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Interpersonal and Social Rhythm Therapy for Adolescents with Bipolar Disorder: Treatment Development and Results from an Open Trial

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Abstract

Background—In adolescents and adults, bipolar disorder (BD) is associated with significant morbidity, mortality, and impairment in psychosocial and occupational functioning. IPSRT is an empirically-supported adjunctive psychotherapy for adults with bipolar disorder which has been shown to help delay relapse, speed recovery from a bipolar depressive episode, and increase occupational and psychosocial functioning in adults with BD. The current study is designed to describe the adolescent-specific developmental adaptations made to IPSRT (i.e., IPSRT-A) and to report the results from an open trial of IPSRT-A with 12 adolescents with a bipolar spectrum disorder.

Method—Interpersonal and Social Rhythm Therapy was adapted to be developmentally-relevant to adolescents with bipolar disorder. Twelve adolescents (mean age 16.5 ± 1.3 years) diagnosed with a bipolar spectrum disorder participated in 16–18 sessions of adjunctive IPSRT-A over 20 weeks. Manic, depressive, and general symptoms and global functioning were measured at baseline, monthly during treatment, and at post-treatment. Adolescent satisfaction with treatment was also measured.

Results—Feasibility and acceptability of IPSRT-A were high; 11/12 participants completed treatment, 97% of sessions were attended, and adolescent-rated satisfaction scores were high. IPSRT-A participants experienced significant decreases in manic, depressive and general

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psychiatric symptoms over the 20 weeks of treatment. Participants' global functioning increased significantly as well. Effect sizes ranged from medium-large to large.

Conclusions—IPSRT-A appears to be a promising adjunctive treatment for adolescents with bipolar disorder. A current randomized controlled trial is underway to examine effects of adjunctive IPSRT-A on psychiatric symptoms and psychosocial functioning.

Keywords

Bipolar Disorder; Adolescents; Interpersonal Psychotherapy

Introduction

Bipolar disorder is a serious, debilitating disorder that often begins in adolescence. Approximately 50 to 60% of individuals with bipolar disorder experience the onset of their illness prior to 19 years of age [1,2]. Unfortunately, the effects of bipolar disorder can be devastating during this crucial developmental period. The vast majority of bipolar adolescents exhibit substantial impairment in school, family, and social functioning [3]. Adolescents with bipolar disorder exhibit high rates of psychosis, psychiatric comorbidity, and hospitalizations [4]. Suicide is a considerable risk in early-onset bipolar disorder as well. A community-based study [3] found that 44% of bipolar adolescents had already attempted suicide one or more times.

Effective treatment options for adolescents with such a severe illness are greatly needed. A growing research base indicates that pharmacotherapies are not usually adequate as stand alone treatments for bipolar disorder. Medications often fail to bring about timely and complete remission from an acute episode [6,7] and fail to prevent the recurrence of new episodes [7,8]. A substantive literature now indicates that adjunctive psychotherapy acts to speed recovery [9], delay relapse [10–13], decrease suicide attempts [14], improve social and occupational functioning [15,16]) and increase medication adherence [17] in adults with bipolar disorder. Thus, current state of the art treatment of bipolar disorder in adults consists of a multimodal approach combining pharmacological and psychosocial interventions [18].

Although treatment research in youth has lagged significantly behind the adult field, research on the development, feasibility, and efficacy of adjunctive psychosocial interventions for early onset bipolar disorder is emerging. Preliminary findings on the application of family psychoeducational treatments [19–22], cognitive behavioral therapies [23–25] and Dialectical Behavior Therapy [26] with bipolar youth are promising. To date, this line of research has demonstrated that adjunctive psychotherapies are feasible, acceptable, increase knowledge about bipolar disorder, and are associated with decreases in symptoms over time.

Interpersonal and Social Rhythm Therapy (IPSRT) is an empirically supported adjunctive psychotherapy for adults with bipolar disorder [10]. IPSRT [27] grew out of Interpersonal Psychotherapy for depression [28], but has an added social rhythm therapy component based on theoretical models (e.g., the instability model [29] and the social zeitgeber theory [30,31]) and empirical findings which implicate circadian system disturbance as a primary

pathogenic factor in bipolar illness. These theoretical models identify three interrelated pathways to symptom exacerbation and/or relapse in bipolar patients (1) medication nonadherence, (2) disruptions to the circadian system (through sleep and social routines), and (3) psychosocial stressors [32]. Thus, IPSRT attempts to intervene in each pathway in order to improve outcomes for bipolar patients. Results from 2 separate NIH-funded randomized trials (i.e., the MTBD study in Pittsburgh and the multi-site STEP-BD study) have shown that adults with bipolar disorder who participate in adjunctive IPSRT recover faster from depressive episodes [9], stay well longer in between episodes [10], and improve their lifestyle regularity [33], psychosocial functioning [16] and occupational functioning [15] more significantly than bipolar patients who participate in clinical management sessions as adjuncts to their medication regimen.

Of further relevance to this study, Interpersonal Psychotherapy (IPT-A) [34] has received substantial empirical support as an efficacious treatment for adolescent depression. The interpersonal interventions of IPSRT-A are based on IPT-A. After an open clinical trial [35] and 1-year follow up provided promising results for IPT-A [36], Mufson and colleagues [37] conducted a controlled, 12-week clinical trial of IPT-A in 48 adolescents who met criteria for DSM-III-R major depressive disorder. Adolescents (aged 12–18) who received IPT-A reported a greater decrease in depressive symptoms and a greater improvement in social functioning and problem-solving skills compared with adolescents in the control condition. Moreover, 75% of the adolescents who received IPT-A compared with 46% in the control condition were recovered by week 12. Another research group [38] also found that IPT significantly reduced depressive symptoms in adolescents when compared with a wait list control condition.

The primary targets of IPSRT, interpersonal stress, circadian rhythm dysregulation and medication non-adherence, are relevant for adolescents as well as adults. Research has clearly documented the critical role interpersonal events and interpersonal skills play in the development and sequelae of adolescent mood disorders [39–41]. The interpersonal interventions of IPSRT focus on current interpersonal issues that are often areas of significant concern and importance to adolescents, such as individuation from parents, developing romantic relationships, and managing peer pressures [34]. Adolescents are often interested in discussing the interpersonal events that occur in their lives. Therefore, a focus on interpersonal problems that exacerbate mood symptoms is clinically relevant to teens. In addition, several biopsychosocial changes that occur during adolescence can contribute to sleep problems and can precipitate/exacerbate symptoms of bipolar disorder. Adolescent sleep patterns have changed significantly in recent decades as a result of social and occupational demands, resulting in irregular schedules and sleep debt [42]. Adolescents experience a normal developmental shift in circadian patterns toward an “owl-like” tendency for later bed- and wake-up times [43]. School schedules shift to earlier start times during adolescence. Thus, adolescents rapidly shift sleep/wake schedules between school nights and weekend/vacations [44]. This disruption in sleep/wake schedules has an adverse effect on emotional, behavioral, and cognitive functioning in healthy adolescents [42]. Given the extensive research literature indicating a clear role for circadian rhythm dysfunction in bipolar disorder [45,46], interventions aimed at regulating social rhythms and sleep/wake cycles would be particularly salient for adolescents with bipolar disorder. Finally, the high

rates of medication non-adherence seen in adolescents with bipolar disorder is highly correlated with relapse [47]. Non-adherent adolescents are more likely to report increased levels of psychosocial stress and familial discord than adolescents who are adherent to their medication regimen [47], suggesting that psychosocial interventions focusing on medication adherence and interpersonal functioning could greatly improve the long-term outcome in bipolar youths.

Because of the empirical support for IPSRT in adults with bipolar disorder, the efficacy of IPT-A for depressed adolescents, and the developmental relevance of IPSRT to adolescents with bipolar disorder, we chose to adapt IPSRT to meet the needs of bipolar teens. Detailed below is an overview of IPSRT-A and the developmental modifications made to the treatment. We then present data from an open trial of adjunctive IPSRT-A in 12 adolescents with a bipolar spectrum disorder.

Materials and Methods

Treatment Development

IPSRT-A Structure—IPSRT-A consists of 3 essential components. First, psychoeducation about bipolar disorder is paramount. Psychoeducation has been found consistently to contribute to better short- and long-term outcomes with bipolar disorder [18]. In IPSRT-A, psychoeducation focuses on a discussion of the adolescent's illness history, a review of symptoms of bipolar disorder, education about the bipolar spectrum, a discussion of contributing biopsychosocial factors, and a steady focus on medication adherence and side effects. Second, work on improving the adolescent's most relevant interpersonal problems is often the substance of the therapy. The IPSRT-A therapist works with the adolescent to choose a relevant interpersonal problem area (i.e., grief, interpersonal role disputes, role transitions, interpersonal deficits) and maintains a consistent focus on the specific problem area throughout treatment. Third, the IPSRT-A therapist encourages and helps the teen to build structure, social routine, and sleep regularity throughout treatment.

The essential components of IPSRT-A (i.e., psychoeducation, interpersonal work, and social rhythm/sleep stabilization) are covered over three phases of treatment. The general structure (i.e., initial, middle, and termination phases) is similar to Interpersonal Psychotherapy for depressed adolescents (IPT-A [34]); however the length of treatment (16 to 18 sessions over 20 weeks) is slightly longer than IPT-A (typically 12 weekly sessions), because of the added interventions to increase lifestyle regularity and the increased severity of illness in adolescents with bipolar disorder. In the initial phase (the first 4–6 sessions), the therapist collects a thorough history of the teen's bipolar illness, reviews the relationships with all of the important individuals in the teen's life (i.e., the interpersonal inventory [34]), initiates the Social Rhythm Metric for Adolescents (SRM-A [see example in 48]) in order to analyze the regularity of the teen's social routines, educates the teen about the importance of medication in the management of bipolar disorder, and negotiates the interpersonal problem focus from among the four problem areas traditionally addressed in interpersonal psychotherapy for depression (i.e., grief, interpersonal role transition, interpersonal dispute, or interpersonal deficits). During the middle phase (8–10 sessions), the therapist helps the teen develop strategies to build structure, social routine and sleep regularity, to manage

affective symptoms and to resolve the identified interpersonal problem area. The therapist also provides a forum for the teen to process their feelings about having a chronic or recurring illness, their struggles with denial, and their efforts to find a balance between spontaneity and stability. During the final phase of IPSRT-A (i.e., the last 2–3 sessions), the therapist focuses on termination of psychotherapy, reviews the adolescent's successes and vulnerabilities, and helps the teen to identify strategies for future management of interpersonal problems and symptom exacerbations.

Developmental Modifications—A variety of modifications were made to IPSRT to make it developmentally relevant for adolescents with bipolar disorder. Interpersonal interventions were adapted according to the Interpersonal Psychotherapy model for depressed adolescents (IPT-A [34,48]). A shorter, "teen friendly" Social Rhythm Metric is used. The Social Rhythm Metric for Adolescents (SRM-A [48]) developed for this study is based on the 5-item SRM [49], with 3 items added to promote healthy adolescent behaviors. Interventions to target school functioning were added, which include 1) creating a consistent school schedule; 2) communicating with school personnel regarding bipolar disorder and relevant needs for accommodations or behavioral support; 3) coaching the adolescent regarding school issues, and 4) evaluating/revising expectations regarding school functioning in the context of having a mental illness. An in-depth review of the developmental modifications can be found in Hlastala and Frank [48].

Parents and other family members (when relevant), participate in 2–3 family psychoeducation sessions. Parents are also encouraged to be involved in additional therapy sessions depending on the cognitive/social developmental level of the adolescent and/or if the interpersonal problem area chosen as the focus of treatment involves interpersonal disputes with the parents. In the current pilot study, parents were involved in 5.08 sessions on average (out of the total 18 sessions; *SD* = 3.26 sessions; range = 2 sessions to 13 sessions). Specifically, of the 12 participants: 6 had parent involvement in 3 or fewer sessions, 5 had parent involvement in 4–9 sessions, and 1 had parent involvement in 10 or more sessions. In general, participants with more parent involvement were younger adolescents and/or adolescents who were acutely manic and unable to adequately participate in individual psychotherapy.

Pilot Study

Participants—Participants were recruited through multiple sources, including the outpatient psychiatry clinics and inpatient unit at Seattle Children's Hospital, using an institutional review board-approved protocol and consent/assent procedures. 15 adolescents were screened in the first phase of the trial. Of these 15 adolescents, 12 were determined to meet entry criteria and invited to participate in the study. The excluded adolescents were determined to not have a bipolar disorder diagnosis based on the baseline evaluation. All 12 adolescents agreed to participate. Of these twelve participants, ten (83.3%) had received previous psychosocial treatment for their bipolar disorder. Participants were not permitted to continue with other forms of therapy (besides medication management by their psychiatrist or medical provider) during the trial.

Inclusion/Exclusion Criteria: To be included in the study, participants were required to have the following characteristics: a) age between 12 years, 0 months and 18 years, 11 months; b) a DSM-IV [50] diagnosis of BP I, BP II or BP NOS (according to the criteria set forth by Birmaher et al.[51]); c) currently in a depressed, manic, hypomanic, mixed episode, or in BPNOS participants, clinically significant symptoms for 2+ weeks; and d) have assent, consent, and access to adequate transportation. Adolescents were not eligible in the following circumstances: a) a DSM-IV diagnosis of schizophrenia, schizophreniform, or schizoaffective disorders; b) IQ less than 80; c) actively psychotic, suicidal, homicidal, or engaging in repeated parasuicidal behaviors; or d) meet DSM-IV criteria for drug or alcohol abuse or dependence.

Demographics: Sample demographics, illness characteristics and treatment at baseline are presented in Table 1 and Table 2. On average, participants were 16.5 years old (age range approximately 13.9 – 17.8); half were female; three-quarters met criteria for BP I or BP II; two-thirds were depressed at intake, three-quarters had at least one comorbid Axis I diagnosis, and five had a history of at least one psychiatric hospitalization. Eleven out of 12 participants were on medications at intake and throughout treatment.

Procedures

Initial Telephone Screen: Upon being referred to the current study, potential participants were screened by either Dr. Hlastala or Dr. Kotler to ascertain initial eligibility using a 15–20 minute telephone protocol.

Diagnostic Evaluation: Eligible participants based on the telephone screen were invited for an in-depth, in-person diagnostic evaluation and screening interview. The Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (K-SADS-PL [52]) with WASH-U-KSADS mood and rapid cycling sections [53] was used to establish psychiatric diagnoses. The diagnostic evaluation was conducted by either Dr. Hlastala or Dr. Kotler. Participant consent/assent was obtained at the time of this in-person diagnostic evaluation.

Treatment: T*he* IPSRT-A intervention provided to all adolescents in this pilot study consisted of 12–16 weekly sessions followed by 2–4 biweekly sessions over a total of 20 weeks (16–18 sessions total). Therapy was provided by either Dr. Hlastala or Dr. Kotler. Psychopharmacological intervention was not provided as part of the pilot study. Thus, participants remained with their on-going psychiatric provider or were provided with referrals as appropriate. Medication changes and medication dosage adjustments were tracked for all subjects. Of the 12 participants, 5 had no medication changes during the course of IPSRT-A treatment. The remaining 7 subjects had medication dosage adjustments while in the study. Of these 7 subjects, 3 subjects initiated a new medication during treatment, while 3 subjects had decreases in their medication during treatment.

Assessment: Outcome assessments were conducted at baseline and every four weeks during the 20-week protocol. Assessment sessions were scheduled concurrently with therapy sessions, and assessment measures were administered prior to beginning the therapy session.

With one exception (i.e., *The Children's Global Assessment Scale*-CGAS [54]) outcome measures were administered at every assessment point. The CGAS was administered at baseline and posttreatment only.

Measures

Outcome measures: The *Brief Psychiatric Rating Scale for Children (BPRS-C)* is an 18-item clinician-rated scale that assesses various components of psychiatric symptomatology and functioning. This instrument has been shown to have good test-retest reliability and interrater reliability [55]. The BPRS-C served as a primary outcome measure because scores on measures specific to either manic or depressive symptoms naturally vary depending on the polarity of the presenting episode. Based on a sampling of assessments, interrater reliability for the 2 raters in the current study was $\kappa = .83$ for the BPRS across all items [56]. The *Children's Global Assessment Scale* (C-GAS [54]) was a measure utilized to assess change in overall functioning. The C-GAS is a clinician-rated scale, ranging from 1 to 100, which documents the overall severity of illness in a child.

Two measures were used to look at episode-specific symptoms. The *Mania Rating Scale* (MRS [57]) is an 11-item clinician rated scale for manic symptoms. Validity and reliabilities are acceptable for adults [58] as well as for children (internal consistency, α=0.80; convergent validity, r=0.8353) [59]. In the current study, interrater reliability for the two raters was κ =.81 for the MRS calculated across all items [56]. The Beck Depression Inventory (BDI [60]) is a 21-item questionnaire assessing depressive symptomatology completed by the adolescent. The BDI has been found to be reliable in assessing depression in adolescents [61].

Treatment Satisfaction: The *Treatment Satisfaction Scale* (TxSat) was developed by Dr. Hlastala for use in the current pilot study. This measure included 13 Likert-scale items assessing the acceptability and utility of the components of the IPSRT-A treatment as well as adolescent satisfaction with the overall treatment and perception of improvement. The scale was completed by the adolescent at all assessment points with the exception of the baseline assessment.

Data Analysis

Statistical analyses were performed using the Statistical Package for the Social Sciences Version 15 (SPSS, 2006). An intent-to-treat analysis was undertaken with the sample consisting of all patients who completed the baseline assessment, met inclusion/exclusion criteria and agreed to participate. A series of paired comparison t tests were conducted to determine whether significant changes occurred in each of the domains of interest from pre- to posttreatment. Statistical significance was set at $\alpha = .05$. Effect sizes (Cohen's *d*) [62] were also calculated. In order to include data from all twelve subjects in the analyses, the week 16 data from the one discontinued subject was utilized via a last-observation-carried-forward procedure (applicable to all measures with the exception of the CGAS which was only administered at baseline and posttreatment).

Results

Treatment Feasibility

Eleven out of 12 participants completed the IPSRT-A intervention. One participant discontinued after week 16 due to a move out of the local area. Overall, session attendance was excellent with adolescents attending 97% of scheduled sessions. During the course of the trial, the number of scheduled weekly sessions was increased from 12 to 16 due to a clinical determination that additional sessions were needed to cover all of the intervention material adequately. Thus, the first five participants received 12 weekly sessions and four biweekly sessions whereas the final seven subjects were scheduled for 16 weekly sessions and two biweekly sessions.

Clinical Outcomes

At the conclusion of treatment (20 weeks), the pilot sample of adolescents demonstrated significant improvement on all four clinical outcome measures (BPRS-C, CGAS, MRS, BDI) compared to their baseline scores. Effect sizes ranged from medium-large to large [62]. Statistical findings on these four measures are summarized in Table 3. In addition to these pre-post statistical differences, clinically significant change in symptom severity and functioning was also evident. With respect to BPRS-C scores, three-quarters of the subjects had 50% or greater decrease in their BPRS score. Further, of the 11 adolescents with both baseline and posttreatment CGAS scores, three showed more than a 50% improvement on the CGAS from baseline to posttreatment. An additional three adolescents showed at least a 25% improvement on the CGAS.

Indicators of significant clinical change were also present for the MRS and the BDI. The three adolescents categorized as manic at baseline (based on the K-SADS) had baseline MRS scores greater than 20, indicative of a manic episode. Two of these three adolescents were asymptomatic (MRS >/= 4) at the week 20 evaluation. The third participant was not evaluated at week 20 but was in the asymptomatic range with regard to manic symptoms at week 16. It should be noted that, however, this participant did have depression in the “moderate” range at week 16. Further, of the eight depressed adolescents, three had co-occurring manic symptoms (i.e., MRS scores in the symptomatic range at baseline; total score ≥ 12). One of these three had a 50% or greater decrease in MRS score at posttreatment. Of the 8 adolescents entering the study as depressed, four had baseline BDI scores indicating mild depression (total score = 14–19) and four had baseline BDI scores indicating moderate depression (total score = 20–28) (interpretive ranges [60]). One-half of the adolescents with “mild” depression showed a 50% or greater decrease in BDI score at posttreatment. Three-quarters of subjects with “moderate” depression demonstrated a 50% or greater decrease in BDI score at posttreatment.

Patient Satisfaction

At posttreatment, results from the adolescent treatment satisfaction scale indicated that participants were highly satisfied with the IPSRT-A approach (Likert scale rating 0–6 where 0 = not at all, 3 = a moderate amount, and 6 = a great deal; overall satisfaction mean = 5.0 ± .78). Adolescents also indicated that they would be very likely to recommend IPSRT-A to

a friend with bipolar disorder (mean = 5.4 ± .92). Results on the satisfaction scale further indicated that adolescents viewed the SRM-A as helping them to become more regular with respect to social routines and sleep schedule (mean = 4.4 ± 1.2). Overall, adolescents reported that IPSRT-A helped them to feel better (mean = 4.6 ± 1.1) and improved their understanding of the symptoms (mean = 4.6 ± 1.1) and causes (mean = 4.3 ± 1.6) of bipolar disorder.

Discussion

Results from this open trial indicate that Interpersonal and Social Rhythm Therapy shows promise as an effective adjunctive psychosocial treatment for adolescents with bipolar disorder. At the end of the 20 week treatment course of IPSRT-A, participants experienced significant improvements in general psychiatric symptomatology, manic and depressive symptoms, and global functioning when compared to pre-treatment. Of clinical importance, mean scores on the BPRS-C, a measure of general psychiatric symptoms, decreased by 62.5% from pre- to post-treatment. Mean manic and depression scores decreased significantly as well, with mean MRS scores reduced by 67.0% and BDI scores reduced by 53.2%. The substantial clinical improvement of the participants is noteworthy, given the treatment resistant nature of bipolar disorder in youths.

IPSRT-A also demonstrated excellent acceptability as measured by high adolescent-rated satisfaction scores. IPSRT-A proved to be a highly feasible treatment as well. Only one participant terminated early. This was due to a move out of state to attend college and not due to any dissatisfaction with the treatment. In fact, the 97% session completion rate was quite high and compares favorably to other trials of psychosocial treatments with bipolar adolescents [23,26].

The finding of clinically-significant change in manic as well as depressed adolescents suggests that IPSRT-A is appropriate for youths presenting in a wide variety of clinical states. We believe this is due to the highly flexible nature of IPSRT-A, which emphasizes the application of 3 therapeutic components (i.e., psychoeducation, interpersonal therapy, and social rhythm regulation) in a manner that accommodates the complex needs of a heterogeneous patient population. IPSRT-A is not a treatment that is conducted according to pre-specified sessions. Rather, the IPSRT-A therapist is allowed flexibility in the timing of interventions within each treatment phase (i.e., initial, middle, and termination phases) that is needed to appropriately treat this complex patient population. For example, when applying IPSRT-A to manic adolescents, interventions that act to decrease overstimulation, interpersonal conflict, and risky behaviors are emphasized. Moreover, because of a manic adolescent's limited ability to engage in the "abstraction, consequential thinking, and hypothetical reasoning" that is important when conducting individual therapy [63], parent involvement is increased. Depressed adolescents, on the other hand, often benefit from an increased emphasis on the interpersonal psychotherapy interventions with a secondary emphasis on the interventions targeting social rhythms and sleep routines. Adolescents with co-occurring manic and depressive symptoms (especially those in the BPNOS group) tended to have a high degree of interpersonal conflict. Thus, BPNOS adolescents seemed to benefit from learning skills to better negotiate their interpersonal disputes. Further, interventions to

increase structure and sleep regularity helped to decrease those adolescents' symptoms of irritability and anger which were often exacerbated by sleep difficulties.

For this study, we chose to initiate therapy when the adolescents were currently depressed or manic, because in our experience this is usually when adolescents seek treatment or are brought in by their parents for treatment. We also chose to initiate IPSRT-A treatment during an acute episode, because it appears from the adult literature that IPSRT may have its greatest effects when initiated during an acute episode. The MTBD study in Pittsburgh [10] found that bipolar patients who received IPSRT while acutely ill spent a significantly longer time in remission than those patients who received intensive clinical management. In addition, the STEP-BD study [9] found that bipolar patients receiving IPSRT while acutely depressed recovered significantly faster than patients in a brief psychoeducational condition.

Although the focus of treatment in this study was on the acute episode, we believe that IPSRT-A is appropriate for adolescents with BD during all phases of their illness. One adolescent in this pilot study had very recently recovered from a severe manic episode with psychosis (only 2 weeks prior the participant was acutely manic, but was experiencing minimal symptoms at study entry). IPSRT-A was relevant for this adolescent as well. The overall goal of IPSRT-A is not just to help facilitate remission of the current episode, but to increase the adolescent's knowledge and skills to facilitate long-term stability. Whether IPSRT-A contributes to extended periods of wellness over the long term is not known and needs to be tested in future research.

We specifically designed this intervention to be developmentally appropriate for youths across the age range of adolescence (12–18 years). A variety of developmental modifications were necessary because interpersonal issues, symptom presentations, biological transitions, and cognitive abilities vary significantly across the adolescent developmental spectrum. For example, younger patients who were in an earlier stage of cognitive development needed more parental involvement to act as an external reinforcer of therapy interventions and treatment gains. However, older patients seemed to benefit from more individual therapy focused on increasing the patient's autonomy and ability to successfully negotiate through their interpersonal problems with friends and family [63]. In this study, our youngest participant was 13 years old and the majority of participants were in their mid-adolescence (median age was 16.5 + 1.3). Thus, we were unable to test our proposed treatment modifications with any 12 year olds. We did find, in this sample of mid to older adolescents, a preference for less parental involvement and an increased focus on IPSRT-A as an individual therapy. In addition, older adolescents tended to prioritize interpersonal work that focused on improving their disputes with peers over their parents. Another interesting developmental trend was that teens with an earlier onset of illness were more likely to have "interpersonal deficits" as their chosen IPT problem area. The very early onset youth appeared to have never developed basic age-appropriate interpersonal skills because their symptoms of bipolar disorder interfered with early normal development of these skills.

This pilot study has important limitations. Because these results are from an open trial, they should be viewed as preliminary. The absence of a control group precludes the ability to

show a causal relationship between the IPSRT-A treatment and improvement in clinical scores and functioning. Eleven of the 12 participants were taking medication at the beginning and throughout the treatment protocol. Thus, improvement could be related to their psychopharmacological regimen or to other factors such as the naturalistic course of illness. Also, participants and raters were not blind to their treatment. Ratings of general psychiatric symptoms and manic symptoms were conducted by the investigators and clinicians of this study who could have been biased to find positive results. Depressive symptoms, assessed using the Beck Depression Inventory, were self-report and also may have been subject to bias on behalf of the participants.

A randomized controlled trial of adjunctive IPSRT-A versus Treatment As Usual (TAU) is currently underway. In this study, adolescents (ages 12–19 years) diagnosed with a bipolar spectrum disorder will be randomized to either 20 weeks of IPSRT-A (16 weekly plus 2 biweekly sessions) or treatment as usual (TAU; 1.5 hour long psychoeducational session plus referral to a community provider for comprehensive treatment of their bipolar disorder). Participants' symptomatic, psychosocial and school functioning will be assessed at baseline, monthly during the intervention and at 3- and 6-month follow-up by an independent rater blind to treatment condition. We hope that this small randomized controlled trial will address some of the limitations of the open trial and provide preliminary information on the efficacy of IPSRT-A as an adjunctive psychotherapy for adolescents with bipolar disorder.

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Table 1

Demographics of IPSRT-A Pilot Study Participants (n = 12)

Age, y	16.5 ± 1.3
Grade	10.7 ± 1.5
Sex	
Female	6
Male	6
Ethnicity/Race	
African American	2
Asian	1
Caucasian	7
Hispanic	2

Table 2

Clinical Characteristics of IPSRT-A Pilot Study Participants (n = 12)

BP type	
I	5 (42%)
II	4 (33%)
NOS	3 (25%)
Comorbid diagnoses	
ADHD	6 (50%)
Anxiety disorder (1 SAD; 2 GAD)	3 (25%)
Index episode type	
Mania	3 (25%)
Depression	8 (67%)
Recovered	1 (8%)
Duration of index episode, w	13.1 ± 12.8
Age of BP onset, y	11.5 ± 3.9
Number of episodes (lifetime)	5.4 ± 3.7
Medications at baseline	
Mood stabilizer	11
Atypical antipsychotic	5
Stimulant	3
Antidepressant	2
Benzodiazepine	0
Number of past hospitalizations	0.58 ± 0.79

Note: IPSRT-A = interpersonal and social rhythm therapy for adolescents; BP = bipolar disorder; NOS = not otherwise specified; SAD = separation anxiety disorder; GAD = generalized anxiety disorder; “index episode” is the current episode at baseline.

Table 3

Pretreatment and Posttreatment Scores on Primary and Secondary Outcome Measures

Measure	Pretreatment	Posttreatment	t-score	*p*	Cohen's *d*
BPRS-C	26.42 (8.63)	9.09 (7.20)**	−4.12	.002	−1.50
MRS	12.92 (12.07)	4.27 (5.33)*	−2.43	.03	−0.95
BDI	14.00 (7.20)	6.55 (5.87)*	−2.29	.04	−0.77
CGAS	49.45 (7.24)	69.09 (14.79) **	4.51	.001	1.70

Note. N = 12 for BPRS, MRS, BDI using LOCF analysis. N = 11 for CGAS. BPRS-C = Brief Psychiatric Rating Scale for Children. MRS = Mania Rating Scale. BDI = Beck Depression Inventory. CGAS = Children's Global Assessment Scale. On the BRPS-C, the MRS, and the BDI, lower scores indicated lower levels of symptoms. On the CGAS, higher scores indicated better overall functioning. Standard deviations are in parentheses.

* $p < .05$;

** $p < .01$.