Introduction

Bipolar disorder is a mood disorder characterized by episodes of mania and depression. There are two types of bipolar disorder. Bipolar I disorder is the more severe form of the illness and involves periods of extreme mania, often with alternating episodes of depression (Haycock, 2010). Bipolar II disorder is the less severe form of the illness and involves periods of less extreme mania, hypomania, alternating with episodes of depression (Haycock, 2010).

Previously known as manic depression, bipolar disorder was once thought to occur rarely in children and adolescents (Bernstein, 2015). However, between 1994 and 2003 there was a 40-fold increase in the number of U.S. children under the age of 20 diagnosed with bipolar disorder (Moreno, Laje, Blanco, Jiang, Schmidt, & Olfson, 2007). This drastic rise is a cause for concern for several reasons, but particularly because the consequences of a mental illness diagnosis and treatment are often associated with a negative stigma and treatment with psychiatric drugs can have dangerous long-lasting side effects both of which should be avoided if possible.

This paper compares and contrasts the standard diagnosis criteria and pharmacology treatment guidelines for bipolar I disorder in adult and pediatric populations. I hope to show that current guidelines for diagnosing and treating bipolar I disorder in children and adolescents are principally based on generalizations of research conducted in adults rather than based upon researching effective treatments specifically for children and adolescents. This is significant because there are important differences in the way symptoms manifest in these two groups and there can be dangerous long-term consequences associated with incorrect or lack of diagnosis and treatment. I then go one step further and develop a plan of action identifying what needs to be done in order to address the rising number of children diagnosed with bipolar I disorder.
Specifically, I suggest conducting further research into bipolar I disorder in children and adolescents in order to improve the current guidelines for diagnosis.

**Diagnosis Background**

The diagnosis process is critical because it is a major factor in the development of a treatment plan. Insurance companies often make the decision about what and how many treatments to cover, based on a patient’s diagnosis and whether the treatments are approved or known to be effective in treating the diagnosed illness. Although many mental illnesses are treated similarly due to overlap in symptoms, this is not always the case. In some cases the wrong diagnosis and treatment can exacerbate the patient’s symptoms or unnecessarily expose the patient to dangerous side-effects. For instance, while still somewhat controversial, some studies have shown that taking antidepressants may induce manic or hypomanic symptoms (Keck & McElroy, 2009, p. 1120). Even when the correct diagnosis is given, it can expose the patient to the negative stigma associated with mental illness.

The diagnosis process usually requires a thorough psychiatric evaluation and medical exam to be done. The goal of the assessment is to identify symptoms that meet the criteria for one or more diagnoses and to decide which symptoms or conditions may be best treated with psychiatric medication or other methods such as psychosocial education and psychosocial therapy (Dulcan, 2010; Connor & Meltzer, 2006, p. 24). The psychiatric assessment tends to be more informative and accurate if information is gathered from multiple sources including the child, parents, teachers, and other care-givers (Dulcan, 2010; Connor & Meltzer, 2006, p. 24). It is also helpful if the information is gathered in multiple ways such as interviews and rating scales (Dulcan, 2010; Connor & Meltzer, 2006, p. 25). Once a diagnosis is made the psychiatrist or
The diagnosis process however is not perfect and at times challenges may arise. For example, one major challenge is comorbidity, which is when a patient meets the diagnostic criteria for two or more different diagnoses. For example, hyperactivity is a symptom of both Attention Deficit Hyperactivity Disorder and the manic phase of bipolar disorder. This can complicate the diagnostic process by making it more difficult for a diagnosis to be reached and then treated appropriately. Another challenge can be the pressure a physician feels to make a particular diagnosis. This pressure can come from parents, teachers, insurance companies, or others. Social and culture factors, which may stem from a lack of understanding that mental illnesses are caused by a combination of factors none of which are known for certain, may also contribute to pressuring psychiatrists or physicians to make a particular diagnosis. Unlike most physical illnesses, there are no medical tests, such as a blood test, that reliably and objectively diagnoses bipolar disorder, or any other mental illnesses for that matter. Instead, diagnoses are made by determining if a patient’s symptoms meet the criteria for a particular condition in terms of presence, duration, and other specifications as listed in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, DSM-5. This leads to perhaps the most common and important obstacle to making a correct diagnosis: the criteria meant to guide psychiatrists in making diagnoses are full of uncertainty and subjectivity. This is because it is often difficult to know where to draw the line between normal and abnormal, symptomatic behavior, and emotions. In addition to being subjective, the diagnostic criteria have expanded so much that in the U.S., the National Comorbidity Study found, using DSM definitions, that the overall lifetime prevalence for any mental disorder to be 50% (Paris, 2010, p.145). This means that in the U.S.
there is a 50% chance that you will be diagnosed with a mental disorder at some point in your life. With each subsequent edition of the DSM, the number of diagnoses included has increased. The first edition of the DSM, published in 1952, included 106 disorders while DSM-II, published in 1968, listed 182 disorders (Rosenberg, 2013). The DSM-IV, published in 1994, listed 297 disorders, 32 more than the DSM-III (Whitaker, 2010, p. 317). The most recent edition, DSM-5, lists approximately the same number of disorders as DSM-IV (Rosenberg, 2013). Not only have the number of diagnoses increased, but the criteria that must be met in order for a patient to be diagnosed with a condition are becoming broader and more inclusive. This makes it easier for any individual to be incorrectly or unnecessarily diagnosed with mental illness.

Clearly, the diagnosis process is a critical and challenging step in the treatment process. The correct diagnosis is necessary in order to receive the best treatment. However, subjectivity of both the diagnostic criteria as well as the sources of information about the patient’s symptoms makes reaching the correct diagnosis on thus the correct treatment extremely difficult. The following section focuses on how despite the fact that differences among age groups affect how symptoms of bipolar disorder present, the course of the illness, and how a diagnosis is reached, different age groups are diagnosed using the same principle diagnostic criteria.

**Diagnosis: Compare and Contrast Adult and Pediatric Populations**

The *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5), does not have separate diagnostic criteria to distinguish between adult-onset and childhood- or adolescent-onset bipolar disorder, despite the fact that it is generally accepted that there are important differences in the way in which symptoms manifest in these different age groups (Bernstein, 2015; American Academy of Child and Adolescent Psychiatry [AACAP], 2007, p. 108; Mondimore, 2014, p. 162; Fawcett, Golden, & Rosenfeld, 2007, p. 235; D. Papulos & J.

When the onset of bipolar disorder is before puberty, the illness seems to be more severe and resistant to treatment (Miklowitz & Gitlin, 2014, p. 30; Mondimore, 2014, p. 162; AACAP, 2007; Strakowski, 2014, p. 95). It is important to note that while rapid cycling, mixed episodes, and poorer long-term outcomes tend to be seen more frequently in early-onset bipolar disorder than in adult-onset bipolar disorder, this is not always the case.

While mania is defined by certain hallmark symptoms, it often manifests differently in different age groups. Mania in adults is characterized by euphoria, inflated self-esteem, and grandiosity. In children and adolescents, mania manifests more often as irritability, intense angry outbursts, physical hyperactivity, aggression, physical impulsivity, and emotional lability (Fawcett, Golden, Rosenfeld, 2007, p. 242). Irritability is the most common symptom among children and adolescents with bipolar disorder (Miklowitz & George, 2008, p.31; AACAP, 2007, p. 111). It is important to remember that while irritability is more prominent in children and adolescents, it is a frequent symptom of mania in adults as well.

Some symptoms are more common in certain age groups. Adolescents, more than children or adults, exhibit psychotic symptoms, such as hallucinations, delusions, or paranoia (Fawcett, Golden, Rosenfeld, 2007, p. 243; Miklowitz & George, 2008, p. 36; AACAP, 2007, p. 111; Miklowitz & Gitlin, 2014, p. 30). In adults, about 50% of manic episodes have psychotic symptoms (Miklowitz & Gitlin, 2014, p. 14; Goodwin & Sachs, 2010, p. 11). These hallucinations or delusions typically are related to the grandiose, elevated mood of the individual and often have to do with overestimation of one’s abilities (Miklowitz & Gitlin, 2014, p. 14; Goodwin & Sachs, 2010, p. 12). Hallucinations and delusions are also an example of symptoms that could be attributed to other mental illnesses such as schizophrenia.
In addition, to the challenge of having to use the same diagnostic criteria used for adults to diagnosis children and adolescents, despite differences in the way bipolar disorder presents, the fact that children and adolescents have not reached developmental maturity makes reaching a diagnosis even more challenging. The symptoms children and adolescents present are limited by their developmental maturity (Fawcett, Golden, Rosenfeld, 2007, p. 243). The best example of this is differences in impulsive, risky behavior. In adults, running up credit card debit, excessive drinking, drug abuse, reckless driving, unplanned vacations, and hyper-sexuality are classic examples of impulsive behavior during mania. In children, impulsive behaviors include academic failure, fighting, dangerous risk taking, and inappropriate sexual activity. The type of impulsivity seen during manic episodes is also affected by the presence of other symptoms such as irritability. In classic, euphoric mania, impulsivity is directed towards pleasurable, but risky activities; whereas aggressive and violent impulsivity is more common in irritable individuals (Strakowski, 2014, p. 7). Poor judgment and risky behavior in adolescents is particularly challenging because while their behavior begins to take on more similarity to that of adults, they still exhibit some child-like behaviors. Impulsivity is not the only symptom of mania that evolves as development progresses. Even the overall presentation of a manic episode can evolve as children and adolescents continue to mature, with symptoms becoming more characteristic of manic episodes in adults (Fawcett, Golden, Rosenfeld, 2007, p. 243; Mondimore, 2014, p. 162; AACAP, 2007, p. 108). Additionally, it can be a challenge to distinguish emotions and behaviors that are normal or typical for a certain age from those that are symptomatic of a manic episode (Fawcett, Golden, Rosenfeld, 2007, p. 243; Miklowitz & George, 2008; D. Papolos & J. Papolos, 2006, p. 28-29; Mondimore, 2014, p. 163; AACAP, 2007, p. 113; Kalikow, 2011, p. 213-214). It can be very difficult to distinguish the hyperactivity of ADHD from the increased energy and
activity of mania from the high energy of a normal child. Similarly, normal childhood fantasies and magical beliefs can be hard to separate from grandiose ideas. A manic child under the influence of manic delusion will act on these exaggerated, fantastical beliefs rather than simply using them as a basis for play (Mondimore, 2014, p. 163). They may actually believe they can fly and jump out a window instead of running around “flapping” their arms like wings; ‘they act based on the belief that the usual rules don’t apply to them” (Mondimore, 2014, p. 163). Temper tantrums and intense angry outbursts are of the most difficult to distinguish. One possible distinction between a normal temper tantrum and a bipolar mood episode is whether the change in mood state was precipitated by some provocation or frustrating event or came from out of the blue (Carlson & Weller, 2010, p.478). If the former is true, it is much less likely that it was a bipolar mood episode (Carlson & Weller, 2010, p. 478). The degree to which children and adolescents can participate in the diagnostic process is limited by their capacity to reflect on their emotional state and then have the vocabulary to describe how they are feeling (Fawcett, Golden, Rosenfeld, 2007, p. 243; Kalikow, 2011, p. 214). As a result, mental health professionals often have to rely on second-hand accounts from parents and teachers in order to diagnosis children and adolescents. These second-hand accounts may not accurately capture how the child is feeling and lead to misdiagnosis. Clearly, the continuing development of children and adolescents complicates the diagnosis process in several ways.

Unlike mania, there is much less information concerning differences in the manifestation of depressive episodes across different age groups. The main difference between how depression manifests in children and adolescents, as opposed to adults is not a matter of which symptoms are present, but rather of the preconceived idea of what depression looks like in these groups (Fawcett, Golden, Rosenfeld, 2007, p. 244). Adults often picture depression as feeling sad or
down. When in fact many children and adolescents describe depression as feeling bored, withdrawn, little pleasure in things they used to enjoy, irritable, or angry (Miklowitz & George, 2008, p. 37). Depression may manifest in either of the manners described above in any age group. The difference is that the latter is often thought to describe typical adolescent behavioral or depression in adults rather than a depressive episode in children or adolescents. It is possible that there are differences in the presentation of depression across age groups. However, I have not found evidence either in favor or against the possibility. At present, I conclude that depressive episodes present similarly in children, adolescents, and adults.

In summary, children and adults are diagnosed with bipolar disorder using the same criteria even though these two groups differ in the course of the illness, hallmark symptoms of mania, which symptoms are most common, and symptoms indicative of depressive episodes. In addition to these differences in developmental maturity limits the extent to which children present with classical symptoms indicative of bipolar disorder, the degree which children can participate in the diagnosis process, and make it more difficult to distinguish normal and abnormal behavior.

**Treatment Background**

Just as a mental illness diagnosis has serious life-long implications, so too does pharmacological treatment. In most cases, a diagnosis of bipolar I disorder requires life-long treatment with psychotropic drugs. Many of these drugs have dangerous side-effects; however, incorrect or no treatment can result in self-harm, or indeed the worsening or even induction of symptoms. For example, in some cases antidepressants can induce symptoms of mania or thoughts of suicide in individuals with bipolar disorder (Kalikow, 2011, p. 222; Miklowitz & Gitlin, 2014, p. 65; Miklowitz & George, 2008, p. 145; APA, 2002, p. 10; AACAP, 2007, p.
The correct treatment regimen is of crucial importance in achieving treatment goals such as stabilizing an existing episode, preventing or minimizing the severity of future episodes, and reducing sub-threshold symptoms.

The process of treating bipolar disorder is usually divided into two phases, acute and maintenance treatment. Acute treatment is further divided into acute mania treatment and acute depression treatment. Ideally, the maintenance treatment phase should distinguish between mania and depression maintenance as the acute phase is (Kalikow, 2011, p. 217-218). However, due to lack of research conducted specifically concerning children and adolescents this distinction is only used when looking at adult populations (Kalikow, 2011, p. 218). Although each treatment phase has certain characteristics, goals, strategies, FDA approved medications, and illness phases associated with it, they often have some similarities as one phase evolves into the next.

The primary goal during the acute treatment phase, regardless of whether for mania or depression is rapid control and stabilization of the existing episode (Miklowitz & Gitlin, 2014, p. 111; Ketter, Wang, Culver, 2010, p. 74; APA, 2002, p. 12; Miklowitz & George, 2008, p. 131; Keck & McElroy, 2009). The ultimate goal is complete remission of symptoms and return to normal baseline functioning (Miklowitz & Gitlin, 2014, p. 111; Ketter, Wang, Culver, 2010, p. 74; APA, 2002, p. 12; Miklowitz & George, 2008, p. 131; Keck & McElroy, 2009). This phase usually lasts three to eight weeks on average, but may be longer as many medications must be taken for several weeks before the effects are noticeable (Ketter, Wang, Culver, 2010, p. 74). The strategy used for this phase is to focus on efficacy and add or increase mood stabilizers to effective doses (Miklowitz & Gitlin, 2014, p. 111; Ketter, Wang, Culver, 2010, p. 74; APA, 2002, p. 12; Miklowitz & George, 2008, p. 131; Keck & McElroy, 2009). Phase appropriate adjuncts are added or increased as necessary and phase inappropriate adjuncts are slowly
Adjunctive medications are those prescribed in addition to primary medications in order to maximize its effectiveness. While the general goal and strategy is the same for both acute mania and acute depression treatment, the medications used to achieve remission differ (Miklowitz & Gitlin, 2014, p. 111; Ketter, Wang, Culver, 2010, p. 74; APA, 2002, p. 12; Miklowitz & George, 2008, p. 131; Keck & McElroy, 2009). Sometimes maintenance treatment is distinguished from continuation treatment.

Continuation treatment is the transitional bridge between acute and maintenance treatment (Miklowitz & Gitlin, 2014, p. 83-84; Ketter, Wang, Culver, 2010, p. 75-76). The goal of continuation is to prevent relapse and continue to improve functioning towards recovery (Miklowitz & Gitlin, 2014, p. 83-84; Ketter, Wang, Culver, 2010, p. 75-76). During this phase, some medications initiated in the acute treatment phase may be discontinued because the tolerability of the side-effects is no longer balanced by the efficacy of the medication (Miklowitz & Gitlin, 2014, p. 83-84; Ketter, Wang, Culver, 2010, p. 75-76). Medications should be tapered off gradually in order to lessen the chances of a relapse manic episode occurring (Miklowitz & Gitlin, 2014, p. 83-84; Ketter, Wang, Culver, 2010, p. 75-76). Other medications may be increased in order to relieve subsyndromal symptoms that are interfering with normal functioning (Miklowitz & Gitlin, 2014, p. 83-84; Ketter, Wang, Culver, 2010, p. 75-76). The length of continuation treatment varies greatly, but the average duration is three to six months provided no relapse occurs (Miklowitz & Gitlin, 2014, p. 83-84; Ketter, Wang, Culver, 2010, p. 75-76). Of all the phases of treatment, the continuation phase is the least studied and thus most poorly understood (Miklowitz & Gitlin, 2014, p. 83-84; Ketter, Wang, Culver, 2010, p. 75-76).
This lack of knowledge may explain why this phase of treatment is often simply considered to be part of maintenance treatment.


Some general guidelines can be applied to all phases of treatment. It is preferable to use acute treatments that can also serve as continuation and maintenance treatments whenever possible, as this simplifies long-term management (Strakowski, 2014, p. 56). Typically, a low dose is prescribed initially and then slowing the dose is increased until therapeutic level is reached or tolerability of side-effects becomes an issue (Strakowski, 2014, p. 58). In general, a six to eight week trial of a medication is recommended before adjusting the dose, switching the medication, or adding another medication (AACAP, 2007, p.119; Miklowitz & George, 2008, p. 148). Even then only one change should be made to the medication regime at a time, so that
psychiatrists know what medication change is responsible for changes in mood and symptoms. Although in most cases, more than one medication will be required for stabilization and prevention of relapse episodes, it is not recommended to prescribe more than three medications (Miklowitz & Gitlin, 2014, p. 138; Strakowski, 2014, p. 62). This is because with each medication added the potential for negative side-effects, adverse drug interactions, and non-adherence due to complexity of medication regime increases. Despite this recommendation, Miklowitz and Gitlin mention one study that found that the average bipolar patient was taking three medications (2014, p. 138). In another study, Boris Birmaher found that kids with bipolar disorder usually receive four or five medications (Miklowitz & George, 2008, p. 126). It seems unhealthy and potentially dangerous that many children with bipolar disorder are taking more medications than adults. To further complicate matters, some studies have found that certain combinations of medications when prescribed together have greater and more rapid efficacy than monotherapy (Keck & McElroy, 2009, p. 1119). The final general guideline to bipolar treatment is regular, continual re-evaluation of both symptoms and current treatment regime are key to successful management and relapse prevention (APA, 2002, p. 12; Connor & Meltzer, 2006, p. 33).

Besides the patient’s treatment and illness phase, there are several other factors to take into account when selecting a medication. These include: necessity for speed of onset, severity of symptoms, presence of specific symptom complexes (psychosis, mixed episode, severe insomnia or agitation, rapid cycling, and treatment resistance), side-effect profile, patient preference, prior treatment history, and family history of response (Miklowitz & Gitlin, 2014, p. 68-70; AACAP, 2007, p. 116; APA, 2002, p. 12). If an individual has responded well to a medication in the past
or if there is family history of response then, it is typically recommended that it be chosen as a starting point (Strakowski, 2014, 58; Miklowitz & Gitlin, 2014, p. 68-70).

Determining the best medication or combination of medications to treat bipolar disorder is almost always a process of trial and error. This process is further complicated by lack of research, the way research is conducted, noncompliance and nonadherence, the inherent cyclical course of the illness, comorbidity, and age group differences. A major problem is that the way in which some research is conducted reduces the accuracy with which the findings can be generalized and applied to treat patients outside of the study. For example, the fact that “the term bipolar disorder is used differently by different investigators to describe what might be diverse clinical populations” makes it difficult to know if the treatment being studied will have the same effects on individuals classified as having bipolar disorder according to slightly different criteria (AACAP, 2007, p. 114). Comorbidity complicates treatment simply by necessitating that multiple diagnoses be treated and that these treatments do not interact adversely. The cyclical course of bipolar disorder means that the patient’s symptoms, and thus medications, will vary as they cycle through the different mood states (APA, 2002, p. 12). Treatment noncompliance is a major cause of relapse (APA, 2002, p. 14). There are several factors which contribute to treatment noncompliance, including belief that they are well and no longer need the medication, a reluctance to give up the pleasurable aspects of mania, medication side-effects, cost of medication, and forgetting or losing medication (Goodwin & Sachs, 2010, p. 57-58; APA, 2002, p. 14-15). While some discontinue their medication all together, others simply skip some doses or adjust the amount they are taking without consulting their psychiatrist. These changes can make it difficult to determine whether a new episode is due to the normal cyclic course of the illness, treatment nonadherence, or is a breakthrough episode, and how the current course of
treatment needs to be adjusted if at all (Miklowitz & Gitlin, 2014, p. 66). Because most medications used to treat bipolar disorder take several weeks before the effects are noticeable, medication nonadherence can make it appear that the prescribed treatment is not effective and result in the medication being unnecessarily discontinued by the psychiatrist. Differences in drug metabolism, efficacy, and tolerability among children, adolescents, and adults play an important role in medication selection and dosage.

As clearly, children and adolescents are still developing both physically and mentally, it would make sense that they be treated differently than adults. However, for the most part this is not the case, rather treatments recommendations for children and adolescents are generalized from adult literature (AACAP, 2007, p. 116; Miklowitz & George, 2008, p. 126; Connor & Meltzer, 2006, p. 5, 111, 114, 369; Bernstein, 2015). One big reason for this is that fewer controlled research studies have been conducted to assess the safety and efficacy of psychotropic medications for children and adolescents (Wagner & Pliszka, 2009, p. 1309-1310; AACAP, 2007, p. 16; Connor & Meltzer, 2006, p. 111).

In an effort to simplify and standardize the treatment process, efforts have been made to develop treatment algorithms, or decision trees. Psychiatrists move through the algorithm in a step-by-step manner in order to determine what medication or combination of medications to prescribe and in what order. In theory, treatment algorithms are extremely useful as they have the benefit of standardizing a complicated decision process. However, in reality their usefulness is limited as their “if this happens, then do that” approach never captures the myriad manifestations of the disorder and the inevitable twists and turns of the world of real treatment and real patients, not to mention the specific situations and needs of the individual” (Mondimore, 2014, p. 151).

As more research is conducted and our understanding of bipolar disorder increases, treatment
algorithms are improving as well. Despite these advances, at the present moment treatment algorithms are only useful in a very general sense. Entire paragraph: (Mondimore, 2014, p. 151; Miklowitz & George, 2008, p. 148; Connor & Meltzer, 2006, p. 7)

From the above paragraphs it is obvious that treatment is extremely complicated and numerous factors must be taken into account before making treatment decisions. Incorrect or unnecessary treatment, like diagnosis, is has long-lasting effects. Different phases of the treatment process have different goals, approaches, and guidelines although these often overlap and blend into one another. In addition to the treatment phase, the patient’s personal symptoms, history, and compliance must be taken into account as well. With so many variable factors influencing treatment, it is not hard to understand why treatment remains largely a process of trial and error in spite of attempts to develop treatment algorithms to try to streamline the process. The following section looks the differences and similarities between the guidelines used to treat bipolar I disorder in children and adults.

**Treatment Guidelines: Compare and Contrast Adult and Pediatric Populations**

While there are separate guidelines for treating bipolar I disorder in children and adults, the guidelines are extremely similar as treatment guidelines for children and are largely based on research done in adults (AACAP, 2007, p. 116; Miklowitz & George, 2008, p. 126; Connor & Meltzer, 2006, p. 5, 111, 114, 369; Bernstein, 2015). The largest difference between the guidelines for adults and children is that some medications that are FDA approved with indications for treating bipolar I disorder in adults, do not have FDA approved indications for treating pediatric populations. There is not a single medication for bipolar disorder that it is FDA approved for children and adolescents, but not for adults. Only the reverse is true. In fact, no bipolar medication is FDA approved for children under the age of 10 years old (Strakowski,
2014, p. 96). This is because a consensus conference advised the FDA that the requirement that psychiatric medications be researched in children only extend to children as old as 10 years of age, due to concerns about the challenge of accurate diagnosis and lack of evidence in younger children (AACAP, 2007, p. 114; Carlson & Weller, 2010, p. 483).

Acute treatment of mania is the most researched treatment phase and as a result the largest number of medications for this phase have FDA approval. Ten drugs have FDA indications for treatment of acute mania in adults; six have FDA indications for treatment of acute mania in children and adolescents. During this phase, antidepressants are usually discontinued as they may have triggered the manic episode (Miklowitz & Gitlin, 2014, 65; Fawcett, Golden, & Rosenfeld, 2007, p. 70; AACAP, 2007, p. 117; APA, 2002, 9). If the manic episode was triggered by sleep disruption or deprivation or the patient is experiencing profound agitation, stronger sedating antipsychotics, such as olanzapine or quetiapine, are prescribed (Miklowitz & Gitlin, 2014, p. 70; Goodwin & Sachs, 2010, p.65). The other option in this situation is to prescribe a less sedating antimanic agent, such as lithium or aripiprazole, and a benzodiazepine, such as clonazepam or lorazepram (Miklowitz & Gitlin, 2014, p. 70; Goodwin & Sachs, 2010, p.65; APA, 2002, p. 9). Both options will help the slow the patient’s behavior and ensure sleep, so that the antimanic agent can have time to take effect (Miklowitz & Gitlin, 2014, p. 70). The sedating agent is short-term and meant to be discontinued when the patient improves (Miklowitz & Gitlin, 2014, p. 71; Goodwin & Sachs, 2010, p.72). For patients with severe mania, psychotic symptoms, or mixed mania, the first line of treatment is usually an antipsychotic or an antipsychotic in combination with lithium or valproate (Miklowitz & Gitlin, 2014, p. 68; APA, 2002, p. 16). There are three reasons for this. First, patients with these presentations tend to have a poorer response to lithium compared to valproate or to
antipsychotics (Miklowitz & Gitlin, 2014, p. 68). Second, it is more difficult to find the optimal dose of lithium and it takes more time for the efficacy of lithium to become apparent (Miklowitz & Gitlin, 2014, p. 68). And third, “multiple studies have consistently shown that an antipsychotic added to either lithium or valproate increases response rates by 20-25%, regardless of which antipsychotic is prescribed” (Miklowitz & Gitlin, 2014, p. 71). Strakowski mentions a study which found these combinations to increase response rate by 60-70% (2014, p. 58). If the patient’s manic episode is a breakthrough episode and he or she is already taking a mood stabilizer, one strategy would be to just increase optimize the dose of the mood stabilizer (Miklowitz & Gitlin, 2014, p. 68; APA, 2002, p. 17). The effectiveness of this strategy may be limited if the patient is already taking a high dose; in which case, increasing the dose may cause only side-effects rather than improvement (Miklowitz & Gitlin, 2014, p. 68). An additional strategy if the patient has a breakthrough manic episode is the introduction or resumption of an antipsychotic (APA, 2002, p. 17). If the patient is not already taking a mood stabilizer and none of factors discussed previously suggest a starting point then there are three first-line treatment options: monotherapy with lithium or valproate, monotherapy with an antipsychotic, or a lithium or valproate in combination with an antipsychotic (Miklowitz & Gitlin, 2014, p. 70; Strakowski, 2014, p. 58; Goodwin & Sachs, 2010, p.65; AACAP, 2007, p. 116; APA, 2002, p. 16). Second generation or atypical antipsychotics tend to be prescribed more often than first generation antipsychotics because SGAs have fewer, more tolerable side-effects, not because SGAs are more effective (Miklowitz & Gitlin, 2014, p. 71; APA, 2002, p. 9). There is no evidence that SGAs are more effective than first generation antipsychotics (Miklowitz & Gitlin, 2014, p. 71). Carbamazepine is a second-choice mood stabilizer that may be prescribed if lithium or valproate is not effective or there are tolerability issues. Carbamazepine is a second choice mood stabilizer
because of slow onset of efficacy, low tolerability, and drug-drug interactions (Miklowitz & Gitlin, 2014, p. 78; Strakowski, 2014, p. 57; Goodwin & Sachs, 2010, p. 70). When first-line treatment options fail to control symptoms, the second-line of treatment involves addition of another first-line medication (mood stabilizer or atypical antipsychotic), alternate monotherapy, or switching to another first-line mood stabilizer or atypical antipsychotic (APA, 2002, p. 10; Miklowitz & George, 2008, p. 128). The third-line of treatment begins introducing second choice medications (APA, 2002, p. 10; Miklowitz & George, 2008, p. 128).

There are very few differences in the pediatric guidelines for treating acute mania. The general order of the first, second, and third-line acute mania treatment guidelines in adults are the same for children (Connor Meltzer, 2006, p. 381; Miklowitz & George, 2008, p. 128; Wagner & Pliszka, 2009, p. 1318). The difference is that some medications are not FDA approved in children as there are additional safety, tolerability, and side-effect concerns to consider or some of these medications have different efficacy and response rates in children. Although valproate is not FDA approved in children, it is still widely used to treat acute mania in children (Fawcett, Golden, & Rosenfeld, 2007, p. 73). This is in part because lithium’s efficacy in children is less well established than adults (Strakowski, 2014, p. 57; Fawcett, Golden, & Rosenfeld, 2007, p. 250; Mondimore, 2014, p. 165). Carbamazepine and two antipsychotics, ziprasidone and chlorpromazine, are the other medications that are FDA approved for acute mania in adults, but not in children. Carbamazepine is occasionally used as second or third line options to treat children despite lacking FDA approval in children (Miklowitz & George, 2008, p. 141; Kalikow, 2011, p. 235). Lithium was more effective when used in combination with an antipsychotic or valproate (Kalikow, 2011, p. 219). In an open-label study conducted by Findling and colleagues, 90% of bipolar children and adolescents who had relapsed when taking lithium or valproate
alone, improved when they were started on a combination of lithium and valproate (Kalikow, 2011, p. 219). Benzodiazepines should be used carefully in children, as they may cause disinhibition (AACAP, 2007, p. 117).

Unlike the acute treatment of mania, the acute treatment of depression is the least researched treatment phase and has the fewest medications with FDA approval. Only three drugs are FDA approved for treatment of acute depression in adults. Symbyax, which is a combination of olanzapine and fluoxetine, is the only drug with FDA approval for treating acute bipolar depression in children and adolescents (Ketter, Chang, & Singh, 2015, p. 185). More research into how to treat depressive episodes is needed, especially in light of the fact that individuals with bipolar I disorder spend disproportionately more time in the depressive phase than the manic phase. The depressive phase is also often more disabling and contributes more to long-term functional impairment (Miklowitz & Gitlin, 2014, p. 31, 35, 85; Goodwin & Sachs, 2010, 14; Strakowski, 2014, p. 7). While it has been proven false that co-administering an antidepressant and a mood stabilizer reduces the risk of the antidepressant inducing a manic episode, both the APA and AACAP continue to advise against using antidepressants without mood stabilizers in bipolar I depression (Ketter, Miller, Goldberg, 2014, p. 254-255; AACAP, 2007, p. 117; APA, 2002, p. 10). It is important to note increased risk of suicide is a major concern when antidepressants are prescribed in children (AACAP, 2007, p. 117). Guidelines as to first and second-line options for treating acute depression in bipolar disorder vary slightly depending on the source. Some of this variation is due to how old the source is, but the paucity of research into acute depression treatments is another clear reason. Older sources cite lithium and lamotrigine as first-line treatments (APA, 2002, p. 10; Miklowitz & George, 2008, 128; Connor & Meltzer, 2006, p. 383). More recent sources cite lamotrigine, quetiapine, olanzapine
plus fluoxetine, lurasidone, lithium, and divalproex as first-line treatments with greater emphasis placed on lamotrigine and quetiapine (Strakowski, 2014, p. 59; Goodwin & Sachs, 2010, p. 73-78; Miklowitz & Gitlin, 2014, p. 91-92). Some second-line treatments are risperidone, ziprasidone, aripiprazole, asenapine, and carbamazepine (Miklowitz & Gitlin, 2014, p. 93; Strakowski, 2014, p. 60). Another option is to add an antidepressant to the regimen. Lithium has been found to have only a modest effect on preventing depression (Goodwin & Sachs, 2010, p. 76). Despite not being FDA approved, for acute depression treatment, lamotrigine is used as a first-line treatment because most clinicians perceive it to be effective in bipolar depression (Miklowitz & Gitlin, 2014, p. 91). Despite being FDA approved olanzapine and fluoxetine combination, also known as Symbyax, is rarely prescribed due to its side-effect profile and because physicians are taught to avoid combinations treatments since “the fixed ratio of the two medications limits the ability to alter flexibly the dose of one medication without altering the dose of the other” (Miklowitz & Gitlin, p. 92). The main distinction between treatment guidelines for bipolar depression in children and adolescents compared to adults is the fact that two of the three medications are not FDA approved for children and adolescents.

Seven drugs are FDA approved for bipolar maintenance treatment in adults and only two are FDA approved for children and adolescents. Maintenance treatment is one of the most important phases of treatment because following the remission of an acute episode, patient remain at a very high risk of relapse for a period of up to six months (APA, 2002, p. 11; Connor & Meltzer, 2006, p. 384). After acute treatment of depression, maintenance treatment is the least researched phase of bipolar disorder (Keck & McElroy, 2009, p. 1123; Kalikow, 2011, p. 221). In fact, ideally maintenance would be separated into mania maintenance and depression maintenance, but currently our knowledge and research is too limited to do so. Most maintenance
treatments for bipolar disorder are more effective in preventing manic episodes than depressive episodes (Ketter, Miller, Goldberg, 2014, p. 256). Lamotrigine, which is more effective in preventing depression than mania, is an important exception (Ketter, Miller, Goldberg, 2014, p. 256; Miklowitz & Gitlin, 2014, p. 125). Lamotrigine is superior to a placebo and lithium in preventing depressive episodes (Keck & McElroy, 2009, p. 1124; Kalikow, 2011, p. 221).

Another special exception is quetiapine, which is “the only agent with demonstrated superiority to a placebo for acute mania, acute bipolar depression, and bipolar maintenance, and appears to be similarly efficacious, when added to lithium or divalproex, in preventing bipolar depression and mania” (Ketter, Miller, Goldberg, 2014, p. 256). In other words, quetiapine is the drug that is FDA approved to treat all phases of bipolar disorder and it is equally effective in preventing both mania and depression. Lithium has been shown to reduce the risk of manic relapse by four times, compared to a placebo at six months and one year intervals (Keck, & McElroy, 2009, p. 1123).

Lithium is superior to a placebo and lamotrigine in preventing manic episodes (Keck & McElroy, 2009, p. 1123; Miklowitz & Gitlin, 2014, p. 120). In theory, a combination of lithium and lamotrigine should be very effective in preventing both manic and depressive episodes although this has not been established in a randomized controlled trial (Keck & McElroy, 2009, p. 1124). In addition, lithium does have some efficacy in preventing depressive episodes (Strakowski, 2014, p. 61; Kalikow, 2011, p. 221). Knowledge regarding which type of episode medications are more effective in preventing, is very important as the main guideline for maintenance treatment is to treat the individual’s dominant pole (Miklowitz & Gitlin, 2014, p 117; Goodwin & Sachs, 2010, p. 84; Swann, 2010, p. 322-323). For example, patients who have had a more frequent, longer-lasting, more intense manic episodes can be described as mania dominant and should usually be given maintenance treatments that have greater efficacy in
preventing mania (Miklowitz & Gitlin, 2014, 125). Patients with more frequent, longer-lasting, more intense depressive episodes can be described as depressive dominant and should be given maintenance treatments with greater efficacy in preventing depressive episodes (Miklowitz & Gitlin, 2014, 125). Typically, for manic dominant individuals, lithium, quetiapine, olanzapine, aripiprazole, and risperidone are first-line maintenance treatments (Strakowski, 2014, p. 62; Goodwin & Sachs, 2010, p. 84-85; Miklowitz & Gitlin, 2014, 119, 129-130; Swann, 2010, p. 323). For individuals with a dominant depressive pole first-line treatments are lamotrigine or quetiapine (Strakowski, 2014, p. 62; Goodwin & Sachs, 2010, p. 84-85; Miklowitz & Gitlin, 2014, 125, 129; Swann, 2010, p. 323). Second-line treatments for both groups are those that are first-line treatments for the opposite dominance pole as well as, valproate, carbamazepine, lurasidone, and ziprasidone (Strakowski, 2014, p. 62; Goodwin & Sachs, 2010, p. 84-85; Miklowitz & Gitlin, 2014, 126, 129; Swann, 2010, p. 323). If patient is not pole dominant, then there are no clear guidelines as to whether to use treatments that are more effective in preventing relapse episodes of one pole over the other. In such situations, the best guideline is to continue treatment with mood stabilizing medications that were used to achieve remission from the most recent episode (APA, 2002, p. 11; Connor & Meltzer, 2006, p. 384). Again the main distinction between guidelines for maintenance treatment in children and adolescents compared to adults was that fewer medications are FDA approved for children and adolescents. Lithium and aripiprazole are the two drugs approved for use in both adults and children and adolescents. Additionally, it is important to note that although lithium is effective in children it is not as effective in children as it is in treating adults (Mondimore, 2014, p. 165; New Hope, p. 250).

In conclusion, guidelines for treating bipolar disorder in children and adolescents are almost identical to those guidelines for treating bipolar disorder in adults, despite the fact that
there are important differences in how symptoms present in these two patient populations. The three main differences in treatment guidelines are that some medications are not FDA approved in children, have additional safety, tolerability, and side-effect concerns to consider, or have different efficacy and response rates in children. The differences in symptom presentation and course of illness in these two patient populations seems to warrant greater distinction in the diagnostic criteria, treatment approach, and treatment guidelines used for these different groups beyond what is currently established.

**Suggestions for Improvement**

Hopefully, after reading the previous sections you have come to understand and appreciate the magnitude and gravity of the rising number of children being diagnosed with and treated for bipolar disorder based on guidelines intended for adults. You may be wondering why something has not already been done, if something can even be done, and if so what can be done. These are all great questions and I wish that I could say that I have all the answers, but unfortunately I do not have all the answers. What I do have are some suggestions about how clinicians and researchers can begin to tackle the problem. I propose that the place to start is diagnosis. In this section, I will describe why I suggest the place to begin is diagnosis, different approaches that could be taken to improve diagnosing, and what research is needed in the future.

There are several reasons why I suggest that the best place to begin to address this issue is with diagnosis. I suggest beginning with diagnosis because diagnosis leads to treatment. A psychiatrist or physician is not going to give you medication to treat bipolar disorder unless you are diagnosed with bipolar disorder. Furthermore, any changes that are made with diagnosis, regardless of whether these are discontinuing the current diagnosis, creating a new diagnosis,
modifying the current diagnosis, or some combination of these, will affect what changes to make regarding treatment. In other words, starting with diagnosis just makes logical sense.

There are three main changes that could be made to improve diagnosis. These are discontinuing the bipolar diagnosis in children, creating a new diagnosis for children currently diagnosed with bipolar, or modifying the current bipolar diagnosis. One reason in favor of discontinuing the diagnosis of bipolar disorder in children all together is that in children this diagnosis may be medicalization. Medicalization is when normal human conditions and emotions are defined and treated as medical conditions. On the other extreme, one might argue that these children do have a medical condition, but that it is not bipolar disorder and that a new diagnosis should be created. This view is one of the reasons that disruptive mood dysregulation disorder (DMDD) was created for the most recent edition of the DSM. There is a slight difference though. DMDD was established in order to more accurately categorize some, but not all children who had previously been diagnosed with pediatric bipolar disorder (AACAP, 2013). The third option is to modify the current diagnosis of bipolar disorder. This is the option that I recommend. The main reason for this is that I believe many of the children diagnosed with bipolar disorder do in fact have bipolar disorder, but also there are some children who are incorrectly diagnosed with bipolar and some children who have bipolar disorder who have not been diagnosed. This option is the middle ground between the other two options and there are numerous ways the diagnosis can be modified so that all those and only those children who actually have bipolar disorder are correctly diagnosed.

Although the diagnostic criteria could be modified or adjusted in many different ways, I believe one of the most promising approaches would be to translate what some of the classic symptoms or behaviors found in adults with bipolar might look like or take the form of in
children. For example, going on extreme spending sprees or unplanned vacations can be indicative of a manic episode in adults. However, it is unlikely that you would see these same behaviors in children. Rather, impulsive behavior during mania might take the form of fighting or academic failure. Thus, I propose a translator of sorts where you could find examples of what different diagnostic criteria or symptoms might look like in different age or developmental groups.

In addition, to this translator I also recommend that clinicians make sure to take the time to rule out other possible diagnoses such as ADHD, DMDD, depression, schizophrenia, personality disorders, and behavioral disorders. Furthermore, I suggest that even after a diagnosis has been reached that the patient’s diagnosis, symptoms, and response to treatment be reviewed and reevaluated on a regular basis. I recommend this reevaluation take place a minimum of once every six months. The reason for these guidelines is again that changes in symptoms could lead changes in diagnosis which could in turn result in changes in treatment. Treatment should not be a one-time event. Treatment and diagnosis are a continual cycle and changes in one result in changes in the other.

When brainstorming ideas for improving bipolar diagnostic criteria in children and before implementing any of these changes, one must take the time consider several important questions. We need to ask is there continuity of the bipolar diagnosis from children to adults? In other words, does pediatric bipolar disorder represent the same condition as bipolar disorder in adults? Do children diagnosed with bipolar disorder grow up to become adults with bipolar disorder? We also need to consider how accurately or reliably treatments developed for adults can be extrapolated to treat children if we use different criteria to diagnose children. Additionally, are the diagnostic criteria sufficiently broad or narrow as to diagnose all those with bipolar disorder,
but not people without bipolar disorder? In order to truly answer these questions, more research needs to be conducted about bipolar disorder in children and adolescents.

I highly recommend that a longitudinal study about the continuity of the diagnosis of bipolar disorder from children to adolescent to adult be conducted. A study of this kind has immense value and could help answer the question of how to improve the diagnostic criteria used for children. The other area I suggest researchers focus on is identifying biomarkers or the biological mechanism underlying bipolar disorder. Knowledge of this could allow us to eventually develop objective diagnostic tests for bipolar disorder as well as allow researchers to develop treatments that target the underlying causes of bipolar disorder rather than just trying to relieve symptoms.

In conclusion, I recommend that the most logical place to begin to address the issue of the rising number of children diagnosed with and treated for bipolar disorder based on criteria developed for adults with bipolar disorder is improving the diagnostic criteria used to diagnosis children. The reason for this is that changes in diagnosis subsequently affect treatment. In particular, I suggest creating a translator which gives examples of what some of the classic symptoms or bipolar disorder in adults would look like at different stages of developmental maturity. In order to accomplish this, it is necessary that further research into the continuity of the bipolar diagnosis from children to adults is completed. As our understanding and ability to diagnose improves, additional research will need to be conducted to develop treatments that target the underlying causes of bipolar disorder rather than using treatments that only relieve symptoms. These changes in diagnosis and treatment should help us to better understand whether the number of children with bipolar disorder is truly on the rise and how to most appropriately diagnosis and treat these children.
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