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Treatment Development and Feasibility Study of Family-Focused Treatment for Adolescents with Bipolar Disorder and Comorbid Substance Use Disorders

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Abstract

Background—Comorbid substance use disorders (SUD) are associated with increased illness severity and functional impairment among adolescents with bipolar disorder (BD). Previous psychosocial treatment studies have excluded adolescents with both BD and SUD. Studies suggest that integrated interventions are optimal for adults with BD and SUD.

Methods—We modified family-focused treatment for adolescents with BD (FFT-A) in order to explicitly target comorbid SUD (FFT-SUD). Ten adolescents with BD who had both SUD and an exacerbation of manic, depressed, or mixed symptoms within the last 3 months were enrolled. FFT-SUD was offered as an adjunct to pharmacotherapy, with a target of 21 sessions over 12 months of treatment. The FFT-SUD manual was iteratively modified to integrate a concurrent focus on SUD.

Results—Six subjects completed a mid-treatment 6-month assessment (after a mean of 16 sessions was completed). Of the 10 subjects, 3 dropped out early (after ≤ 1 session); in the case of each of these subjects, the participating parent had active SUD. No other subjects in the study had a parent with active SUD. Preliminary findings suggested significant reductions in manic symptoms and depressive symptoms and improved global functioning. Reduction in cannabis use was modest and did not reach significance.

Limitations—Limitations included a small sample, open treatment, concurrent medications, and no control group.

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The authors declare no conflicts of interest.

Conclusions—These preliminary findings suggest that FFT-SUD is a feasible intervention, particularly for youth without parental SUD. FFT-SUD may be effective in treating mood symptoms, particularly depression, despite modest reductions in substance use. Integrating motivation enhancing strategies may augment the effect of this intervention on substance use. Additional strategies, such as targeting parental substance use, may prevent early attrition.

Keywords

bipolar disorder; substance use disorder; adolescent; family therapy; adjunctive therapy

Findings from adults with bipolar disorder (BD) indicate that the presence of comorbid substance use disorders (SUD; abuse or dependence of drugs and/or alcohol) is associated with delayed recovery from mood episodes, more rapid relapse into recurrent mood episodes, increased symptoms, functional impairment,[1] suicidality,[2] polarity "switching" into mania,[3] forensic difficulties[4], and decreased medication adherence[5] and quality of life.[6] BD with onset during youth (before the person is 18 years of age) may confer an elevated risk of SUD even in comparison to adult-onset BD.[7,8]

BD among adolescents follows an even more symptomatic course compared to adult BD,[9] and it is associated with significant functional impairment and high rates of psychiatric hospitalization and suicide attempts.[10,11] Similar to adults, adolescents with BD are also at increased risk of SUD compared with the general population and even with adolescents with other psychiatric illnesses.[10] By the end of adolescence, 30%–50% of youth with BD will have experienced a lifetime SUD, approximately triple the rate among youth without BD.[12,13] Correlates of SUD among adolescents with BD include conduct disorder, suicide attempts, legal problems, pregnancy, and academic failure.[14–16] During prospective follow-up, adolescents with BD and comorbid SUD have earlier recurrences and greater medication non-adherence compared with adolescents without comorbid SUD.[17]

To date, to our knowledge, only one published study has examined pharmacological treatment of adolescents with comorbid BD and SUD,[18] and no study has expressly examined the effectiveness of a psychosocial intervention in this group. Studies of manualized family therapies for youth with SUD generally exclude subjects with BD or enroll a small number of these subjects, and these interventions do not incorporate BD-specific treatment strategies.[19,20] This exclusion is important to reconsider because of mounting evidence that family therapy improves SUD among adolescents. In fact, recent practice parameters for youth with SUD gave the highest recommendation for family therapy (or at least significant family/parental involvement) as part of the minimal standard of treatment. Family therapy was the only psychosocial treatment to receive this level of recommendation.[21]

Family-focused treatment (FFT), as an adjunct to pharmacotherapy, is effective in reducing symptoms of mania and particularly depression, preventing mood episode recurrence, and improving medication adherence among adolescents and adults with BD.[22–24] However, adolescents with active SUD have been excluded from previous FFT studies, and FFT does not as yet integrate specific treatment for SUD. There is a growing recognition of the importance of integrated psychosocial interventions targeting mood disorders and SUD,[25]

and recent findings from adults suggest that integrated treatment of BD and SUD affords advantages compared with standard drug counseling.[26] Therefore, we conducted a treatment development and pilot study in order to modify FFT for adolescents (FFT-A) to specifically target the treatment challenges posed by adolescents with comorbid BD and SUD.

We first present a brief overview of the FFT-A treatment manual for BD. We describe specific considerations in treating adolescents with BD and SUD and explain how these considerations have been incorporated into a modified FFT-SUD manual for this population. Next, we present descriptive findings regarding therapy attendance and changes in mood and substance use among the adolescents enrolled in this pilot treatment development study. We anticipated that integrating an SUD perspective into FFT-A would retain the intervention's benefits in terms of mood stability, and would also be associated with reductions in substance use.

METHODS

Subjects

The local institutional review board approved this study, and written consent was obtained from the participating youths and their parents. A certificate of confidentiality was not obtained for this study. The *inclusion criteria* for the study were 1) age between 13 years, 0 months and 18 years, 11 months, 2) a diagnosis of bipolar disorder I, II or NOS (using operationalized criteria)[9] based on the Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL),[27] 3) at least a 1-week period in the previous 3 months that was characterized by a full-threshold mood episode or clinically impairing symptoms of depression or hypomania, and patient not in full recovery (8 continuous weeks of remission), 4) a diagnosis of alcohol or cannabis abuse or dependence within the past 3 months (via the K-SADS-PL), and any cannabis or alcohol use within the past month, 5) patient willing to engage in regular psychosocial treatment with a study therapist and pharmacotherapy with a study psychiatrist, including taking mood stabilizing medications , 6) at least one parent with whom the patient lives who is willing to participate in family intervention, 7) participant able and willing to give informed consent/assent to participate. The *exclusion criteria* for the study were 1) meets criteria for substance-induced mood disorder, 2) evidence of mental retardation (IQ < 70) or organic central nervous system disorder on the KSADS, by parental report, or by medical history or school records, 3) daily use of cocaine, amphetamines, inhalants, or opiates (requires higher level of care for SUD), 4) requires higher level of care according to clinical judgment and/or 2001 American Society of Addiction Medicine Guidelines, 5) presence of severe, unremitting psychosis that is antipsychotic-unresponsive and has lasted more than 3 months, 6) exhibits or expresses serious homicidal tendencies, 7) life-threatening eating disorder or other medical disorder that requires immediate treatment, 8) current sexual or physical abuse of the adolescent, or evidence of domestic violence between the parents (as assessed by the KSADS-P/L).

Measures

Outcome measurements performed by an independent evaluator (KAC) were obtained every 3 months for up to 12 months. The mania and depression sections of the Kiddie Schedule for

Affective Disorders and Schizophrenia (K-SADS) were used to derive mood symptom severity based on separate interviews with the parent and the adolescent. Final ratings were based on summary scores from these interviews.[28] Severity of mood symptoms was rated on a scale from 0 (absent) to 5 (extreme) or 6 (very extreme) based on the worst symptomatic episode in the preceding 3 months. Reliability was not tested for this specific study; however, the independent rater received comprehensive training through, and served as an independent rater for, the ongoing parallel FFT-A multisite study. Global functioning was assessed using the Children's Global Assessment Scale (CGAS).[29] The calendar-style timeline follow-back (TLFB) was used to measure the quantity and frequency of substance use.[30] The TLFB is an interview in which the participant is queried regarding the daily use of alcohol and other substances. Because only two participants used alcohol regularly, and only one participant used substances other than alcohol and cannabis (opiates), only cannabis was examined statistically. Quantity of cannabis use was measured in terms of days of use per month. Monthly urine drug screens were also solicited to confirm adolescent self-reports of abstinence or minimal substance use. Laboratory measures of alcohol use were not obtained.

Treatment Structure and Content

FFT for adolescents (FFT-A) consists of 50-minute sessions (N = 21; 12 weekly, 6 biweekly, and 3 monthly) for 9 months and includes the patient, parents, and available siblings. Treatment is divided into three primary modules: psychoeducation, communication enhancement training, and problem-solving. During psychoeducation, adolescent patients and their families learn about the symptoms, course, biological and psychological underpinnings, risk and protective factors for recurrences (including life events and family conflict), and treatment of BD. The importance of adherence with pharmacotherapy is underscored. Families learn to conduct a relapse prevention drill in which they agree on principles for early intervention when prodromal signs of mood episode recurrence appear. Communication enhancement training engages families in within- and between-session role-playing and rehearsal of adaptive strategies for active listening, expressing positive regard, constructive criticism, and making requests for changes in the behavior of other family members. During problem-solving skills training, participants learn to identify problems in the family's day-to-day life and to generate and implement solutions to those problems. These modules are generally conducted in order; however, therapists may use their discretion in incorporating problem-solving or communication enhancement sessions earlier in the course of treatment if clinically indicated.

Rationale for Modifying FFT

Recent practice parameters indicate that involvement of family within treatment is part of the minimal standard of care for adolescents with SUD, although no specific type of family therapy is preferentially recommended.[21] There are both similarities and differences between the type of family therapy used in SUD studies, such as the multidimensional family therapy (MDFT) used in the Cannabis Youth Treatment study (the largest study of adolescent SUD to date) and FFT-A.[19] Both types of family therapy incorporate psychoeducation and communication training. However, the content of the psychoeducation component in FFT-A is specifically designed for adolescents with BD. MDFT puts greater

emphasis on increasing parental commitment and effective limit-setting. Although FFT-A also has the capacity and flexibility to address these topics, the focus is on reducing expressed emotion and negative interaction patterns within families. Similarly, although peer influences and pro-social affiliations are often discussed in FFT-A, they have an *a priori* central role in MDFT. In MDFT, substance use is addressed directly through functional analyses and problem-solving relevant to substance use.

We elected to modify FFT-A for SUD, rather than modifying MDFT for BD, because upon careful review, we determined that the former strategy required significantly less adaptation. In addition, FFT-A plus pharmacotherapy has already demonstrated benefits over brief psychoeducation plus pharmacotherapy in two studies with adolescents with BD.[23,31] The purpose of this pilot study was to examine what is needed to enhance the capacity of FFT-A to manage SUD among youth with BD.

The therapists in this study were experienced, had been involved with FFT-A since its inception, and had previously demonstrated high levels of adherence and competence.[23,32] The following sections describe substance-specific modifications to FFT-A; further details concerning the original FFT-A treatment for BD are available in previous publications.[23,32,33]

Substance-Specific Modifications

Many of the techniques and strategies in FFT-A that target symptoms of BD also target substance use. Indeed, substance use is acknowledged as the first from a list of risk factors for mood disturbance in the FFT-A manual. However, once an adolescent's symptoms reach the threshold for an SUD, substance-specific techniques and strategies are warranted.[21] Changes in parenting practices or in parent-adolescent relations during the course of a non-specific family therapy may not be sufficient to effect changes in the adolescent's substance use.[34] In order to effect the greatest possible change in substance use and reduce its negative consequences, it was deemed necessary to bolster the emphasis on substance use in FFT-SUD. Substance-specific goals and strategies are detailed below.

Goals

The six central goals of FFT-A are to help the adolescent and his or her family members to 1) make sense of the adolescent's recent mood cycling, including causal factors; 2) recognize the adolescent's ongoing vulnerability to mood symptoms and develop preventive strategies for future symptoms; 3) accept the importance of mood-stabilizing medications for the adolescent's mood stability; 4) help the adolescent develop a sense of identity that incorporates acceptance of the illness alongside his or her strengths and abilities; 5) manage stressors that provoke mood swings; and 6) promote a family environment that is conducive to long-term mood stability.

In addition, we identified three substance-specific goals that were informed by existing research regarding the risks of even infrequent substance use and the protective or perpetuating role of families in terms of substance use: 1) reduce the frequency and amount of the adolescent's substance use; 2) prevent and/or minimize negative outcomes that are

specifically related to substance use, including legal difficulties, injuries/accidents, suicide attempts, and negative sexual outcomes (unwanted pregnancy, sexually transmitted diseases [STDs], sexual assaults); and 3) promote "substance-free" homes in which substance use by family members of adolescents with BD is minimized.

"Self-Medication" and Reframing Substance Use as a Health-Compromising Behavior

It is a common clinical scenario for adolescents to assert that substances *improve* symptoms, and that reduced substance use will *worsen* symptoms. The concept of "self-medication" is both a frequent explanation for why adolescents use substances and has ample face validity.[35] The notion is that the adolescent is using substances to calm anxiety, improve mood, or slow down thinking. There is no doubt that alcohol does have short-term anxiety relieving properties, and some observe the same or cannabis. However, there is no evidence that illicit substances or alcohol help these problems in the long run, and substantial evidence that they worsen the course of BD.[1–3,17,36] Moreover, substance use interferes with medications that have proven benefits in BD, both by direct physiologic action and by decreasing medication adherence.[17] Patients who believe they are successfully self-medicating may be especially likely to benefit from integrated treatment focusing on both BD and SUD.[37] The substantial evidence that substance use among adolescents is associated with negative outcomes, such as attempted suicide and death by suicide, unplanned pregnancy, STDs, and legal problems, leads us to the conclusion that the risk-benefit ratio of using substances as a "treatment" for BD is unacceptably poor. This conclusion is bolstered by recent findings that adults with BD and SUD are more likely than adults with only SUD to experience worsened psychiatric symptoms after using substances, and that alleviation of boredom and achievement of euphoria—not what would classically be described as self-medication—are among the most common reasons for using substances among adults with BD and SUD.[38] In fact, these are more commonly invoked reasons for using substances than self-medication reasons such as tolerating sadness, controlling anger, or to help with sleep.

Promoting Substance-Free Homes

Advocating for "substance-free homes" begins at the outset of treatment. This emphasis is based on a substantial literature concerning the negative impact of excessive parental drug or alcohol use on their children in general, and specifically in relation to providing appropriate structure and expectations.[39] If parents express an interest in obtaining treatment for or reducing their own substance use, referrals are facilitated. Just as adolescents are reluctant to candidly discuss their substance use in front of their parents, parents are also reluctant to discuss excessive alcohol use or substance use in front of their adolescents. In order to render early discussions of substance use less threatening to adolescents and parents, time is allotted to discuss the topic separately and to set the stage for open discussion during FFT-SUD sessions. The intended message is that substance use is a family issue, not that parental substance use has somehow caused BD or SUD or that the parents are unfit. Indeed, care must be taken not to imply that parental substance use has caused the adolescent's BD or SUD, as similar strategies have yielded paradoxical worsening in smoking among parents advised to quit in order to benefit their children's asthma.[40]

Other modifications to FFT-A include increased flexibility in allocating time to adolescents and/or parents alone (in FFT-A, most of the session time is spent with the adolescent and family together). Similarly, there is increased flexibility with regard to "front-loaded" problem-solving, especially regarding discipline, rewards, and consequences. Early experience showed families were more likely to engage in psychoeducation and communication enhancement training if the therapist assisted them with solving immediate problems, well before the formal problem-solving sessions of FFT-A were scheduled. In general, early problem-solving is crisis-oriented and directive, whereas later problem solving is prophylactic and skills-focused.

Integrating an SUD Perspective into Psychoeducation

Substance use is an example of an age-normative behavior that confers increased risk for adolescents with BD. Many adolescents will experiment with substance use. However, compared to other adolescents, adolescents with BD are far more prone to develop SUD once they have started experimenting, and more likely to experience negative consequences including suicidality, legal problems, and sexually-related problems. This information is important to convey to both the adolescent and the parents, who may often attempt to characterize substance use as normative, or "*part of being a kid*," or "*just having some fun.*" Parents may feel ambivalent as to whether this is a problem and may resist recognizing the potentially damaging effects of recreational substance use. However, reaching the diagnostic threshold for SUD requires that some degree of distress or functional impairment becomes evident. Examples include failure to fulfill academic or familial obligations, driving while intoxicated, continued use despite physical or psychological consequences, legal problems, and loss of control over use.

There is enhanced emphasis on medication adherence, a key component of psychoeducation in FFT-A, for adolescents with both BD and SUD. Non-adherence is often a bigger problem for adolescents with comorbid SUD for a number of reasons. One possible reason is that some adolescents prefer to "self-medicate" (described above) with alcohol or cannabis, because prescribed medications are viewed as "not natural." Another reason is related to concerns regarding the safety of mixing alcohol or drugs with prescribed medications. This can be a major barrier if the adolescent believes that this is dangerous, as it is often the medication that is given up rather than the drugs or alcohol. Therefore, specific information is provided about taking psychotropic medications during ongoing substance use, as this is an area of significant concern to many adolescents and families. Studies of adolescents and adults demonstrate the medical safety of taking medications such as lithium, valproate, quetiapine, and lamotrigine in the context of ongoing excessive substance use.[15,41–43]

Integrating an SUD Perspective into Communication Enhancement

The communication enhancement component of FFT can also be readily adapted to situations that focus on substance use, and the therapist ensures that each communication skill is practiced in a substance-specific scenario within the family. Communication enhancement can be used to facilitate substance refusal, an important skill that can help adolescents avoid using substances when they did not initially set out to do so. Substance refusal is a skill that combines verbal and non-verbal techniques beyond "just say no."[44] The

therapist can ask the adolescent to practice using refusal skills between sessions and to report on them at the next session. If family members are agreeable, they can also participate in role-playing during the session.

An important part of enhancing communication (the second main FFT-A module) involves the clear delineation of contingencies, namely setting clear boundaries and limits, and establishing behavior modification strategies to reward healthy behavior. Adolescents with SUD are in a unique situation in which parents may be more likely to see the benefits of rewarding positive behaviors than would be considered routine for other adolescents. For example, parents of an adolescent with cannabis dependence who has given up all athletics and exercise may be particularly receptive to the idea of rewarding an activity such as going for a hike or bicycle ride. Rewards do not have to rely on finances; they can involve privileges such as extended curfews, use of the family car, or choosing what the family does for their next outing. Although ultimately it is up to the parents to define the limits and agree on a system of rewards and consequences, involving the adolescent by asking what rewards would be meaningful to him or her is often an effective way of both engaging them in the session and maximizing the chances that the rewards will effect the desired change in behavior.

Integrating an SUD Perspective into Problem-Solving

Modifications to the problem-solving component of FFT-A focus on four problems that are commonly targeted among adolescents with SUD.[44–46] Substance refusal is addressed during communication enhancement sessions but can also be addressed within problem-solving.

Problem 1: Predictable high-risk situations—Given the challenge of refusing substances offered by peers, it is helpful to identify high-risk situations for being exposed to substances and also to develop strategies for avoiding these situations. It may be helpful for the adolescent to see that family members recognize that external situations, rather than solely personal choice, contribute to risk. The therapist strives to promote the idea that the adolescent can identify situations that are of comparatively higher and lower risk for substance use, and that the adolescent has the ability to take an active part in changing his substance use by preferentially choosing lower risk friends, situations, and activities. Family members can learn about high-risk situations that are specific for the adolescent and can work toward facilitating lower risk situations and reserving their limit-setting (“picking battles”) for higher risk situations.

Problem 2: Insufficient social supports—A common problem for adolescents with SUD is that of peer substance use, which may hamper efforts toward reduced substance use. Therefore, a goal of problem-solving is to identify appropriate members for a social support network and identify strategies for optimizing the beneficial and protective impact of this network.[45] Supports include any people or organizations that can help the adolescent succeed academically, find gainful employment, involve the adolescent in volunteer activities, or provide transportation.

Problem 3: Insufficient pleasant activities—As part of problem-solving, adolescents are asked to identify previously enjoyed activities and encourage them to revisit what they enjoyed about those activities. New activities that are unrelated to substance use or substance-using peers are also identified. Efforts toward increasing pleasant activities can occur simultaneously with other parenting strategies and enforcement of household rules.

Problem 4: Difficult to resist cravings for, or urges to use, substances—Sometimes the adolescent cannot avoid a high-risk situation, or craving/urges to use arise due to intrinsic reasons (e.g. impulsivity, anxiety, boredom) or spontaneously. Therapists can help the adolescent create a substance slip-up plan (SSP) worksheet, detailing strategies for coping with such situations.[44,47] The SSP includes examples of potential unexpected situations and proceeds stepwise, from intrapersonal non-behavioral strategies (meditation, distraction, listening to music) to intrapersonal behavioral strategies (vigorous physical activity, art, changing location, reading his or her pro-con list of substance use), to interpersonal (calling a non-substance using friend, contacting a trusted confidant or Alcoholics/Narcotics Anonymous sponsor). The SSP also reminds the adolescent of less adaptive strategies that she is particularly likely to employ (using substances, isolating from potential supports or pro-social influences, acting without planning) and the self-generated reasons he or she wants to avoid lapsing into these less adaptive coping strategies. It is important not only to avoid using substances, but to cope in adaptive ways. In session, the therapist and family can help the adolescent identify impediments that might keep her from putting the plan into action and then troubleshooting about how to get around those impediments.

PRELIMINARY FINDINGS

Participants

Ten adolescents (mean age 16.9 years) with non-remitted BD and SUD within the past 3 months were recruited from Child and Adolescent Bipolar Services at the Western Psychiatric Institute and Clinic. Demographic and clinical characteristics of the sample at baseline are shown in Table 1. Nine subjects attended at least one session of FFT-SUD. Subjects received FFT-SUD as an adjunctive treatment to best practice-guided clinical and medication management in accordance with the multi-site FFT-A protocol.[23] These best-practices comprised an updated version of the 2005 pharmacotherapy guidelines for pediatric BD.[49] The mean age of onset of BD (manic symptoms affecting functioning) was 12.8 years, and the mean age of onset of depressive symptoms affecting functioning was 12.6 years, whereas the mean onset of problematic substance use was 14.1 years. Most subjects had cannabis abuse ($n = 6$) or dependence ($n = 2$), one subject had alcohol abuse, and one subject had alcohol dependence and cannabis abuse. No subjects met the diagnostic threshold for other substance use disorders (e.g. cocaine, opiates). At intake, the mean depression score on the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS) for the 10 subjects was 24.2 ± 9.6 (moderate depression), the mean K-SADS (hypo)mania score was 23.5 ± 7.6 (moderate hypomania), mean cannabis use frequency was 12 days/month, and the mean score on the Children's Global Assessment Scale (CGAS) was

52.8 ± 4.0. Six adolescents presented with their mother only, three presented with both parents, and one presented with father only.

Attendance

One subject dropped out prior to initiating any FFT-SUD sessions; this patient's parent had active cocaine dependence. One subject attended a single FFT-SUD session but was unable to continue because her parent had active alcohol dependence and could not provide transportation or arrange for alternative transportation. Another subject attended a single FFT-SUD session, but was unable to continue because her parent relapsed into cocaine dependence, and she declined further treatment due to related competing time constraints. Of the remaining 7 subjects, 2 completed the 21-session protocol (one of whom required 6 additional crisis-oriented sessions for a total of 27), 2 completed 15 sessions, 1 completed 10 sessions, and 2 completed 8 sessions. The 3 early drop-outs (≤ 1 sessions) were numerically more likely to be female (3/3 vs. 2/7), non-white (2/3 vs. 1/7), and have one participating parent with active SUD (3/3 vs. 0/7) than non-early dropouts. We focused our analyses on participants who completed at least 6 months of treatment and who attended the 6-month follow-up assessment ($n = 6$; ≥ 8 sessions). The 6 participants who completed 6 months of treatment attended an average of 16 ± 7 sessions (note that some of the patients had less frequent sessions over the treatment period).

Changes in Mood Symptoms, Functioning, and Substance Use

Mood symptoms, functioning, and substance use at intake and at 6-month follow-up for the 6 subjects who completed both assessments are listed in Table 2. Based on pairwise t-tests, these subjects demonstrated significant improvements in depressive symptoms, manic symptoms, and global functioning, and a non-significant reduction in cannabis use (approximately 2 days/month less).

None of the subjects required hospitalization during the study, although 3 of the 10 enrolled subjects were lost to follow-up entirely and their outcome is not known. One subject attended the psychiatric emergency department due to an escalation of manic symptoms during the first month of treatment; that subject completed 15 sessions and had no further emergency department visits. There were no suicide attempts during the study.

DISCUSSION

This article describes a treatment-development and feasibility study conducted to examine the feasibility and acceptability of an integrated psychosocial intervention for adolescents with comorbid BD and SUD, and to provide a preliminary test of the effectiveness of this adjunctive intervention. The findings suggest that recruitment and retention of these high-risk adolescents into a voluntary family-based psychosocial treatment is challenging. Nonetheless, preliminary findings based on 6 subjects who completed at least 6 months of treatment suggest that adjunctive treatment with FFT-SUD was associated with significant reductions in mood—particularly depressive— symptoms and significant improvement in global functioning. Reductions in substance use were relatively modest.

These findings should be interpreted in the context of this study's inherent methodologic constraints. First, this was a pilot feasibility study and the small sample size provides limited statistical power. Second, sincer this was a single-arm open treatment study, it is premature to attribute the observed benefits to the effects of FFT-SUD. Similarly, subjects in the present study received guideline-based pharmacotherapy, which allowed for pharmacological treatment changes during the study. All subjects had a change in medication dosage and/or type during the study. In this small uncontrolled study, it cannot be determined to what degree this pharmacological treatment affected the observed findings. However, despite the clear evidence of efficacy of pharmacotherapy in acute mania, far less is known regarding the maintenance pharmacotherapy of adolescent BD or bipolar depression. The only published randomized controlled study of pharmacotherapy for adolescent bipolar depression was negative,[50] whereas the single randomized trial of psychosocial intervention for adolescent BD found that FFT-A was associated with a more favorable trajectory of depression relative to a brief family psychoeducational intervention.[23] Nonetheless, the absence of a control group in the present study precludes an examination of whether the impact of FFT-SUD on depression symptoms in this study was independent of pharmacological treatment. Third, we employed only a quantity-frequency measure of substance use (TLFB), and future studies would benefit from employing a comprehensive assessment of the impact of substance-related dysfunction, such as the Addiction Severity Index.

Therapist fidelity was not systematically assessed; however, the therapists in this study were skilled in FFT-A and had previously completed rigorous training in this treatment and demonstrated good adherence.[23] Finally, all of the subjects in this study were recruited from a sub-specialty clinic for BD, and may not be representative of adolescents with BD-SUD in the general population. Recruiting from a clinic focusing on SUD may have yielded subjects with greater severity of SUD and possibly, greater personal and familial motivation to reduce their substance use.

Retention in the trial of FFT-A for adolescents with BD but not SUD[23] was substantially greater, with 90% in the FFT-A group completing 6 months of treatment and follow-up (vs. 60% in the current study). Substance use is a known predictor of drop-out among adolescents in psychosocial treatment for mood disorders in general,[51] and specific ways in which substance use may interfere with FFT-A have previously been articulated.[33] In the Cannabis Youth Treatment study, 71% of subjects were defined as completers (≥ 75% of sessions vs. 40% in the present study).[19] However, our findings are comparable to the subset of subjects in that study who were assigned to 12- to 14-week interventions, among whom only 52% remained in treatment for 3 months. A previous pilot study of a cognitive-behavioral intervention for adolescents with comorbid MDD and SUD reported 84% retention (11/13 subjects).[44] The higher retention in that intervention may be explained by the availability of case management, absence of concurrent pharmacological treatment, use of a group therapy modality in addition to family therapy, the inclusion criterion that subjects strive for abstinence, and/or clinical differences between adolescents with BD versus MDD. In a recent study of adults with BD and SUD, patients attended 54.3% (standard drug counseling) to 69.6% (integrated treatment) of sessions.[26]

The subjects who dropped out of this study also dropped out of their pharmacological treatment and were completely lost to clinical follow-up, underscoring how difficult it is to engage this population. Attrition in acute pharmacological studies for this challenging population approaches 60%–70% among adults.[41,52]

Several factors may explain the sub-optimal recruitment and retention in this pilot study. First, none of the subjects in this study was referred by the legal system to receive treatment, whereas this was true for 52% of subjects in the Cannabis Youth Treatment Study.[19] Second, this study comprised a first formal attempt to integrate SUD treatment within a BD clinic, and the duration and scope of the study may not have been sufficient to generate referrals from community healthcare providers. The present study set a relatively liberal inclusion threshold by requiring only that adolescents be willing to discuss their substance use openly rather than agreeing to commit to change. Although we did not explicitly ascertain motivation for change, low motivation for change with regard to substance use may partially explain the observed retention. Finally, our findings suggest that active parental SUD may be an impediment to completing treatment. Parental SUD has been associated with a history of hospitalization and/or residential treatment among BD youth,[53] and our findings suggest that failure to engage consistently in outpatient treatment may subserve this association. As with other forms of psychopathology in children and adolescents, targeting parental SUD may lead to improved outcomes.[54]

Regarding effectiveness, findings in this study were similar to findings from FFT-A for BD adolescents without SUD. Specifically, in a larger study of FFT-A for BD adolescents without SUD, the largest benefit associated with FFT-A was attenuation of depressive symptoms.[23] Similarly, in our study, the effect sizes among the 6 subjects with baseline and 6-month data suggest that FFT-SUD was most strongly associated with reductions in depressive symptoms.

Our study incorporated the six central goals of FFT-A and added to these three substance-specific goals. Because most of these goals are not currently operationalized, future studies would benefit from designing and incorporating self- and parent-reported measures that operationalize and quantify the topics contained in these goals. For example, strategies for managing stressors and preventing symptoms could be ascertained before, during, and after treatment. Similarly, substance use among other members of the family/household could be examined before, during, and after treatment. Such strategies could potentially inform continued refinement of FFT and our understanding of mechanisms and mediators of treatment effects.

CONCLUSIONS

The findings from our study suggest several conclusions. First, FFT-SUD may be an effective adjunct to pharmacotherapy for symptoms of BD, particularly depressive symptoms, despite the presence of active SUD. Second, strategies to improve treatment retention are needed, particularly for adolescents with low motivation to change and/or for those whose parents have active SUD. Incorporating brief motivation-enhancing strategies and/or dialectical behavior therapy (DBT)[55] commitment strategies may be beneficial for

adolescents with low intrinsic motivation to change or high ambivalence. Similar strategies may also target parents with low motivation and/or high ambivalence with regard to treatment engagement or with regard to whether or not their adolescent has a substance problem. Although actual treatment of parental SUD is beyond the scope of an adolescent-focused intervention, more formalized strategies may help engage parents with active SUD in their own treatment, which in turn may improve retention and outcomes for their adolescents. Finally, given the combined challenges of treating adolescents with comorbid BD and SUD, our findings reinforce the importance of preventing SUD and preventing SUD-related sequelae in this population.[56]

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Table 1

Demographic and clinical characteristics at intake

Characteristic	FFT-SUB (*N* = 10)	FFT-A Comparison Sample (*N* = 58)[1]
Bipolar disorder (BD) subtype: BD-I, BD-II, BD-NOS	20%, 40%, 40%	66%, 10%, 24%
Mean age	16.9 years	14.5 years
Female	50%	57%
Lives with both biological parents	30%	45%
Caucasian	70%	90%
Socioeconomic status[2]	2.5 ± 1.1	
Comorbid attention-deficit/hyperactivity disorder	50%	19%
Mean Children's Global Assessment Scale at intake	52.8	57.8
Comorbid anxiety	50%	4%
Comorbid oppositional defiant/conduct disorder	40%	12%
Lifetime psychiatric hospitalization[3]	50%	–
Lifetime suicide attempt[3]	30%	–
Lifetime legal history[3]	90%	–
Family history of bipolar disorder[3]	70%	–
Family history of any mood disorder[3]	90%	–
Family history of substance use disorder[3]	100%	–
Baseline medications:		
Second-generation antipsychotic	40%	71%
Lithium	20%	36%
Divalproex	20%	12%
Lamotrigine	30%	5%
Stimulant	10%	
Antidepressant	60%	22%

FFT-SUB: family-focused therapy for adolescents adapted for patients with comorbid substance use disorders

FFT-A: family-focused therapy for adolescents

[1] Comparison sample characteristics from FFT-A study[23]

[2] Evaluated using Hollingshead Four-Factor Index of Socioeconomic Status[48]

[3] Information not reported in FFT-A study

Table 2

Change in mood symptoms, functioning, and cannabis use between intake and 6-month follow-up (N = 6)

	Intake	6-month follow-up	Statistic	Significance	Effect size
Mania symptoms[1]	25.0 ± 5.0	14.2 ± 6.3	t = 5.3	p = 0.003	d = 1.89
Depression symptoms[1]	25.2 ± 8.7	4.7 ± 5.3	t = 7.2	p = 0.001	d = 2.85
Functioning[2]	52.6 ± 4.2	60.3 ± 5.8	t = −3.8	p = 0.013	d = 1.52
Cannabis use days/month	11.3 ± 9.8	9.2 ± 11.0	t = 2.1	p = 0.093	d = 0.20

[1] Assessed using the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K=SADS)

[2] Assessed using the Children's Global Assessment Scale (CGAS)