment; however, the small sample size

($N = 15$) limits the utility of this finding. Posttreatment findings indicated statistically significant differences between the FBT and supportive counseling conditions for both (a) the number of youths using illicit drugs and (b) the mean number of days of illicit drug use per month. Several other statistically significant differences were found between the two groups, with the youth in the FBT condition having better outcomes with respect to depression, school attendance, family relationships, problem behaviors, and alcohol use. There were no differences found for legal contacts or institutionalization.

Calculations of clinical significance reveal no clinically significant changes for alcohol or drug use associated with either FBT or the supportive group. Similarly, effect size calculations for alcohol use indicate only small changes associated with FBT (effect size = 0.30). However, effect size calculations for drug use reveal large changes from pretreatment to posttreatment (effect size = 0.84; see Table 3).

Although the study findings suggest that FBT may be an effective intervention for reducing substance use and related behaviors among adolescents, there are several noteworthy limitations. This study did not include any follow-up assessments, so it is impossible to know if the positive effects of treatment were maintained over time. Additionally, findings should be interpreted with caution as the study was conducted with a very small sample ($N = 29$) and, as such, has inadequate power.

FFT. FFT is a short-term family-based intervention program used to treat high-risk youths and their families in a variety of contexts (Sexton & Alexander, 2000). The basic tenets of FFT, as described by Sexton and Alexander (2000) and the applicability of FFT to adolescent substance use problems discussed by Waldron et al. (2001), will be briefly summarized. FFT is based, in large part, on family systems theory, which assumes that problem behaviors occur in the context of family relationships and serve some core function within these family relationships. In addition to a family systems perspective, the FFT model relies heavily on cognitive behavioral theory and techniques. FFT takes a multisystemic approach to intervention by focusing on the multiple domains and systems in which the adolescent lives.

The intervention process in the FFT model is divided into two primary phases: (a) engagement and motivation of the youth and family and (b) behavior change for the youth and family. For substance-abusing youths, the main objectives of treatment are to (a) reduce or eliminate problematic substance use, (b) reduce or eliminate other problem behaviors within the family, and (c) improve

family relationships. Therapeutic efforts in the FFT model are aimed at identifying the functions served by substance use and helping the youth and family replace maladaptive behaviors (substance use and other problem behaviors) with safer, more adaptive behaviors.

In the initial phase of FFT, the engagement and motivation phase (Sexton & Alexander, 2000), the intervention focus is on developing alliances, reducing resistance, improving communication, minimizing hopelessness, reducing dropout potential, developing a family focus, and increasing motivation for change (Sexton & Alexander, 2000). Efforts to achieve these goals include attention to issues of accessibility, availability, and cultural sensitivity of services, as well as the usage of positive interpersonal skills (validation, reframing, and reattribution) by FFT clinicians (Sexton & Alexander, 2000). To increase accessibility and engagement, FFT can be implemented in the home, the school, or the office depending on the individual needs of the youth and family (Sexton & Alexander, 2000). During the second phase, there is a focus on behavior change and improving family interaction patterns through communication-skills training, problem-solving-skills training, conflict resolution, parenting and contingency management skills, and relapse prevention skills. When appropriate, emotional regulation, relaxation training, self-esteem building, and assertiveness training may also be provided.

FFT is an individualized approach that targets multiple risk and protective factors related to family life, school, social network, community, resource availability, developmental level, and psychological and emotional needs (Sexton & Alexander, 2000). The FFT model is a comprehensive approach to substance abuse treatment that intervenes with the youth and family to change behaviors, improve relationships, and increase accessibility to and relationships with resources in the community (i.e., probation, schools), which will promote the maintenance of adaptive youth and family changes.

Waldron et al. (2001) conducted a clinical trial to examine the efficacy of FFT in treating adolescent substance use and related problems with family functioning. In the study, FFT was compared to Cognitive Behavior Therapy (CBT), a combination of FFT and CBT, and a psychoeducational group. This study was conducted with a sample of 120 multiethnic adolescents (see Table 2). The majority of participants were male (80%). Fourteen percent of the participants dropped out of the study; the dropout rates associated with each condition are not reported.

In the Waldron et al. (2001) study, FFT, CBT, and the group condition consisted of 12 sessions, 1 hour per

week, during a 3- to 4-month time period. The joint FFT-CBT condition consisted of 1 hour of both CBT and FFT per week, for a total of 24 sessions. Outcome domains included substance use, internalizing and externalizing behaviors, and family conflict and were assessed at posttreatment as well as at a 3-month follow-up. Findings indicated that only youth in the FFT and the joint conditions demonstrated reductions in marijuana use from pretreatment to posttreatment. However, by the 3-month follow-up, reductions in marijuana use were significant for the joint condition but not for FFT. There were no statistically significant between-group differences for marijuana use for any of the conditions. There were no significant effects for family functioning (family conflict scores) or adolescent internalizing and externalizing behaviors. These findings are inconsistent with positive outcomes obtained in previous studies of FFT with non-substance-abusing juveniles (Sexton & Alexander, 2000).

Finally, calculations of clinical significance reveal no clinically significant changes in marijuana use associated with any of the treatment conditions. However, the effect size for changes in marijuana use at posttreatment was large (effect size = 1.00). By the 3-month follow-up, the effect size for changes in marijuana use was much smaller (effect size = 0.41; see Table 3).

Strengths of the study include the use of manualized treatment as well as the inclusion of an ethnically diverse sample. FFT evidenced statistically significant reductions in marijuana use at posttreatment as well as a large effect size associated with these changes. Positive substance use outcomes were maintained at the 3-month follow-up for the joint FFT-CBT condition but not for FFT alone. Because participants in the joint FFT-CBT condition received treatment twice as much as participants in the other three conditions, it is unclear whether positive outcomes are related to the intervention or the higher dose of treatment received by youths in this condition. Moreover, there were no statistically significant differences in marijuana use between treatment conditions at any of the assessment periods. Finally, neither long-term follow-up assessments nor intent-to-treat analyses were conducted.

MDFT. MDFT is an outpatient, family-based treatment developed for adolescents with substance use and related behavioral and emotional problems (Liddle, 1999; Ozechowski & Liddle, 2002). MDFT is delivered in the home or community to facilitate accessibility to treatment. The MDFT approach combines aspects of several theoretical frameworks, including family systems

theory, developmental psychology, ecosystems theory, and the risk and protective model of adolescent substance abuse. MDFT is a comprehensive approach that works to modify multiple domains of functioning by intervening with the youth, family members, and other members of the youth's support network. MDFT is designed to affect multiple risk and protective factors. Treatment focuses on individual characteristics of the adolescent, the parents, and other key individuals in the adolescent's life, as well as on the relational patterns contributing to the adolescent's substance use and other problem behaviors. To accomplish this, the approach employs a variety of well-supported therapeutic techniques to improve the behaviors, attitudes, and functioning across a variety of domains (Liddle, 1999).

MDFT is divided into three phases. Engaging both the youth and family is one of the main emphases in the first phase of MDFT (Liddle et al., 2001). Engagement strategies include the formulation of therapeutic alliances with the adolescent, family members, and other extrafamilial support systems. Furthermore, there is a focus on individualizing treatment for each of the family members involved. This is accomplished through the development of personal and individualized treatment objectives for each participant. The use of culturally specific themes is also cited as a useful tool for engaging diverse youths and families (Liddle, 1999). The second phase is more behaviorally focused and includes efforts to increase the youth's prosocial behaviors, positive social networks, and antidrug behaviors and attitudes. There is also an emphasis on developmental issues, including a focus on increasing developmentally appropriate family interactions. Teaching problem-solving and decision-making skills and modifying defeating parenting beliefs and behaviors through a process called enactment are the primary techniques used by MDFT clinicians during Phase 2. During Phase 3, the clinician works with the youth and family to generalize newly acquired skills and behaviors to future situations to maintain positive changes. MDFT does not include an aftercare component.

In the clinical trial conducted by Liddle et al. (2001), MDFT was compared with Adolescent Group Therapy (AGT) and Multifamily Educational Intervention (MEI). As noted in Table 2, the sample included 152 multiethnic adolescents ages 13 to 18 from Miami, Florida. The sample was primarily male (80%). In the clinical trial, 16 weekly treatment sessions were provided during an average of 5 months. Outcomes were measured across several domains considered relevant to improved adolescent functioning: treatment attrition, youth drug and alcohol use, problem behaviors, school performance, and family

functioning. MDFT evidenced positive outcomes across several of these domains. Specifically, MDFT was associated with statistically significant differences in youth drug use at posttreatment. Differences in drug use between MDFT and MEI, but not MDFT and AGT, were present at the 12-month follow-up (Liddle et al., 2001). Additionally, compared to the other two conditions, adolescents receiving MDFT demonstrated statistically significant improvements in family functioning at posttreatment. Differences in GPA were marginally significantly different between MDFT and MEI ($p = .08$). There were no significant findings for acting out behaviors at posttreatment or the follow-up periods. Treatment dropout rates were different among the three conditions. Although there was treatment dropout in all three conditions, the dropout rate from AGT was disproportionately high (47%, compared to 35% for MEI and 30% for MDFT).

Calculations of clinical significance related to substance use reveal clinically significant changes in substance use between pretreatment and the 12-month follow-up for youth in the MDFT condition. Changes in substance use were not clinically significant for any of the other time periods within MDFT. No clinically significant changes were found for AGT or MEI. Effect sizes associated with MDFT were large for substance use changes at all three time periods (for posttreatment, effect size = 1.46; for 6-month follow-up, effect size = 1.28; and for 12-month follow-up, effect size = 1.66; see Table 3).

This study has several strengths, including the statistically significant between-group differences in substance use at posttreatment and at the 12-month follow-up period, clinically significant changes at 12-months posttreatment, and large effect sizes associated with all three assessment periods. Furthermore, the study included an ethnically heterogeneous sample and used standardized treatment that included the use of treatment manuals. The limitations include the small number of female participants as well as the failure to complete intent-to-treat analyses with treatment dropouts.

MST. MST is a comprehensive, individualized, home-based therapy approach to treating adolescent antisocial behavior, including conduct disorder, delinquency, and substance abuse (Henggeler, Schoenwald, Bourdin, Rowland, & Cunningham, 1998). MST is based on the systems and social-ecological theories of human behavior and holds that the development of antisocial behavior in youth is the result of various individual, peer, family, community, and school factors. As such, MST is a child-focused, family-centered intervention in which strategies

are aimed at multiple known determinants of problem behavior (i.e., individual, family, peer, school, and community factors; T. A. Brown, Henggeler, Schoenwald, Brondino, & Pickrel, 1999). To address the multiple needs of youth and families, MST uses a combination of empirically supported intervention techniques based on strategic family therapy, structural family therapy, behavioral parent training, and cognitive behavior therapy.

A key element of MST is the focus on addressing complex problems in a comprehensive, intense, and individualized manner. Specifically, treatment is individualized in that the family and the MST therapist work together to target problems and select intervention strategies. MST capitalizes on youth and family strengths, emphasizing family empowerment and accessing needed family and community resources. Moreover, the service delivery model used with MST was developed with a focus on increasing accessibility and engagement and minimizing treatment dropout (T. A. Brown et al., 1999). The MST model includes the following treatment components: (a) Services are provided in home and community-based settings to facilitate cooperation, engagement, and retention in treatment; (b) low caseloads enable the therapist to be available 24 hours a day, 7 days a week to meet the diverse needs of youths and families; (c) treatment meetings are scheduled according to the needs of the youth and family, including evening and weekend sessions; and (d) responsibility for youth and family engagement and treatment outcome is assumed by all members of a treatment team, and treatment strategies are modified as needed to meet the needs of each youth and family (T. A. Brown et al., 1999).

The study conducted by Henggeler et al. (1999) compared outcomes of adolescents who received MST with adolescents who received usual community services (US) condition. Available to youths in the US condition were community outpatient, residential, and inpatient substance abuse programs and mental health services; however, 78% of the youths in the US condition received neither substance abuse nor mental health treatment during the time of the study (Henggeler et al., 1999). This study included a sample of 118 juvenile offenders ages 12 to 17. The sample consisted of primarily African American and White youths (Table 2). Treatment retention was very high, with 98% of youths in the MST condition completing the full course of treatment. Within the MST intervention, treatment length and intensity varied greatly among participants. In the reviewed study, treatment time ranged between 12 and 187 hours ($M = 40$ hours) for 3 to 6 months ($M = 130$ days). Outcomes were assessed for the

following domains: treatment retention, drug and alcohol use, criminal activity, and out-of-home placements.

Results indicated statistically significant decreases in reported drug and alcohol use immediately following treatment; however, the changes were not maintained at the 6-month follow-up. Moreover, there were no statistically significant between-group differences at either post-treatment or the 6-month follow-up. Inconsistent with findings from previous research examining the efficacy of MST for reducing juvenile delinquency (Henggeler et al., 1997), reductions in criminal activity were not significantly different for youth in the MST condition. There was, however, a significant reduction in out-of-home placement for youths in the MST condition, compared with youths in the US condition. Calculations of clinical significance related to substance use reveal that the changes in substance use were not clinically significant for either MST or the US condition. Similarly, effect sizes were small for substance use changes at both posttreatment and the 6-month follow-up assessment (Table 2).

One strength of the Henggeler et al. (1999) study was the high retention (98%) of youths in the MST condition. In general, however, the changes in substance use were modest, and the substance use outcomes disappeared by 6 months posttreatment. Moreover, there were no between-group differences found for substance use. This is particularly concerning because 78% of youths in the US condition received no treatment at all. An additional limitation is the lack of standardization associated with MST in the reviewed study. Specifically, treatment dose (duration and intensity of services) varied substantially among participants. Furthermore, the fidelity assessment indicated that treatment adherence was low. Finally, because only 22% of the youths in the comparison condition received any treatment and the specific interventions they received were unclear, future replications of this study will be precluded.

Critical Review of Family-Based Interventions for Adolescent Substance Use Problems

Substantive review findings. A review of treatment components associated with each intervention indicates that each of the five family-based interventions are consistent with the majority of guidelines for effective treatment for adolescent substance use problems suggested by Williams et al. (2000) and Wagner and Kassel (1995). The extent to which the interventions meet each of the guidelines will be discussed below and are summarized in Table 1:

1. Be easily accessible. In two of the five intervention studies (MST and MDFT), interventions were delivered in home-based or community-based settings in efforts to maximize accessibility. Although BSFT and FFT were developed to be delivered in multiple settings, including the home, school, and community, treatment was provided in clinic-based settings in the studies reviewed. FBT was provided in a clinic, and there is no mention of adapting the intervention to facilitate delivery in the home or community.
2. Incorporate procedures to minimize treatment dropout. All five interventions incorporate engagement strategies aimed at increasing treatment retention; however, treatment dropout appears to have been a problem across most of the interventions, except MST, where 98% of participants receiving MST were retained, and FBT, where all of youths in the FBT condition were retained.
3. Provide comprehensive intervention services. All five interventions were comprehensive in that interventions addressed problems across multiple domains of adolescent functioning (i.e., family, social, legal, and community) through a variety of intervention strategies.
4. Employ empirically validated techniques. All five interventions employ intervention strategies based on empirically supported research (e.g., cognitive behavioral strategies, social skills training, contingency management, reframing).
5. Include a family therapy component. This criterion is inherent in all five interventions, as this review examined only family-based interventions for treatment of adolescent substance use problems.
6. Offer parent and peer support regarding nonuse of substances. All five interventions provide parent support through the therapeutic interventions with family members. Efforts aimed at increasing peer support of substance use changes made by the youth in treatment were less common. Only MST, MDFT, and FBT include peers in the therapeutic process.
7. Focus on meeting the individual needs of each youth. All five of the reviewed interventions were developed to be flexible and adaptable to meet the individual needs (i.e., cultural, psychosocial, economic, and legal) of each youth and family.
8. Focus on key curative or protective factors. All five interventions broadly describe aims to target multiple protective as well as risk factors identified as relevant to the development and maintenance of adolescent substance use problems, including psychological and emotional problems, family conflict, academic performance, peer relationships, and neighborhood and community support (Hawkins, Catalano, & Miller, 1992).
9. Address developmental issues relevant to adolescence. Developmental issues are addressed to some extent in all five interventions, as evidenced by therapeutic interventions aimed at family functioning, parenting skills, as well as peer- and school-related issues. Furthermore, all five interventions use specific therapeutic strategies that are developmentally appropriate for adolescents (i.e., communication skills training, conflict resolution, and contingency management).
10. Provide or arrange aftercare services. None of the interventions include an aftercare component, and they do not include strategies aimed at linking the youth and family with aftercare services.

Thus, although the five interventions are distinct from one another, they share multiple characteristics associated with recommendations for effective treatment of adolescent substance use problems. The review revealed that the interventions provide comprehensive yet individ-

ualized treatment for the youth and family, which includes the use of empirically validated intervention strategies relevant to the developmental needs of adolescents with substance use problems, and a focus on targeting specific risk and protective factors associated with the development and maintenance of substance use problems among teenagers. Moreover, as research consistently cites the important influence of peer substance use on adolescent substance use behavior and substance use treatment outcomes (S. A. Brown, Vik, & Creamer, 1989; Jainchill, Hawke, De Leon, & Yagelka, 2000), a significant strength of MST, MDFT, and FBT is the inclusion of peers in the therapeutic process.

Some interventions are not consistent with the recommended treatment guidelines. For instance, accessibility to treatment is critical to effectively engaging and retaining youth and families with complex needs. However, FBT was not developed for implementation in settings such as client homes or schools, which may maximize accessibility for economically disadvantaged and culturally diverse subgroups of adolescents with substance use problems. As these are the types of clients and settings typical of social work practice, this is an important limitation of FBT. Another notable exception is the high rate of treatment dropout for all of the interventions, except MST and FBT. Each of the interventions aims to address issues of treatment accessibility and engagement, yet dropout rates remain high. This is problematic because treatment dropout has been consistently associated with poor treatment outcomes among adolescents with substance use problems (Jainchill et al., 2000; Winters, Stinchfield, Opland, Weller, & Latimer, 2000). Finally, it was determined that none of the interventions address the issue of aftercare. This is very concerning because of the high posttreatment relapse rates among adolescents with substance use problems (S. A. Brown et al., 1994; Cornelius et al., 2003). Thus, it is suggested that these intervention models may be improved by including aftercare services, increasing the involvement of peers in the therapeutic process, and addressing issues related to improving accessibility and minimizing treatment dropout.

Empirical review findings. In addition to evaluating the extent to which an intervention includes treatment components associated with effective treatment for adolescent substance use problems, it is necessary to evaluate treatment efficacy. The methodological issues associated with each of the studies will be reviewed below, and the level of empirical support for each of the five family-based interventions will be assessed using the criteria

outlined by Chambless and colleagues (Chambless & Hollon, 1998; Chambless et al., 1998). A discussion of the major findings will follow.

Each study was a controlled clinical trial comparing at least two treatment conditions. None of the studies used random sampling procedures. Instead, adolescents were obtained through referrals from the Department of Juvenile Justice, schools, family, and health and mental health agencies. In general, the samples were small but varied in size considerably across studies, ranging from 29 to 152. When evaluated for adequate power (i.e., at least 25 to 30 participants per treatment condition; Chambless et al., 1998), four of the five studies—MST ($N = 118$), MDFT ($N = 152$), FFT ($N = 120$), and BSFT ($N = 125$)—had adequate power. In contrast, the study of FBT failed to achieve adequate power with a sample of only 29 participants divided among two treatment conditions. With regard to ethnic and racial composition, only three of the studies (MST, FFT, and MDFT) included an ethnically heterogeneous sample. The BSFT study included only Hispanic adolescents, and the FBT study used a sample that was primarily (81%) non-Hispanic White. In addition, females were conspicuously underrepresented in all of the studies, with no more than 25% of the participants being female in any sample. As such, treatment efficacy for any of the interventions is much less clear for female adolescents with substance use problems than for males.

Treatment attrition was considerable in all of the clinical trials, except the studies of MST and FBT, where treatment dropout associated with the treatment conditions was very low (2% and 0%, respectively). None of the studies included treatment dropouts in the analyses. Thus, positive outcomes may be inflated in that they reflect the outcomes of the subsample of substance-abusing adolescents who remained in treatment. The youths who remained in treatment may represent a subgroup of adolescents who were more amenable to treatment (i.e., more motivated for change, fewer environmental and psychosocial barriers to treatment) than those adolescents who dropped out of treatment.

The primary target of intervention in each of the studies was adolescent substance use. However, all studies assessed multiple areas of adolescent and family functioning. The assessment of outcomes across multiple domains of adolescent functioning is consistent with recommendations for effective treatment outcome studies in child and adolescent services (Chambless & Hollon, 1998). Moreover, each of the intervention studies assessed treatment outcomes using reliable and valid measures. It should be noted, however, that neither outcome domains nor outcome measures were uniform

across studies. Rather, there was a great deal of variation in the measures used to assess substance use and other behaviors. For example, each study assessed substance use using a different measure. MDFT used a combination of youth and parent reports of past 30-day alcohol or drug use as well as urinalyses; FFT used the Timeline Follow-back (Sobell & Sobell, 1992), collateral reports from family members, as well as urine drug screenings; BSFT used the Addiction Severity Index (McLellan et al., 1985); FBT used youth and parent reports of youth substance use at each session as well as urinalyses at each session; and MST used the Personal Experience Inventory (Winters & Henly, 1989). In addition, the study of FFT measured only marijuana use because it was the primary drug of choice, whereas in the four other studies (MDFT, FBT, BSFT, and MST), alcohol and other substance use was measured.

The level of treatment standardization also varied across the studies. Only the study of MST included treatment fidelity checks. However, findings suggested that treatment adherence was a problem in the study. The duration and intensity of treatment varied across all the studies as well as within MST, BSFT, and FBT. In particular, treatment length and intensity varied greatly among participants in the study of MST, with a range of 12 to 187 hours of treatment being provided during a 3- to 6-month time period. In contrast, in the studies of MDFT and FFT, treatment regimens were delivered in specified amounts. However, as previously mentioned, in the study of FFT, youth in the joint condition received twice as much treatment as youth in the other three conditions. As treatment doses were not consistent across studies, and in some cases within studies, there remains little known about the interaction between treatment dose and treatment type on treatment outcomes. First, for the studies without standardized doses of treatment, it remains unclear what dose (i.e., how many sessions during what period of time) of treatment is associated with successful outcomes. Second, it is difficult to compare intervention findings across studies when interventions vary in length and intensity.

Follow-up periods vary notably across the five intervention studies. Three of the five studies (MDFT, FFT, and MST) included at least one follow-up interview after the posttreatment assessment, whereas two of the studies assessed outcomes at posttreatment only. Waldron et al. (2001) assessed outcomes of FFT at posttreatment and at a 3-month follow-up. Follow-up data were gathered for MST shortly following termination from treatment and 6 months posttreatment (Henggeler et al., 1999). The MDFT outcome study reported outcomes gathered at both 6- and 12-month follow-up periods (Liddle et al.,

2001). Azrin et al. (1994) and Santisteban et al. (2003) assessed outcomes only at the end of treatment and included no follow-ups.

Each of the interventions demonstrated changes in substance use from pretreatment to posttreatment; however, for MST and FFT, within-group differences in substance use were no longer significant by the follow-up periods. Only BSFT, MDFT, and FBT demonstrated statistically significant between-group differences in substance use outcomes, and of these studies, only MDFT demonstrated that substance use changes were maintained at follow-up. With the exception of the FFT study, findings indicated statistically significant between-group differences associated with other outcome domains as well. As noted, long-term treatment effects for BSFT and FBT are unclear because of the failure to include follow-up assessments.

The clinical significance of changes in substance use differed substantially across the five studies. MDFT is the only intervention that demonstrated substance use changes that were clinically significant according to Kendall and Flannery-Schroeder's (1998) criterion of 1.5 standard deviations from the dependent variable mean prior to treatment. The effect sizes associated with MDFT also reveal large changes in substance use at posttreatment, as well as the 6- and 12-month follow-up assessments. Large effect sizes were found for FFT (for marijuana use) and FBT (for drug but not alcohol use) at posttreatment. Effect sizes related to changes in substance use were small for both BSFT and MST.

The results from the methodological review identify meaningful differences in the level of empirical support associated with each intervention. None of the treatments met the standards for well-established treatment (Table 4). This is primarily a result of Criterion 4, which requires that an intervention be examined in randomized clinical trials with at least two distinct investigating teams. Two of the five interventions (MDFT and BSFT), however, met criteria consistent with probably efficacious treatment. It should be noted that the study of BSFT did not include follow-up assessments. This is a significant limitation as research suggests a majority of adolescents relapse in the first 90 days posttreatment (S. A. Brown et al., 1994; Cornelius et al., 2003). The other three interventions (FFT, MST, and FBT) did not meet criteria for probably efficacious treatment. The study of FBT did not have adequate power because the total sample was very small ($N = 29$); in addition, this study did not assess substance use at follow-up. Although findings indicated that both FFT and MST demonstrated statistically significant changes in substance use from

TABLE 4: Level of Empirical Support Using Evaluation Criteria Developed by Chambless et al. (1998) and Chambless and Hollon (1998)

	Intervention				
	BSFT	FBT	FFT	MDFT	MST
Positive results from one or more between-group studies with specified population	Y	Y	N	Y	N
Positive results from two or more between-group studies with specified population	Y	N	N	Y	N
Effects replicated by two or more independent investigators with specified population	N	N	N	N	N
Adequate power (25 to 30) per condition	Y	N	Y	Y	Y
Clearly defined population	Y	Y	Y	Y	Y
Reliable and valid outcome measures	Y	Y	Y	Y	Y
Intent to treat analyses	N	N	N	N	N
Effects demonstrated at follow-up	No follow-up	No follow-up	N	Y (at 6 and 12 months)	N (effects disappear by 6 months)
Used treatment manuals	Y	Y ^a	Y	Y	Y ^b
Well-established treatment	N	N	N	N	N
Probably efficacious treatment	Y	N	N	Y	N
Promising treatment		Y	Y		Y

NOTE: BSFT = Brief Strategic Family Therapy (Santisteban et al., 2003); FBT = Family Behavior Therapy (Azrin et al., 1994); FFT = Functional Family Therapy (Waldron et al., 2001); MDFT = Multidimensional Family Therapy (Liddle et al., 2001); MST = Multisystemic Treatment (Henggeler et al., 1999); Y = yes; N = no.

a. Use of treatment manuals not reported in published study but was verified via personal communication (B. Donohue, personal communication, February 17, 2004).

b. Use of treatment manuals not reported in published study but was verified via personal communication (S. W. Henggeler, personal communication, February 14, 2004).

pretreatment to posttreatment, these changes disappeared by the follow-up periods. Furthermore, neither FFT nor MST demonstrated statistically significant between-group differences for substance use at posttreatment or follow-up.

Thus, findings from the empirical review indicate that two of the five interventions (MDFT and BSFT) are probably efficacious treatments for adolescent substance use problems and thus have the best evidence to date. However, it should be recognized that only the study of MDFT included follow-ups (6 and 12 months posttreatment) necessary to demonstrate the long-term efficacy of the intervention. Moreover, MDFT was the only intervention that demonstrated clinically significant changes in substance use (at the 12-month follow-up) and large effect sizes at posttreatment, as well as the two follow-up assessments. Although they did not meet full criteria for probably efficacious treatments, empirical review findings indicate that FFT, MST, and FBT each represent a promising intervention for treating adolescent substance use problems. Overall, MDFT emerges as the only family-based intervention with empirical support for changes in substance use behaviors that are both statistically significant and clinically significant immediately following treatment and at 1 year posttreatment. Review findings have implications for future research and applications for social work practice.

DIRECTIONS FOR FUTURE RESEARCH

There are several aspects of treatment research in the area of adolescent substance use problems that require further attention. First, to strengthen the level of empirical support for MDFT and BSFT, study findings must be replicated by different investigators and/or investigating teams. Positive findings from such studies would increase the level of empirical support for these interventions from probably efficacious to well-established treatments.

To ascertain longevity of treatment effects, studies must include adequate follow-up intervals. Findings from previous research suggest that two thirds of adolescents relapse to substance use in the first 6 months posttreatment (S. A. Brown et al., 1994; Cornelius et al., 2003). At minimum, the inclusion of 3- and 6- month follow-up assessments is necessary to ascertain long-term treatment efficacy. In addition, the review revealed the lack of attention given to aftercare services in research of treatments for adolescent substance use problems. None of the reviewed family-based intervention studies examined the issue of aftercare. In light of the relapse rates discussed above, aftercare services clearly deserve attention in future empirical research. Specifically, future studies should examine the efficacy of interventions for adolescent substance use problems that include an empirically

supported aftercare component, such as the Assertive Aftercare Protocol (Godley, Godley, & Dennis, 1999).

Additionally, future outcome studies of treatment for adolescent substance use problems should include intent to treat analyses for all adolescents who enter treatment, not just those who successfully complete the treatment episode. This may provide more accurate findings related to treatment effects and increase knowledge around the issue of treatment dropout among adolescents with substance use problems. Moreover, as treatment dropout was a problem associated with several of the interventions included in this review, it is recommended that future research explore pretreatment and treatment factors that may be associated with treatment engagement and treatment retention among diverse groups of adolescents with substance use problems.

Future treatment research should also examine the effects of client-treatment matching across different subgroups of adolescents with substance use problems. For example, future studies could match adolescents who differ across demographic factors (i.e., ethnicity, acculturation, gender, age, family structure) and psychosocial needs (i.e., comorbidity, juvenile delinquency, history of sexual or physical abuse) with specific family-based interventions. Such studies may yield findings about which interventions are most useful for which subgroups of adolescents with substance use problems.

Finally, research should be conducted on successfully implementing efficacious interventions for adolescent substance use problems in social work practice settings with potentially limited resources. Suggested study foci include cost effectiveness, therapist training and treatment adherence, and treatment duration and intensity. Effectiveness studies that address these issues are necessary for a successful transition from research to social work practice.

DISCUSSION AND APPLICATIONS TO SOCIAL WORK PRACTICE

Findings from the present review can be used to improve decision making about the types of interventions implemented in social work practice settings with adolescents with substance use problems. Adolescents with substance use problems are a heterogeneous population with diverse psychosocial, cultural, legal, and developmental needs. Providing effective treatment for adolescent substance use problems can be daunting. Service providers face multiple challenges, including engaging difficult-to-reach adolescents, minimizing treatment

dropout, and improving treatment response. One important step toward successfully treating adolescents with substance use problems is identifying and implementing effective interventions that are consistent with social work practice.

Contemporary family-based interventions view adolescent substance use problems from an ecosystems perspective, intervening with relevant social systems, including the individual, family, peer, school, neighborhood, community, and culture (Ozechowski & Liddle, 2002). As such, comprehensive family-based treatments for adolescent substance use problems, such as the five reviewed in this study, are congruent with social work values and theoretical perspectives. It is imperative, however, that we identify family-based interventions that have substantial empirical support and thus represent efficacious treatments for adolescents with substance use problems.

The findings from the present review can be used to guide the selection and implementation of empirically supported family-based interventions in practice settings with diverse subgroups of adolescents with substance use problems. Specifically, the current review identified (a) two interventions (MDFT and BSFT) that have demonstrated efficacy in treating multiproblem adolescents with substance use problems; (b) three interventions (FFT, MST, and FBT) that meet several criteria associated with efficacious treatment and thus represent promising approaches to treatment of adolescent substance use problems; (c) two interventions (FBT and FFT) associated with large reductions in substance use at posttreatment and one intervention (MDFT) associated with large reductions in substance use immediately following treatment and at 6 and 12 months posttreatment; (d) two interventions (MST and FBT) that have been particularly successful in minimizing treatment dropout; (e) four family-based interventions (MDFT, MST, FFT, and BSFT) that were developed for delivery in multiple social work practice settings, including homes, schools, and communities, in an effort to improve treatment accessibility and engagement; and (f) the specific therapeutic components of MDFT, FFT, FBT, BSFT, and MST that are consistent with guidelines for effective treatment for adolescents with substance use problems (Wagner & Kassel, 1995; Williams et al., 2000).

Barriers to effectively implementing interventions in a real-world social work practice setting must also be considered. Time-intensive and labor-intensive interventions that require a great deal of therapist training and supervision may create insurmountable challenges in traditional social work practice settings with limited funding. BSFT,

MDFT, and MST all require lengthy and potentially costly training for practitioners. In the only study that examined the importance of therapist treatment adherence, Henggeler et al. (1999) found that poor adherence to MST protocol was associated with poor treatment outcomes. Thus, if social work practice settings cannot support the time-intensive and cost-intensive training necessary to implement a specific intervention, the treatment may not be effective. It follows that to increase the provision of effective, empirically supported treatment for adolescent substance use problems, research findings should be used to guide the implementation of interventions in social work practice settings, with particular attention to the feasibility and reliability of effective transportability of interventions across clients and communities.

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