HHS Public Access

Author manuscript

Cogn Behav Pract. Author manuscript; available in PMC 2021 January 28.

Published in final edited form as:

Cogn Behav Pract. 2020 May ; 27(2): 202–214. doi:10.1016/j.cbpra.2019.07.007.

Applying a Transdiagnostic Cognitive-Behavioral Treatment to Adolescents at High Risk for Serious Mental Illness: Rationale and Preliminary Findings

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Abstract

Given the chronic and deleterious course of serious mental illness (SMI; schizophrenia and bipolar disorder), significant efforts have been undertaken to improve prediction of SMI and provide treatment for adolescents in the early, putatively prodromal stage of these illnesses. While risk assessments and disorder-specific treatments for adolescents at risk for SMI have shown some efficacy, significant issues remain around disorder-specific treatments for these youth. There is substantial heterogeneity of psychopathology within adolescents at high risk for SMI that leads to many false-positives and varying diagnostic outcomes. As a result, initial treatment focusing on broad symptoms and skills has been proposed in place of disorder-specific treatments. We discuss the rationale for providing an already-developed and empirically supported transdiagnostic treatment for emotional disorders (termed the Unified Protocol) as a first-line staging of treatment for adolescents experiencing early SMI symptoms. Additionally, we outline the open trial we are piloting using this transdiagnostic treatment in adolescents between the ages of 13 – 17 who have begun experiencing distressing yet subsyndromal psychosis or bipolar mood symptoms. Preliminary findings suggest feasibility and acceptability as well as initial efficacy in improving psychiatric symptoms, quality of life, and difficulties regulating emotions. We also present case studies from our open trial. A unified, cognitive-behavioral treatment for early presentations of SMI has important clinical and public health benefits, including streamlining treatment and providing broad skills that are applicable to a wide range of psychopathology.

Keywords

unified protocol; bipolar disorder; prodromal psychosis; youth; CBT

Serious mental illness (SMI; e.g., schizophrenia, bipolar disorder) affects 5%–6% of the U.S. population (Kessler, Chiu, Demler, & Walters, 2005). Close to 50% of individuals who develop an SMI exhibit their first symptoms in adolescence (Kessler et al., 2005). In recent years, significant efforts have been undertaken to identify SMI early in adolescence, such as the development of semistructured risk interviews and risk calculators (e.g., Birmaher et al., 2018; Cannon et al., 2016; Miller et al., 2003; Yung et al., 2005). Additionally, disorder-specific early interventions have emerged, most notably cognitive-behavioral therapy (CBT)

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and family-focused psychoeducational interventions (Addington et al., 2011; Miklowitz et al., 2013; Miklowitz et al., 2014; Morrison et al., 2006). These treatments were designed and tested to treat specific SMI risk categories (e.g., psychosis), and include psychoeducation as well as skill-based exercises (e.g., communication, problem solving, cognitive reappraisal). Findings from these randomized controlled trials (RCTs) suggest that CBT is associated with reduced risk of conversion to a psychotic disorder, and FFT is associated with reduced attenuated positive symptoms and improved functioning in those at risk for SMI.

Although findings from randomized controlled trials of disorder-specific interventions show evidence of efficacy, the development of disorder-specific psychosocial treatment protocols has become a major barrier for psychiatric treatment, including for at-risk SMI populations (McGorry & Nelson, 2016; McHugh & Barlow, 2010). This paper discusses clinical and public health issues related to disorder-specific treatments for adolescents at-risk for SMI. We also discuss the potential utility of including at-risk SMI adolescents in a unified CBT protocol for emotional disorders (UP-A; Ehrenreich-May et al., 2017). Finally, we discuss piloting the UP-A in adolescents at risk for SMI.

Issues With High-Risk SMI States

In the high-risk SMI literature, youth who are at clinical high risk for psychosis are typically ascertained based on attenuated psychotic symptoms and associated distress, as revealed in structured interviews and/or a family history of psychosis with a decline in functioning over the previous year (e.g., Miller et al., 2003; Yung et al., 2005). High-risk status in bipolar disorder has been characterized by the pre-onset presence of mood lability (often with a diagnosis of unspecified bipolar disorder or major depressive disorder) in the patient and a history of bipolar I or II disorder in a first- or second-degree relative (Axelson et al., 2015). Despite notable advances in the reliability of these classifications, there are significant problems in identifying high-risk individuals. The accurate prediction of individuals who go on to develop a psychotic disorder based on high-risk classification is only about 36% over a 3-year period (Fusar-Poli et al., 2012). The conversion rate to bipolar I or II disorder among individuals with bipolar high-risk attributes is between 15%–45% over a 1 to 4.5-year period (Axelson et al., 2015; Bechdolf et al., 2014; Hafeman et al., 2017). Thus, there is considerable uncertainty and heterogeneity in diagnostic outcomes for high-risk populations, with a significant proportion of false positive identifications (individuals classified as at high risk for SMI who do *not* go on to develop an SMI disorder). As a result, giving disorder-specific treatments to adolescents who are at high psychometric risk means that the majority receive preventative treatment designed and tested for a specific disorder they will not develop.

When individuals at risk for SMI are first identified, they typically present with a range of psychopathology. In populations at high risk for psychosis, nearly 70% have one or more emotional (mood and anxiety) disorders (Addington et al., 2017; Woods et al., 2009). Of this nearly 70%, 60% have a depressive disorder and 50% have an anxiety disorder (Addington et al., 2017; Kline et al., 2018). Youth at high risk for bipolar disorder have similarly high rates of psychopathology: 60% with a primary depressive disorder (e.g., major depressive disorder, unspecified bipolar disorder) and about 25% have a secondary anxiety disorder

(Duffy et al., 2013, 2014). In youth with syndromal bipolar disorder, depressive symptoms are almost always present in at least subsyndromal levels (Birmaher et al., 2006). Additionally, psychotic and manic experiences commonly co-occur with each other (Kaymaz et al., 2007; Perlis et al., 2011). Thus, high-risk states may be best conceptualized as heterogeneous states that contain a combination of emotional and SMI symptoms and which have uncertain outcomes (Fusar-Poli, Yung, McGorry, & Van Os, 2014).

The fact that the majority of at-risk youth with SMI present with emotional disorders appears fundamental to explanations of underlying processes and treatment guidelines (Fusar-Poli et al., 2014). Psychiatric comorbidities are thought to reflect overlapping psychological processes, notably emotional, cognitive, and behavioral dysfunction (Borsboom & Cramer, 2013; Brown & Barlow, 2009). Increased experiences of negative emotions, emotional reactivity, and difficulties with emotional dysregulation cut across emotional disorders and SMI (e.g., Green, Cahill, & Malhi, 2007; Leibenluft, 2011; Livingstone, Harper, & Gillanders, 2009; Sloan et al., 2017; Suslow, Roestel, Ohrmann, & Arolt, 2003; van Rossum, Dominguez, Lieb, Wittchen, & van Os, 2009). Additionally, negative cognitive schemas and maladaptive thinking styles underlie all of these conditions (e.g., Beck, 2008; Beck & Haigh, 2014; Clark & Steer, 1996; Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001; Mansell, Morrison, Reid, Lowens, & Tai, 2007; Rapee & Heimberg, 1997). Behavioral dysfunction like avoidance behaviors, difficulties with social interactions, and isolation are also hallmark features across emotional disorders and SMI (e.g., Akiskal, Azorin, & Hantouche, 2003; Craske et al., 2011; French & Morrison, 2004; Johnson, Edge, Holmes, & Carver, 2012; Ottenbreit & Dobson, 2004). These common underlying dysfunctions may help explain why CBT is efficacious in treating emotional disorders and SMI alike (Addington et al., 2011; Butler, Chapman, Forman, & Beck, 2006; Morrison et al., 2006).

Comorbid emotional disorders may also be indicative of an emotional pathway that precedes and gives rise to SMI. Longitudinal trajectories of high-risk populations find that anxiety tends to precede depressive mood difficulties, and both tend to precede the development of SMI symptoms (Duffy et al., 2014; Duffy, Alda, Hajek, Sherry, & Grof, 2010). Additionally, ecological momentary assessment studies find that stress and affective symptoms lead to increases in SMI symptoms (Myin-Germeys & van Os, 2007). Newer methods of investigating symptom-to-symptom interactions, termed network approaches, posit that mental illness is developed as a result of individual symptoms activating other symptoms, eliciting a network of symptoms to create a disorder (Borsboom & Cramer, 2013). Network approaches in SMI have found that mood symptoms mediate the relationship between stress/trauma and SMI symptoms (Isvoranu, Borsboom, van Os, & Guloksuz, 2016). Finally, genetic liability for depression appears to potentiate the pathway in the development of more serious psychopathology (Kramer et al., 2012). Together, emotional pathways underlying SMI suggest the importance of considering emotional disorders and processes as foundational to understanding and treating SMI.

To best account for the nonspecificity, varied psychiatric expressions, and overlapping psychological processes, a general staging model of intervention has been proposed in place of “siloed” disorder-specific treatments (Berk et al., 2011; Berk, Hallam, & McGorry, 2007;

Fusar-Poli et al., 2014; McGorry & Nelson, 2016; McGorry, Nelson, Goldstone, & Yung, 2010). A general staging approach advocates for treatment choice and dosing based on the stage and severity of illness. Individuals with early presentations of psychopathology would receive treatment that focuses on broad symptoms and skills. If the illness progresses or the patient is unresponsive to this initial treatment, then more intensive, disorder/problem-specific treatments would be indicated. A general staging approach would have greater clinical and public health impact as it would produce a large catchment for early treatment of psychopathology and then direct patients to more personalized, stage-specific treatments (if necessary) based on individual responses to initial treatment (McGorry & Nelson, 2016). For SMI, a staging approach suggests that we are best served treating early SMI symptoms as an indication of nonspecific mental distress generally, rather than an indication a specific disorder.

The efficacy and effectiveness of a treatment that targets broad emotional processes common in youth, including in adolescents with SMI symptoms, has important public health implications. Less than half of individuals with SMI symptoms receive any psychiatric or psychological care in a given year, and, of those receiving care, only about 15% receive adequate, evidence-based treatment (Wang et al., 2005; Wang, Demler, & Kessler, 2002). Additionally, patients with SMI symptoms are often excluded from general clinical programs and many clinicians feel underprepared and unwilling to treat SMI (Humphreys, 2017; Wong, Jones, Timko, & Humphreys, 2018). Leaving SMI untreated has down-stream effects, as individuals with SMI who have delayed treatment or do not receive any treatment at all tend to have a more chronic course of illness, increased need for hospitalization, slower recovery, and increased functional impairments (Perkins, Gu, Boteva, & Lieberman, 2005; Stewart, 2013). Establishing an evidence-base for a treatment that focuses on broad symptoms and skills that can be easily learned and widely disseminated would address an important need for a large number of adolescents with SMI symptoms and clinicians who may feel unequipped to treat these youth.

Unified Treatments for Emotional Disorders

A treatment that focuses on broad symptoms and CBT skills, termed the *Unified Protocol for the Treatment of Emotional Disorder* (UP), has been developed as a transdiagnostic intervention for emotional disorders (anxiety and depressive disorders; Barlow, Allen, & Choate, 2004). The UP was developed based on two primary principles: one based in pragmatism in response to the overabundance of treatment manuals and another based in clinical psychological principles (e.g., the underlying processes that give rise to and maintain emotional disorders). To the former point, a major barrier for psychiatric treatment, across all disorders, has been the development of disorder-specific treatment protocols (McHugh & Barlow, 2010). The goal of manualized treatments is to facilitate training and dissemination. The consequence of manualized treatment development is that there is now an overabundance of treatments, each of which is only slightly (if at all) different from the other (McHugh & Barlow, 2010). As a result, there is little chance of broadly disseminating these treatments, as there are too many manuals for clinicians to become competent in each (Farchione et al., 2012). Additionally, single disorder manuals/treatments make treating

comorbidities and nonspecific diagnoses problematic, since they have been tested and produced for single disorders (McHugh & Barlow, 2010).

The clinical psychological principles of the UP are based on the shared etiology, high co-occurrence, as well as overlapping emotional, cognitive, and behavioral processes within emotional disorders (Barlow et al., 2004; Ehrenreich-May & Bilek, 2012). Depressive and anxiety disorders share common genetic and environmental risk factors (Boomsma, Van Beijsterveldt, & Hudziak, 2005; Middeldorp, Cath, Van Dyck, & Boomsma, 2005; Wilamowska et al., 2010). They also have high rates of co-occurrence and the presence of one emotional disorder is a risk factor for the development of another (Cummings, Caporino, & Kendall, 2014; Leyfer, Gallo, Cooper-Vince, & Pincus, 2013). The high rates of co-occurrence are thought to be explained by shared core dysfunctions, including neuroticism, high levels of negative affect, and poor emotion-regulation strategies (Barlow, Sauer-Zavala, Carl, Bullis, & Ellard, 2014; Campbell-Sills, Barlow, Brown, & Hofmann, 2006). As a result of these core dysfunctions, individuals with emotional disorders feel higher levels of distress more often than individuals without emotional disorder. They also tend to engage in maladaptive emotional coping strategies (e.g., suppression), cognitive styles (e.g., catastrophizing), and behavioral responses (e.g., avoidance).

To address the common dysfunctions within emotional disorders, the UP does not focus on one specific disorder, but instead uses general cognitive-behavioral techniques that cut across emotional disorders (Barlow et al., 2004). The treatment targets maladaptive thinking styles through cognitive reappraisal. It also aims to reduce avoidance of emotions via emotional awareness and emotional engagement. Behavioral exercises are prescribed, which encourage actions that counteract avoidance behaviors. The UP has developed an empirical evidence-base for emotional disorders in adults, adolescents, and children (Barlow et al., 2017; Ehrenreich-May et al., 2017; Farchione et al., 2012; Kennedy, Bilek, & Ehrenreich-May, 2019). Additionally, the UP targets core dysfunction (i.e., emotional dysregulation and maladaptive cognitive beliefs and behaviors) that are also present in SMI. However, individuals with symptoms of SMI have not been included in studies investigating the efficacy of the UP. We are seeking to establish an evidence-base for the UP in adolescents at risk for SMI. The goal of our work is to determine whether the UP for adolescents, in its current form and with only minor modifications, can address the emotional and psychiatric needs of this underserved, at-risk group of patients.

Method of Testing the Unified Protocol in Individuals at High Risk for SMI

To streamline psychological treatments for early SMI, we are currently testing the feasibility, acceptability, and efficacy of the UP for adolescents (UP-A; Ehrenreich-May, Kennedy, et al., 2017) in a sample of youth at high risk for SMI. As the UP-A aims to do with emotional disorders, we aim to target emotion regulation (frustration tolerance, more specifically), negative cognitive schemas, and dysfunctional behaviors as the transdiagnostic processes underlying SMI and emotional disorders. Participants are taught about the functions of emotions (e.g., anxiety attempts to signal the presence of danger) and directed to pay more attention to their emotional experiences. Patients are also taught skills to manage their emotions by using “detective thinking” (i.e., cognitive reappraisal) and “behavioral

experiments" (opposite action and situational exposure). For behavioral experiments, patients are asked to engage in behaviors that are "opposite"/different from actions they have engaged in during previous emotional experiences/states so that they can establish tolerability or appreciation for engaging in a different response. Opposite action is a broad term that can include situational exposures (i.e., approach-oriented behaviors for anxiety) but also includes actions such as speaking calmly when feeling upset, communicating emotions when wanting to avoid or hide them, or getting out of bed despite feeling depressed. The overall goal of this skills-based treatment is not to eliminate emotions, but to increase the youths' abilities to adaptively respond to their emotions, thereby reducing distress (Ehrenreich-May, Kennedy, et al., 2017).

In the early phases of treatment, participants are asked to discuss their motivation for change and are provided with psychoeducation about emotions and behavior. They are then taught CBT skills, including identifying and expressing emotions, behavioral experiments, and cognitive reappraisal. Towards the end of treatment, mindfulness practice is also presented as an alternative approach to the CBT skills. Although mindfulness (as an acceptance-based orientation) may seem to counter a CBT (a change-oriented) approach, the combination of techniques appears particularly useful for individuals at risk for SMI. Participants are encouraged to attempt to make changes in their thoughts, behaviors, and emotions. However, in certain circumstances, emotions may be too intense to change and/or situations and experiences may be impossible to change (e.g., perceptual abnormalities). In these cases, mindfulness is useful in nonjudgmentally accepting the experience or situation rather than attempting to change it.

For purposes of treating adolescents at risk for SMI, therapists actively engage participants about common SMI experiences and symptoms via questions and examples. During psychoeducation and communication about emotions, feelings of fear and/or nervousness about others' intentions (feelings of persecution or paranoia), feelings of confusion related to one's thoughts/experiences (unusual thought content), and grandiose thinking are provided to and elicited from members. Behavior experiments and cognitive reappraisal exercises are then anchored on the specific experiences they describe. For example, if an adolescent is isolating from peers as a result of feelings of fear, behavior experiments are designed to have the adolescent begin to reengage with peers. This same adolescent would also be asked to use "detective thinking" to cognitively reappraise their thoughts related to others' harmful or negative intentions towards them. The UP-A manual outlines "thinking traps" that parallel SMI symptoms, like "mind-reading," "jumping to conclusions," and "fortune telling."

A more detailed overview of the UP-A's treatment modules and content are summarized in Table 1. Of note, despite a modular outline within the UP-A manual (Ehrenreich-May et al., 2017), the implementation of the treatment takes a principle-guided approach, as described by Weisz, Bearman, Santucci, and Jensen-Doss (2017). This approach seeks to pare down treatment guidelines and focus on broad principles of therapeutic change. As such, delivery of the UP-A components is flexible such that the treatment can be altered to meet the specific needs of the adolescents being treated, including flexibility to select and order treatment components as the therapist sees fit.

Minor modifications of the UP-A were made for use with adolescents at high risk for SMI. First, our treatment is delivered in a group, rather than in an individual format. We hypothesize that group treatment will allow for peer support and expression of shared experiences that can help reduce stigma and shame related to SMI symptoms and mental health problems generally (Michalak et al., 2011; Yang et al., 2015; Yang, Wonpat-Borja, Opler, & Corcoran, 2010). Further, we believe there can be an additional benefit of group treatments in facilitating learning of therapeutic skills, as group members provide additional ideas, problem-solving solutions, support, and motivation for other group members. For example, group members can practice skills in communicating emotions with peers in a safe, therapeutic environment. Finally, the efficacy of group treatment would have important public health implications, notably allowing clinicians to administer treatment to a greater number of patients.

The second logistical alteration to the UP-A was that we delivered the treatment over nine 90-minute sessions, rather than an average of sixteen 50-minute sessions (Ehrenreich-May, Kennedy, et al., 2017). Due to large rates of attrition in SMI populations (Kreyenbuhl, Nossel, & Dixon, 2009), we felt that shortening the number of sessions (while maintaining the overall time in treatment) would be beneficial in retaining this population. The first 60–75 minutes of the group sessions are done without the adolescents' parents present. The parents are then brought into the group for the last 15–30 minutes, and the group leader shares with the parents and adolescents, together, what material was covered in the session. Following the review, the teen group members are asked to share with their parent(s) their specific homework and goals for the week. Finally, at the end of each session, adolescents meet with their parent(s) to discuss their at-home practice plan for the week. The teen then meets privately with the group facilitator to discuss these plans and any requested modifications. These meetings typically last 5 minutes or less. Parents are asked to play an active role in their adolescent's between-session practices (e.g., practice communication exercises with their adolescent, assist with behavioral exercises). Parental participation, while not central during the group session, is critical for the adolescents to practice, personalize, and implement the skills in their daily lives.

Two additions to the content of the UP-A session materials have been made, which are breathing exercises and communication training. We have added breathing exercises (diaphragmatic breathing or a mindful breathing space) to the commencement of each session. Breathing exercises are considered to be evidence-based stress management techniques that are relatively easy to practice (Varvogli & Darviri, 2011). The goal of the breathing exercises, as explained to the group members, is to bring attention and awareness to the physiological sensations that accompany sadness, anxiety, and other emotions. Participants are instructed to "breathe through the emotions, like riding an emotional wave … try to connect your body's sensations and your emotions, but do not try to change the experiences." Given that most adolescents at risk for SMI experience distressing emotions, this task can be implemented immediately to help manage stress without encouraging avoidance responses.

In addition to teaching adolescents about the function of emotions and emotional awareness, we added education for communicating one's emotions effectively based on communication

training from family-focused therapy (Miklowitz, George, & Taylor, 2012). Since effective affective communication is a common difficulty among individuals with SMI, it is useful to prescribe specific guidelines for communicating emotions (Miklowitz, 2010). The goal of this exercise is to help the adolescents connect their emotions to thoughts and behaviors and be able to communicate these connections to others. Group members learn how to express positive and negative emotions. Group members learn communication skills in sessions, practice communicating emotions within the group, and then practice communicating emotions at home with family members for homework.

Eligibility of Participants

Eligibility is widely inclusive to capture a broad participant pool, with few exclusion criteria. In this pilot study, participants were recruited from two university hospital clinics – a child and adolescent mood disorders clinic and an early psychosis assessment and prevention clinic. To be eligible, participants must have an interfering or impairing unspecified bipolar disorder and/or a psychotic-risk syndrome (see Table 2), aged 13 years 0 months to 17 years, 11 months, be fluent in English (even if another language was spoken in the home), be able to attend and appropriately participate in all treatment sessions and assessments, and provide written study parental consent and youth assent. Participants who require more intensive treatment than weekly groups or who were unable to engage in a group treatment setting (e.g., due to active suicidality, hallucinations, or delusions) would be referred elsewhere for treatment.

Assessment of Participants

Prior to enrollment in the treatment, adolescents are assessed using clinician-rated semistructured diagnostic interviews to determine their risk for SMI. Participants from the mood disorders clinic are assessed using the Kiddie Schedule for Affective Disorder and Schizophrenia – Lifetime Version (K-SADS; Chambers et al., 1985; Kaufman et al., 1997). Participants from early psychosis clinic are assessed using the Structured Interview for DSM-5 Disorders (SCID; First & Williams, 2016) and the Structured Interview for Psychosis-Risk Syndromes (SIPS; Miller et al., 2003). The SIPS is used to assess for psychosis-risk syndromes, which include brief intermittent psychotic syndrome (BIPS), attenuated positive symptom syndrome (APSS), and genetic risk and deterioration syndrome (GRD).

The adolescents are also asked to fill out self-report questionnaires on their psychiatric symptoms (Symptom Checklist-90-Revised [SCL-90-R]; Derogatis, 1979), quality of life (Quality of Life Questionnaire for Children [KINDL]; Ravens-Sieberer & Bullinger, 2000), and emotion regulation (Difficulties Regulating Emotions Questionnaire [DERS]; Gratz & Roemer, 2004). The self-report questionnaires are completed within 2 weeks prior to the start of the treatment and again within 2 weeks following the final session of treatment. Following treatment, adolescents are also asked to rate the relevance of the material covered in the treatment, burden of participating in the treatment, and overall satisfaction of the treatment. Relevance, burden, and satisfaction were each measured using a single item on a 7-point Likert scale, with 1 indicating “not at all” and 7 indicating “very much.”

Additionally, to assess frustration tolerance as a process by which the treatment improves emotion regulation, we are using a computer-based task of frustration tolerance (Mirror Tracing Task; Strong et al., 2003). Negative affect is assessed using the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) before and after the task to assess changes in negative affect.

We are initially interested in assessing the treatment's feasibility and acceptability. The treatment will be considered initially feasible if we are able to enroll at least eight participants per group on a triannual basis and retain at least 50% of the enrolled participants for at least two-thirds of the treatment (i.e., 6 sessions). The treatment will be deemed acceptable if the participants rate the treatment as high in relevance and satisfaction (≥ 5) and low in burden (≤ 3). Finally, the treatment's efficacy will be based on a larger-scale RCT of the treatment's effects on psychiatric symptoms, quality of life, emotion regulation and frustration tolerance in comparison with other treatments of comparable intensity or treatment-as-usual.

Preliminary Results From First Group

A total of 11 youth were screened for participation in the study, with 10 deemed eligible and 1 ineligible due to need for more intensive treatment. Out of the 10 participants who initiated the group, 7 met criteria for the psychosis-risk syndrome and 3 met criteria for unspecified bipolar disorder. The characteristics of study participants are shown in Table 3. A total of 6 participants (4 with the psychosis-risk syndrome and 2 with unspecified bipolar disorder) were considered treatment completers, attending at least two-thirds of the nine sessions. One participant was a partial completer of the group, attending four sessions before being withdrawn as a result of a change in her custodial guardian. Three participants were noncompleters: two dropped following session one, stating they were no longer interested, and another dropped following the second session due to hospitalization. The average number of sessions attended across all participants was 5.2, and the average sessions attended for treatment completers was 7.3.

While we do not yet have a large enough sample size to conduct statistical significance testing, we observed numerical improvements following the treatment compared to the pretreatment means (see Table 4). Participants showed improvements in psychiatric symptoms from pre- to posttreatment as measured on the SCL-90-R, improved quality of life on the KINDL, and reduced difficulties in emotion regulation on the DERS. On the Mirror Tracing Task, participants had increased negative affect pre- to posttask at the pretreatment assessment, but had reductions in negative affect pre- to posttask at the posttreatment assessment. Participants also rated high levels of satisfaction and low levels of burden in the treatment. Future studies will be needed to determine the statistical significance and size of effect for the treatment. We provide below two participants as case examples to illustrate the course of the treatment and their trajectory in the treatment. The participants consented to the use of their information for publication. Names and other relevant identifying information have been modified to protect the participants' confidentiality.

Sandra

Sandra, a 17-year-old female, was assessed using the K-SADS, with separate interviews of her mother to verify her diagnoses. On the K-SADS, Sandra met criteria for unspecified bipolar disorder (short-duration hypomanic episodes with major depressive episodes), attention-deficit hyperactivity disorder (combined type), and generalized anxiety disorder. Sandra reported that her primary struggles involved difficulties in managing her mood lability. She indicated having multiple depressive episodes over her lifetime as well as a couple of subclinical hypomanic episodes. When she was feeling depressed, she reported having strong feelings of hopelessness, guilt, and shame that would make it difficult for her to get out of bed, go to school, or engage with peers. During her experiences of hypomanic symptoms, she became overly active and energetic, irritable, and had difficulties concentrating. Between mood episodes, Sandra mentioned that she has lingering mood symptoms, predominantly in the realm of subclinical manic symptoms. Sandra reported having more energy than her peers and constantly engaging in extracurricular activities. She also reported comorbid symptoms of generalized anxiety and attentional difficulties. She indicated that she feels constantly worried and “stressed” about her academic and social life, her family, her peers, and the state of political affairs as well as has persistent difficulties maintaining focus in her activities. Due to her mood, anxiety, and attentional difficulties, Sandra was struggling to keep up in school, although she indicated she was engaged in many sports and academic clubs and reported good interpersonal functioning.

The treatment began with rapport building, discussion around goals and motivation for change. Sandra reported her goals for treatment were to better manage the “highs and lows” of her mood and to find strategies to cope with her stress and anxiety. She reported being motivated for change based on her interest in reducing her stress and her willingness to engage in group activities. From the outset of the group, Sandra was an active participant who volunteered often. She seemed to enjoy sharing her experiences with the group as well as providing feedback to her peers and group leaders. Sandra showed interest in the group and tended to master skills before the other group participants. As an example, she reported using the breathing exercises near-daily following the first session, found the exercises very helpful in calming her anxiety, and touted their effectiveness. As the group progressed, she showed benefit from psychoeducation related to emotion and the communication skills for expressing emotions. She also showed particular interest and benefit from *detective thinking* within the “Being Flexible in Your Thinking” module. She reported that learning about thinking traps and being able to more flexibly think about her thoughts were exercises that greatly shifted her thinking about her thoughts, reduced her stress, and led to more helpful behaviors (e.g., getting out of bed and getting to school on time as well manage anxious thoughts about academic performance and social interactions).

Of note, behavioral experiments were more difficult for Sandra. When first assigned to the group, she denied completion of the opposite action exercises, citing that she could not get herself to begin her homework (her self-assigned opposite action) because she felt she was already too far behind. Sandra expressed significant ambivalence around doing the opposite action, since she expressed it would be helpful but it is difficult and emotionally painful. Once the group got to the “Being Flexible in Your Thinking” section, Sandra was asked to

use detective thinking around her ambivalence, which she was able to do in group effectively. Upon producing a couple of alternative thoughts in group, Sandra began to use “opposite action” to complete her homework over the subsequent weeks (e.g., starting her homework even though she did not feel interested in doing it) and indicated that doing her work was not as bad as she had made it out to be. Overall, Sandra reported a high level of satisfaction (rating = 7) and a low level of burden (rating = 2) with the group treatment. Pre- to posttreatment, her psychiatric symptoms reduced 44 points on the SCL-90 (Pre = 88, Post = 44), her quality of life improved on the KINDL (Pre = 45, Post = 67), and she had reduced difficulties with emotion regulation on the DERS (Pre = 92, Post = 66).

Benjamin

Benjamin, a 16-year-old male, and his mother were assessed using the SCID and the SIPS. On the SCID, Benjamin met criteria for persistent depressive disorder. On the SIPS, Benjamin met criteria for APSS due to prodromal symptoms of unusual thoughts, suspiciousness, and perceptual abnormalities that had developed over the previous year. More specifically, he developed thoughts that he was not real, that the world was not real, and that he was living in a simulation. He also developed suspicions that peers were talking ill of him and did not like him. His perceptual abnormalities included occasionally seeing spots out of the corner of his eye and hearing indistinct whispers and mutters. He also reported a long-standing depressive episode, which has led him to feeling persistently sad, anhedonic, worthless, and having reduced energy, making it hard for him to get out of bed. Additionally, he reported feeling largely apathetic towards school and uninterested in seeing his friends. As a result, Benjamin’s grades suffered, and he had recently failed multiple classes, although he indicated being able to maintain a part time job.

At the outset of the group, Benjamin was fairly quiet and slow to warm up to the group. He was interested in being in the group and participated when asked to, but often did not volunteer. When asked to share his goals, Benjamin indicated that he would like to become more confident in himself, be less worried about what others think of him, and feel more positive emotions. His motivation for change was not as immediate as Sandra’s. Benjamin was receptive to the treatment, but was slower to begin implementation of the skills. His implementation of skills was about one session behind schedule. For example, he did not begin the breathing exercises until after the second week, despite the fact that the skills were taught and assigned in the first week. Interestingly, following the second week, Benjamin regularly used and described benefit from the breathing exercises. He indicated using the breathing exercise multiple times throughout the treatment as a way of reducing his stress that resulted from school, social interactions, and his depressive thoughts. He also mentioned finding the skill useful enough to teach the exercise to his sister—she saw him doing the breathing exercises and asked him what he was doing.

Benjamin was receptive to learning about the function of emotions and communicating feelings, but he was resistant to putting the communication skills to use at first. He believed that others (particularly his parents) would not be receptive to him communicating his emotions. However, he indicated having more insight into his emotional states and practicing the communication techniques with himself. While the implementation of skills at

the outset of treatment were somewhat slow for Benjamin, the behavioral experiments and, particularly, pleasurable activities, helped “lift a weight” off of his shoulders. Benjamin reported deriving enjoyment from engaging in pleasurable activities that he scheduled for himself, including playing music and going for walks. He remarked that these activities generated positive emotions that he had not experienced in a while.

The cognitive modules of “Flexibility in Thinking” and “Awareness of Emotions” were also very beneficial for Benjamin. Benjamin gained insight into his automatic thoughts and thinking traps, of which *ignoring the positive* and *jumping to conclusions* were most salient. Benjamin indicated that restructuring his thoughts did not provide significant relief for his mood or stress. Instead, the nonjudgmental awareness was a more effective strategy for him. He reported benefiting from watching his thoughts rather than immediately believing everything he thinks. Finally, the session on exposure, although brief and at the end of treatment, led to some benefit for Benjamin. He reported putting the skill to practice by entering a peer conversation in which he was suspicious of his peers, and felt relief after staying in the situation for a period of minutes, rather than fleeing immediately. Benjamin indicated satisfaction in the skill and pride in himself for putting the skill to use. Overall, Benjamin found that the breathing exercises, behavioral experiments, and mindful observance of his thoughts provided the most relief from his negative emotions. He rated his satisfaction with the treatment a 6 out of 7, and he rated the treatment as not at all burdensome (rating = 0). Pre- to posttreatment, his psychiatric symptoms reduced 14 points on the SCL-90 (Pre = 86, Post = 72), his quality of life improved on the KINDL (Pre = 49, Post = 77), and he had reduced difficulties with emotion regulation on the DERS (Pre = 105, Post = 52).

Conclusion

We discuss the rationale for including adolescents at high risk for SMI in a transdiagnostic CBT treatment (the UP-A) and outline the initial results piloting the UP-A in this population. The aim of this pilot study is to assess the feasibility, acceptability, and efficacy of a transdiagnostic group treatment for adolescents at risk for SMI. The data collected in this pilot study will be used to determine whether participants can be recruited and retained (feasibility), whether the treatment addresses areas that are most relevant to the early stages of SMI and is delivered in a manner that is satisfactory and with minimal burden (acceptability), and whether the treatment increases emotion regulation, improves symptoms, reduces distress, and improves functioning (efficacy).

The outcomes of the first 10 participants show promise as we were able to recruit enough participants to fill one group and retain a majority over the course of the treatment. Additionally, the participants reported high levels of satisfaction and relevance, low levels of burden, as well as initial improvements in psychiatric symptoms, quality of life, and emotion regulation. Overall, there did not appear to be any singular therapeutic tool or skill that emerged as most effective or tolerable to participants. Just as the adolescents in the group were symptomatically heterogeneous, the preferences for certain skills were quite variable. For example, some of the participants reported appreciation for the breathing exercises while a couple of the participants reported little-to-no utility in the skill. Similarly, some of the

youth preferred the behavioral strategies while others were more drawn to the cognitive approaches. Regardless of skill preference, we were impressed that the participants' motivation to engage in skill-practice outside of the sessions was the best predictor of benefits and satisfaction from the treatment. Limitations of this study are acknowledged, and include a lack of power to statistically test for participants' improvement and predictors of degree of improvement, a lack of standardization in assessing for SMI risk, and the use of only self-report measures to assess outcomes.

Being able to include adolescents at risk for SMI in the UP-A has important clinical and public health implications. A unified treatment that is efficacious for patients with SMI symptoms can streamline psychosocial treatment such that it could serve as a first-line treatment for individuals with varied, nonspecific psychiatric expressions and multifinalities. As a result, clinicians would have a single treatment that can be easily learned and delivered, facilitating treatment and dissemination to this underserved population and hopefully encouraging clinicians to treat a broader range of psychopathology (Farchione et al., 2012). Despite pharmacologic treatment of the putative risk syndrome (e.g., use of antipsychotics, mood stabilizers) being a common approach, it is controversial due to concerns related to efficacy, stigma, and side effects (Conroy, Francis, & Hulvershorn, 2018; Correll, Hauser, Auther, & Cornblatt, 2010). Thus, psychosocial treatments are thought to be better suited as a first-line treatment ahead of antipsychotics or mood stabilizers. It remains an empirical question as to whether the UP-A could be delivered prior to pharmacotherapy for comorbid disorders (e.g., antidepressant medication) or whether adjunctive pharmacotherapy for comorbid conditions is necessary in the first stage of treatment for this population.

Future Directions

If the trial supports the initial promise of the transdiagnostic treatment for adolescents at risk for SMI, it will be important to test the mechanisms of the treatment, which we hypothesize are changing attributional biases and increasing distress tolerance. Attributional biases related to oneself (e.g., self-defeating thoughts) and about the external world (e.g., perceiving hostility) are related to high-risk SMI states and linked to the progression of SMI (An et al., 2010; Stange et al., 2013). Difficulties with distress tolerance and stress sensitivity are also thought to give rise to emotional dysregulation (Leibenluft, 2011; Leibenluft, Charney, & Pine, 2003; Myin-Germeys & van Os, 2007; Palmier-Claus, Dunn, & Lewis, 2012). Thus, intervening in these processes appears necessary in improving emotion regulation, psychiatric symptoms, and possibly preventing conversion to SMI. Finally, determining how to stage treatment is an important consideration for future work. What are the limits of severity that would make an adolescent better-suited for another treatment? What are the types of mental health conditions and comorbidities that this treatment is not well-equipped to treat? Can the unified treatment be delivered to patients before a trial of medication? These considerations will be important for future prevention trials.

Acknowledgments

This work partially supported by NIMH grants U0IMH081902, P50MH066286, and R34MH117200, Aim for Mental Health, and gifts from the Don Levin Trust, and the Shear Family Foundation. The authors declare no conflicts of interest.

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Table 1

A Summary of the Unified Protocol for Adolescents (UP-A) with Emotional Disorders – Listed by Module as Presented in the UP-A Clinician Manual (Ehrenreich-May, Kennedy, et al., 2017)

Module	Title	Module Content
1	Building and Keeping Motivation	• Build rapport with your adolescent client. • Discuss key problems and set goals. • Determine what motivates the adolescent to change.
2	Getting to Know Your Emotions and Behaviors	• Provide psychoeducation about different emotions. • Discuss the purpose of emotions. • Introduce the three parts of an emotion. • Introduce the cycle of avoidance and other emotional behaviors.
3	Introduction to Emotion-Focused Behavioral Experiments	• Introduce the concepts of opposite action and emotion-focused behavioral experiments. • Teach the adolescent how to track emotion and activity levels. • Engage the adolescent in emotion-focused behavioral experiments for sadness (and potentially other emotions).
4	Awareness of Physical Sensations	• Review the connection between physical feelings and strong emotions. • Develop the adolescent's awareness of his or her physical feelings. • Conduct sensational exposure exercises to help the adolescent learn to tolerate uncomfortable physical feelings.
5	Being Flexible in Your Thinking	• Develop the adolescent's ability to think flexibly about emotional situations. • Introduce some common "thinking traps" (i.e., cognitive distortions). • Link thoughts to actions by teaching Detective Thinking and Problem Solving skills.
6	Awareness of Emotional Experiences	• Introduce and practice present-moment awareness. • Introduce and practice nonjudgmental awareness. • Conduct generalized emotion exposures by asking the adolescent to practice awareness skills when exposed to general emotional triggers.
7	Situational Emotion Exposure	• Review skills the adolescent has learned in treatment so far. • Discuss the rationale for situational emotion exposures, introduced to the adolescent as another type of behavioral experiment. • Conduct situational emotion exposures in session and assign additional exposures for home learning.
8	Reviewing Accomplishments and Looking Ahead	• Review skills and progress toward goals.

Module	Title	Module Content
		• Create a relapse prevention plan.

Table 2

Criteria of Psychosis-Risk Syndromes based on the Structured Interview for Psychosis-Risk Syndromes (SIPS; Miller et al., 2003).

Psychosis-Risk Syndrome	Description	Criteria
1. Brief Intermittent Psychotic Syndrome (BIPS)	Defined by the presence of frank positive psychotic symptoms that are very brief or intermittent. Positive symptoms include: (1) unusual thought content/delusional ideas, (2) suspiciousness/ persecutory ideas, (3) grandiose ideas, (4) perceptual abnormalities/ hallucinations, and (5) disorganized communication	• Psychotic intensity of positive symptom(s) present at least several minutes a day • Positive symptom(s) occur at least once per month • Positive symptom(s) not due to another disorder • Even though positive symptom(s) present at a psychotic-level, current or past psychotic disorder criteria were not met
2. Attenuated Positive Symptom Syndrome (APSS)	Defined by the presence of recent (within the past year) attenuated positive symptoms. Positive symptoms include: (1) unusual thought content/delusional ideas, (2) suspiciousness/persecutory ideas, (3) grandiose ideas, (4) perceptual abnormalities/hallucinations, and (5) disorganized communication	• At least one positive symptom is rated in severity between “moderate” and “severe but not psychotic” • Positive symptom(s) occur at an average frequency of once per month • Positive symptom(s) not due to another disorder
3. Genetic Risk and Deterioration Syndrome (GRD)	Defined by a combined genetic risk for a psychotic spectrum disorder and recent history of functional deterioration	• Genetic criteria is met if patient has a first degree relative with a psychotic spectrum disorder and/or patient meets criteria for Schizotypal Personality Disorder • Functional deterioration criteria is met if patient has had a 30% or greater drop in Global Assessment of Functioning (GAF)

Table 3

Characteristics of Study Participants ($N = 10$)

	M	SD	n	%
Age	15.2	1.2		
Sex (female/male)			7/3	70
Background				
White			4	40
African-American/Black			1	10
Hispanic			4	40
Other			1	10
Medications	1.2	1.0		
Antidepressant			5	50
Antipsychotic			1	10
Anxiolytic			2	20
Mood Stabilizer			3	30
Stimulant			1	10
None			3	30
Mental Health Syndromes/Diagnoses	2.4	0.7		
At-Risk Mental Health Condition[a]				
Psychosis-Risk Syndrome			7	70
Unspecified Bipolar Disorder			3	30
Comorbid Psychiatric Conditions				
Attention-Deficit Hyperactivity Disorder			3	30
Autism Spectrum Disorder			1	10
Generalized Anxiety Disorder			3	30
Major Depressive Disorder			6	60
Oppositional Defiant Disorder			1	10
Social Anxiety Disorder			2	20
Trichotillomania			1	10

[a]To be eligible for the treatment, participants were required to meet criteria for a psychosis-risk syndrome or an unspecified bipolar diagnosis.

Table 4

Teen Self-Rated Reports Pre- and Posttreatment (n = 6)

	Pretreatment	Posttreatment
Symptom Checklist – 90 Revised (SCL 90R)	109.3 (*SD* = 66.9)	83.8 (*SD* = 84.1)
Quality of Life Questionnaire for Children (KINDL)	50.3 (*SD* = 12.4)	57.2 (*SD* = 18.2)
Difficulties in Emotion Regulation Scale (DERS)	100.0 (*SD* = 22.6)	92.0 (*SD* = 37.8)
Change in PANAS Negative Affect – Pre to Post Mirror Tracing Task	3.1 (*SD* = 6.1)	–1.6 (*SD* = 3.3)
Satisfaction	N/A	5.1 (SD = 2.3)
Relevance	N/A	5.3 (SD = 3.2)
Burden	N/A	2.8 (SD = 2.6)