Regular Article

Implementation of MET/CBT 5 for Adolescents

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Abstract

Implementation of effective substance abuse treatment programs in community settings is a high priority. The selection of a proven cost-effective model is a first step; however, difficulty arises when the model is imported into a community setting. The Center on Substance Abuse Treatment selected a brief substance abuse treatment program for adolescents, the MET/CBT-5 program, determined to be the most cost-effective protocol in the Cannabis Youth Treatment trial, for implementation in two cohorts of Effective Adolescent Treatment grantees. A qualitative investigation of the protocol implementation with nine sites in the second cohort chronicled adaptations made by grantees and prospects for sustainability. The study found that agencies introduced adaptations without seeming to be aware of potential effects on validity. In most sites, sessions were lengthened or added to accommodate individual client needs, address barriers to client participation, and provide consistency with current norms of treatment. Implications for fidelity of future implementation projects are addressed.

Introduction

MET/CBT 5 (two individual sessions of motivational effectiveness therapy plus three group sessions of cognitive behavioral therapy) is an evidence-based treatment for adolescents with substance-use disorders. The intervention was developed and tested in the Cannabis Youth Treatment (CYT) trial and, compared with more intensive interventions that required more sessions of care, was equally effective and less expensive.[1] As a result, the Substance Abuse and Mental Health Administration's Center for Substance Abuse Treatment (CSAT) selected the intervention

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for implementation in its Effective Adolescent Treatment (EAT) initiative. Implementation awards were made in two cohorts. The 22 treatment programs with the strongest applications began services in 2003, and 16 additional awards were made from the 2003 applications in 2004. The Effective Adolescent Treatment program provided a unique opportunity to study the implementation of an evidence-based practice for adolescent substance use disorders in community settings.

A review of state-of-the-art methodologies in alcohol treatment noted that findings regarding treatment efficacy in traditional clinical and laboratory research on alcohol-related problems may hold promise but are frequently not able to be replicated in field situations.[2,3] Implementation research examines variables that affect successful implementation of evidence-based practices in clinical settings. Fixsen and his colleagues reviewed implementation research and pointed out that progress has been made in increasing evidence-based practices; "however, the science related to implementing these programs with fidelity and good outcomes for consumers lags far behind (p. 6)".[4] Successful implementation efforts are based on a long-term multisystemic approach, including selection of effective practitioners, skill-based training, practice-based coaching, evaluation of practitioner performance, program evaluation, supportive administrative practices, use of methods for systems interventions, and application of an overall framework for integrating the program into the new setting.[4] Clarity and practical measures of fidelity are necessary ingredients.[5] Major barriers to implementation are the need to serve diverse populations and dependence on treatment practitioners who are individually credentialed and eclectically trained. Additional barriers include supervision and evaluation practices that are not standardized and are heavily reliant on subjective impressions of the supervisor.[4] Fixen and colleagues[4] suggest that formal models of implementation may be useful to guide the adoption of evidence-based strategies for treatment of alcohol and drug disorders.

One of the few studies of implementation in an adolescent substance abuse treatment setting focused on training staff in an intensive outpatient setting in Multidimensional Family Therapy (MDFT).[6] Using Simpson's organizational change model,[7] the authors described the early stages of implementation, including the need for an initial assessment to determine whether existing resources would fit the new practice, how to use team building efforts, establishment of collaborative processes, formal training, how to address barriers such as limited staff time and energy, the need to make requested changes to suit individual client needs, the inability of trainers and coaches to enforce adherence, the need for support from the top people in the organization, organizational changes to support the program, and the need for ongoing reminders and coaching.[6] A report on the results of training staff indicated that it was possible to successfully train counselors to develop adherence to the intervention; however, the training period was intense (over 6 months) and regular supervision, co-therapy sessions, and booster meetings were provided.[8] Implementation of evidence-based practices for the treatment of drug and alcohol disorders among adolescents, therefore, may be challenging.

The Cannabis Youth Treatment (CYT) cooperative agreement in 1997 addressed a growing need to treat adolescents in short-term (less than 3 months) treatment.[1] Five interventions were tested: (1) MET/CBT-5: two individual sessions of motivational interviewing followed by three group sessions of cognitive behavioral therapy, designed to fit the norm of brief treatment for adolescents, (2) MET/CBT-12: the MET/CBT5 intervention plus seven additional group sessions, (3) Family Support Network (FSN): MET/CBT-12 plus six family sessions, (4) Adolescent Community Reinforcement Approach (ACRA): ten individual sessions and four sessions with caregivers (two with the entire family) and some case management, and (5) Multidimensional Family Therapy (MDFT): 12 to 15 sessions, which usually include 6 with the adolescent, 3 with parents, and 6 with the entire family. There were significant reductions in the use of marijuana in all study conditions; however, the MET/CBT-5 intervention was found to be the most cost-effective. The 12-session version did not appear to offer any additional clinical benefit over the MET/CBT-5 version. Furthermore, approximately 47% of participants were considered substance use dependent during

the trial, similar to the percentage seen in national community treatment samples. The MET/CBT-5 program was subsequently selected by the Center for Substance Abuse Treatment for community implementation in the Effective Adolescent Treatment program. To provide consistent comparison of client treatment, the Global Appraisal of Individual Needs (GAIN)[9] was selected as the assessment instrument for all agency participants.

CSAT and the National Institute on Alcohol Abuse and Alcoholism, therefore, commissioned a qualitative study to assess the implementation of MET/CBT-5 in nine of the sites. The study examined variations in implementation, barriers to implementation, and implementation fidelity. Three research questions guided the study:

1. What parts of the protocol were implemented according to original specifications?
2. What changes were made to the protocol?
3. What issues affect protocol sustainability when grant funding ends?

Methods

Setting Nine agencies serving geographically (e.g., urban/rural, east coast/west coast/midwest) and culturally diverse (African-American, Hispanic, court-mandated, family/community referred) populations were recruited from the second cohort of the Effective Adolescent Treatment (EAT) program to participate in a prospective qualitative analysis of MET/CBT-5 implementation. The EAT Request for Application encouraged differentiation among sites by noting that applicants should address how they would provide a continuum of care, work with families, and provide gender and culturally appropriate services. The study was limited to nine sites to comply with requirements for Office of Management and Budget review and approval of larger studies.

Training for practitioners included a 1-week program that taught skills for the MET/CBT-5 intervention and the GAIN assessment tool. After participants returned to their agencies, they submitted tapes of their client treatment for certification of proficiency. Staff at participating sites also took part in monthly telephone conference calls where issues regarding compliance and submission of information were reviewed and expert speakers gave presentations on related topics. Supervisors received training and submitted tapes to become certified for supervisory proficiency in the MET/CBT-5 protocol. They were asked to provide periodic supervision of counselors. Consistent with its service focus, CSAT did not take additional steps to monitor implementation fidelity.

Data Collection Interviews conducted during a combination of site visits and quarterly calls were used to collect qualitative data from the nine selected sites. A site visit was conducted at each site during the first 6 months of funding, and another was conducted at the beginning of the second year. Notes from interviews collected during the visits and quarterly calls were used to assess implementation of MET/CBT-5. Separate interview guides were developed for organizational and clinical representatives for both the site visits and quarterly calls to provide separate perspectives. Initial interview guides were constructed based upon the first two study questions. The guides were revised for the second year site visits and quarterly calls and focused on the differences between the organizational and clinical interviews. A final revision before the last round of quarterly calls emphasized sustainability. Interviewers asked open-ended questions based on the separate guides for clinical and organizational site visit interviews and quarterly calls. Field notes and audiotapes were used to prepare interview reports. Interviews were conducted with the clinical and administrative directors (n=25 interviewees, reflecting turnover—76% women, 72% Caucasian). Data for this project were collected between June 2005 and April 2007 to capture the entire period

of funding. The Oregon Health and Science University Institutional Review Board reviewed and approved methods for data collection and analysis.

Analysis The analysis included all interview reports collected over the course of the project. A total of 121 interviews, including 36 reports from site visit interviews and 85 reports from quarterly calls were available for analysis. Investigators collaborated to develop a coding scheme,[10–12] and all documents were coded using this scheme. A second coder coded 28% of the documents to test for reliability. The use of multiple coders increases the validity of the coding.[13] In qualitative research, there is less emphasis on quantifying events noted in reports and more emphasis on developing insights; however, having agreement on observations from more than one reviewer increases the likelihood that the report reflects an "objective" or corroborated perspective of events.[14] Coding was compared to determine the reliability of agreement on passages. Where there was disagreement, passages were reviewed to determine a final code. The result was 92% agreement between the coders.

Quotations were sorted by code, using ATLAS.ti software and a modified "grounded theory" approach to identify initial themes.[13,15,16] "In vivo" coding identified subcodes, and their associated quotations were categorized into themes related to the implementation process and adaptations.

Results

The nine study sites had few differences from the other 28 awardees. Most clients were male (70%) adolescents treated in outpatient settings. In contrast, the study sites had a higher proportion of ethnic minority than white participants and more referrals from the juvenile justice system than community agencies. Although most sites mainly served minority clients (six of the nine sites), the majority of clinical and organizational representative interviewees were female and Caucasian.

Each of the research questions are examined with quotations noted by either clinical or organizational representatives. Additional comparisons are made between the preliminary findings and those at project completion.

What parts of the protocol were implemented according to original specifications?

Based upon Fixsen's recommendations for successful implementation,[4] key areas of protocol adoption were examined. Practitioner qualifications and initial certified performance on the manualized protocol were the most consistently implemented components of the protocol. In addition, the MET portion of the protocol was readily adopted.

Selection and training of staff Interviewees reported that most staff who participated in the MET/CBT-5 intervention had master's degrees or bachelor's degrees. Participants were usually selected for their interest in working with adolescents. All staff who participated in the initial training submitted tapes of client interactions and were certified as proficient. When turnover occurred, replacements were required to obtain training and submit tapes of client interaction to be certified. Most participants agreed the monthly coaching conference calls were helpful.

Practice-based coaching and evaluation of practitioner performance Supervisors were also certified, and they listened to session tapes made by the counselors throughout the initial implementation period. Clinical proficiency and protocol adherence were emphasized. During the initial period, they consistently considered this procedure to be helpful for themselves and the

counselors. Regular supervision was a key factor in maintaining fidelity to the protocol for many sites. During a quarterly call toward the end of the study, one supervisor stated,

> "Even though the counselors are certified we still meet and still do taping. When the counselor is certified they randomly record one of their sessions and we listen to it each week." (Clinical Representative)

As the project period progressed, regular supervision and use of tapes decreased. In sites that decreased the frequency of taped supervision, there seemed to be less emphasis on maintaining consistency with session protocol.

> "Supervision has been pretty minimal. We're both busy and I have a lot of autonomy and they seem to feel confident that I'm doing what I'm supposed to be doing. If an issue comes up, there are people for me to talk to. Supervision is as-needed, not a regularly scheduled time." (Clinical Representative)

MET content Throughout the project, staff continued to report that they liked the MET individualized portion of the protocol and manualized treatment.

> "It was insightful and I enjoyed working with manualized treatment. It provides a concrete behavioral modification for the clients. It was a great experience overall." (Clinical Representative)

Counselors who were new to the field found the manual particularly helpful.

Staff did not change the individual MET sessions; the content and delivery methods were similar to what they already practiced.

> "Actually, there wasn't a whole lot of a change for some of the therapists because that was basically their style." (Clinical Representative)

Staff reported that the MET sessions helped counselors establish rapport with clients who consequently were more willing to participate. One agency was so pleased with the positive effect of MET on clients that they adopted the sessions for their regular adolescent treatment program.

What changes were made to the protocol?

Major changes that occurred included modifying sessions to meet individual and cultural needs, extending the number of sessions for clients, and offering group sessions individually.

Individualization of sessions A majority of the sites began offering the CBT portion of the program on an individual basis due to problems with transportation or scheduling, often with the prior approval of the granting agency. In rural areas, transportation was sometimes provided, but it was difficult to schedule treatment at the same time for a group of clients from diverse locations. Using individual sessions was also a strategy to avoid embarrassment issues with some clients. By the end of the project, seven of the nine sites were offering the CBT sessions as individual sessions either completely (four sites) or sometimes (three sites).

> "The CBT (sessions) now are doing better. It has improved from the very beginning. We did have problems getting kids together in a group. We still have some difficulties with this because sometimes just one kid shows up for a group, so then they are seen individually." (Clinical Representative)

Individualization of content during sessions often occurred due to crisis situations or client needs.

> "Pressing needs are handled first and less time (is spent) on the structured activity. I try to incorporate the need or crisis into the group. If a group member asks to speak to me privately after the group, I also do that." (Clinical Representative)

Accommodations for clients with cognitive impairment Several helpful adaptations were made by agency representatives to take care of clients with cognitive limitations.

> "I've only had one student where I felt I had to make a change due to the cognitive level of the client. That meant a lot more explanations and shifting it around to help him understand it better." (Clinical Representative)

Another agency working with cognitively challenged clients talked through a handout on the blackboard instead of sending it home.

Cultural adaptations In addition to addressing individual needs, adaptations were made to fit cultural issues associated with ethnicity, gender, and urban sophistication levels. One common early adaptation for multiple substance users was modification of handouts to include a variety of drugs, including alcohol. Adaptations were also made to adjust for the severity of client drug use.

> "We have poly-substance users so we have to incorporate their other substance use. We see a lot of alcohol use, prescription pill abuse, like Oxycontin, Xanax, and Vicodin. Amphetamines and cocaine use are also seen a lot." (Clinical Representative)

Sometimes, references were added in the handouts to suit ethnic differences and more sophisticated substance abusers. Additional adjustments were made for cultural context within the sessions themselves.

> "During the sessions the therapist has changed a few things like when they are supposed to repeat after me, I'll change the names to Latino/a names to make it culturally relevant and appropriate." (Clinical representative)

In some instances, separate groups were offered for girls. As most clients were male, staff believed that female-only groups would increase the female participants' comfort, sharing, and open expression; however, no problems were reported in agencies where girls participated in the same groups as boys. The discussion about "triggers" for substance use was an area where counselors at one site made modifications for gender differences.

> "CBT sessions with boys can be difficult because they don't reflect on their behavior or how they make choices. So talking about 'triggers' is hard for them to grasp that concept. They will say there are no triggers and they just did it; it just happened. 'I felt like smoking and I did it.' That is very different from girls who are more insightful. So staff try to address the issues in different ways with the boys who lack insight, for example, they would not use the word 'trigger,' or would not start talking about drugs right away, but would set the stage to help the client develop insight. They would first talk about their friends and their feelings first." (Clinical Representative)

Modifications were made at one site to make a session more applicable to inner city participants.

> "Some of the inner city kids we have them role play scenarios more applicable to them instead of using the handouts from the session." (Clinical Representative)

Increased number and length of sessions By the end of the first year, only one of the nine sites appeared to be offering just the original five sessions, although most of the sites stated that they had not made any changes. Some sites stated that they "stayed with five but added sessions as needed." This pattern persisted through the end of the grant for eight of the nine sites.

> "I still like it. The hard thing is the limitations of the five sessions. A lot of time the kids are in the pre-contemplative stage and they are court ordered. Just when they are thinking that maybe they should stop using, the treatment is over. Even the kids who appear to be low level in their use are usually minimizing. I add on sessions. The number of added sessions varies. We like to have them be drug free for at least six weeks before they complete treatment. We add around six to eight sessions: a month or two. That helps reduce their drug use." (Clinical Representative)

Three sites added aftercare but experienced low attendance, and by the end of the project, one had abandoned the effort. Other sites added orientation sessions (two sites). Six sites added parent sessions (four formally and two occasionally), but one discontinued the offering due to low

attendance. The addition of client and parent sessions was consistent with recommendations from the CYT study.

Sessions were also lengthened or shortened depending on need. One site sought approval to increase the session length by another half hour for dual diagnosis clients before the grant began. Schools where sessions were held often required that the time periods be shortened to accommodate school periods, and as a result, the agencies had to add more sessions to compensate for the time lost. Other changes included changing session order to suit client issues and modifying content based upon counselor experience; e.g., adding art projects, or focusing on posttraumatic stress disorder.

What issues affect protocol sustainability when grant funding ends?

This question was viewed within the context of Fixsen's recommendation for the need to apply an overall framework to integrate the program into the new setting.[4] All of the sites struggled with whether or not to continue offering MET/CBT-5 when the project ended. The most influential factors in this decision were program financing, the reactions of staff administering the intervention, and the reactions of referring agencies, adolescent participants, and their parents.

Funding The majority of participating agencies (eight of the nine sites) reported that they would continue offering MET/CBT-5 in some version when the grant ends, however, the largest barrier they reported was obtaining funding. One site was applying for another grant to finance their efforts. The other seven reported that they would be billing clients for the program on an individual basis. Another agency noted that billing for low income clients would not fully reimburse their costs, and they did not know if they would be able to continue on this basis.

> "I don't know if we will be able to do it in the schools, but I doubt it. The kids will have to have Medicaid to pay for the counseling. A lot of our kids don't have Medicaid; their parents have third party insurance. Third party insurance and HMOs don't pay for much counseling. They pay for 50% and we only get $50 per session now, so we can't afford it with private insurance." (Organizational Representative)

Reactions of staff, clients, and referring agencies Although staff generally liked the content of the MET sessions, some grew tired of the manualized process.

> "The previous [counselor who left the agency] felt it was a little assembly-line type of product." (Clinical Representative)

However, this agency planned to continue the program as did seven other agencies that accepted the program as part of their overall offerings, as another staff member emphasized:

> "It's become so second nature that some of the lessons get lost now. I don't think people even realize they're utilizing MET; it has become inculcated in what they do. Because you want to follow the model, and you've been trained to follow, it takes out the part of you that thinks critically or creatively." (Organizational Representative).

Interviewees observed mixed client reactions. Most adolescents liked participating because it was short and many felt they benefited from the program.

> "It feels like we're making connections with the kids and that they are listening and responding. Very rarely do I have a session where a kid is not actively involved. The sessions feel more relaxed and open because we're honest with the kids. We feel that drugs are a problem but we don't force it with the kids." (Clinical Representative)

The adolescents also liked the brainstorming, group sessions, and role playing. There was low acting out in the sessions and good attendance, partially due to the brief nature of the program. Parents appreciated the fact that the program was short. In contrast, some parents thought the number of sessions was inadequate and sometimes their feedback encouraged agencies to offer more treatment.

Staff also noted that referring agencies liked the program and became accustomed to sending clients to them. Juvenile justice and school sources liked the program's brevity and effectiveness. Some agencies reported that it was necessary to continue the program because it was now expected by the referring sources.

> "The referrals keep coming in and there are two to three schools that want us to continue it in the fall. It's now part of their discipline policy. One school has actually put the MET/CBT-5 formally into their discipline policy." (Clinical Representative)

Organizational representatives concluded that the MET/CBT-5 program filled a niche by serving adolescents who were beginning users and whose attention span was short. They also thought that the program was particularly useful for clients who would not be able to afford services otherwise.

Discussion

The MET/CBT-5 protocol was fully implemented in the nine study sites during the early period of the grant; however, adaptations were made to suit individual, community, and client circumstances. Although most agencies stated that they did not make any changes to the protocol, adaptations were made by almost every site (eight of the nine). They added sessions, changed session content, and used individual sessions. The implementation of the protocol appears to be substantially different than the intervention tested in the Cannabis Youth Treatment trial.

Key protocol components that remained consistent included training of practitioners and general adherence to session content, particularly for the MET component. The training and coaching of practitioners appears to be initially effective; however, delays in having staff receive training and later problems with counselor turnover may have compromised fidelity to some degree. Practitioners appeared to have good qualifications. Staff had relatively little difficulty following the manuals. None of the interviewed agencies mentioned changes in the MET sessions, which fit existing practices of several agencies that were already using Motivational Interviewing, MET, or other cognitive-based practices. Although many agencies delivered the CBT portions of the protocol as individualized sessions, the majority of the content seemed to remain consistent. There were some modifications to handouts and session content to accommodate additional substances, more drug-exposed youth, and Spanish language usage. As the RFP encouraged modifications, agencies felt these adaptations were acceptable or even unimportant deviations.

Monitoring counselor adherence through supervision, including the use of session taping, decreased as the grant period progressed, therefore, deviation from the protocol may have increased. Once counselors were certified in the protocol, ongoing monitoring of adherence by the CSAT program office was not maintained, and supervision varied from one site to another, depending on the circumstances and the individual supervisor's perception of counselor need for discussion. Lack of consistent monitoring of adherence may have affected protocol delivery.

The CYT trial designed the CBT portion to be delivered in groups to maximize application in community settings where most treatments are delivered in a group setting and also to provide peer influence to reinforce treatment goals.[17] Monitoring and logistics strategies such as frequent supervision and provision of transportation were built into the trial [17,18] in anticipation of the very pressures encountered in the EAT implementation.

Existing agency norms for individualized treatment,[4] lack of strict monitoring and logistics support available through a clinical trial, and belief in the need for longer treatment and parental involvement may have impacted agency decisions to make changes to the protocol. Agency representatives and their practitioners have received repeated information that longer stays improve outcomes.[19] There is also a strong belief that parental involvement will improve outcomes, although the CYT trial indicated that this was not as important as one might suppose,[1] and other studies suggest that it may not be significant for adolescents.[20] MET is very similar to individual

treatment practices and fits easily into existing norms and training for individualized treatment. CBT is widely used and is regarded as effective;[21] however, it is usually delivered on an individual basis. In addition, agency representatives did not accept or may have been unaware of the findings from the CYT trial in terms of the efficacy of brief treatment. Their adaptations apparently were made without a belief that treatment outcomes might be impacted substantially from the CYT trial.

Sustaining the program once grant funding ends appears to be included in the plans of most participating agencies. It is too early, however, to evaluate the viability of the success of the sustainability plans and philosophy, structure, and funding are likely to affect long-term results.[22]

Limitations The themes identified depend on the perceptions of the people interviewed.[13,23] The agencies that were selected for this project were motivated and willing to participate in implementing an evidence-based treatment. These characteristics may not be present in all substance abuse agencies. Code selection and themes were dependent on the perceptions of the authors. However, the use of diverse agencies throughout the United States, the positive feedback received by EAT-funded agencies, and the use of multiple observations help to provide triangulation for the descriptions provided here.

Other concerns include the fact that the project was implemented in settings that are always in flux with methods that are also in the process of change. Therefore, conclusions may not apply to other adolescent treatment agencies in other settings and times. In addition, interviews were only conducted with organizational and clinical representatives. If other staff had been interviewed, their perceptions of how the practices were being implemented may have differed. Client perceptions would also have provided an interesting source of feedback.

Finally, this study did not examine client treatment outcomes. The adaptations that have been implemented may or may not have an effect on outcomes, and results may differ greatly from those obtained during the CYT clinical trial.

Strengths This project, nonetheless, provides a unique perspective on how agency members view implementation of an evidence-based practice. It also tracks these impressions over time and is able to compare a cross-section of agencies which serve a variety of adolescent clients. Furthermore, agency representatives and evaluators had an opportunity to provide feedback on the validity of the results and reported that the findings were consistent with their experiences.

Implications for Behavioral Health

Alcohol and illicit drug use are the most prevalent underlying causes of adolescent morbidity and mortality.[24–26] Approximately one in five eighth graders and more than one third of tenth graders report having tried illicit drugs.[27] Marijuana is the primary drug of abuse for adolescents entering treatment.[28] Adolescents who enter treatment, however, do not sustain attendance. The mean length of stay is approximately four sessions of care over a 6-week period.[29] It is critical, therefore, to develop relatively brief interventions that are effective. MET/CBT 5 appears to be a brief effective therapy and is being promoted for widespread implementation.

Interviews with agency representatives implementing the MET/CBT5 protocol in noncontrolled settings suggests that variations are readily introduced without recognizing changes to the original protocol. In many cases, the changes reflect logistical issues such as difficulty in having clients meet in groups and current norms of substance abuse treatment including beliefs that more treatment is better than brief treatment, parents need to be involved with the adolescent, and clients should be treated in individual sessions. As Schoenwald and Hoagwood note, the degree to which an intervention is perceived as different from current activities can affect its level of acceptance.[30] The diffusion of a manualized evidence-based protocol into community settings appears to need

greater attention to address these norms if practitioners are expected to deviate from them by implementing the intervention as designed. Evidence-based protocols will not be successfully implemented without attention to these issues.

It is not clear whether adherence is sufficient for effective treatment or whether the additional sessions were needed. It is clear that although the MET/CBT-5 intervention was determined to be the most cost-effective model used in the Cannabis Youth Treatment trial, adding sessions increases costs and may lead to a less cost-effective intervention. The real questions become, "Were the additional sessions truly needed?" and, if so, "Why were additional sessions required?" In addition, this study does not provide answers to other related questions, "What components are essential for the program to be effective?" and, "To what degree of individualization of treatment does it become 'treatment as usual' without the characteristics of the protocol?"

A study of variations in program delivery would be useful, but it would also require control of other variables. It is clear that client characteristics vary[30,31] and cultural factors such as ethnicity, gender, and level of drug sophistication would need to be taken into consideration. In addition, particular barriers, such as transportation difficulties in rural areas may also impact outcomes.[30]

Some of these questions may be answered through further analysis of client level data at the sites. Analysis of the number and length of sessions could give a measure of dosage. If this information was compared to client characteristics, including severity of problems, it may provide a picture regarding the need for additional sessions or at least the characteristics of those who received them. As Dusenbury and colleagues recommend, future implementations should address: adherence, dose, quality of program delivery, participant responsiveness, and differences in program characteristics.[32] It would be useful to explore implementation of MET/CBT-5 in additional agencies while measuring adherence more closely and possibly controlling for such variables as therapist length of experience in the field, attitudes toward the intervention, and philosophy regarding the necessary ingredients in effective treatment of adolescents. As Fixsen noted, "artful variability is death to a program".[5]

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