

# **Child and Adolescent Bipolar Disorder: An Overview**

## **Introduction**

Child and adolescent onset of bipolar has is a relatively new concept which has not been as well studied as adult bipolar disorder (Sanchez et al, 1999). The debate that is still ongoing today around a definition of how this disorder is presented in children and adolescents has not yet been cleared due to the lack of research into this phenomenon (Althoff, Faraone, Rettew, Morley & Hudziak, 2005). There are six main issues to consider if an overall picture of the disorder is to be established. Firstly, the literature has shown that children who are diagnosed with bipolar disorder show symptoms of energy (hypomania or mania), distractibility, grandiosity, irritability, pressured speech, decreased need for sleep, racing thoughts and elation/euphoria (Kowatch, Youngstrom, & Findling, 2005) and complex rapid cycling (Geller et al, 1995). Secondly, children and adolescents are diagnosed as having bipolar by the DSM-IV which is the same criteria used to diagnose adults with bipolar. The criteria and this form of diagnosis for children and adolescents has been the topic of much debate and a new definition of bipolar has been suggested to be added into the DSM because it is argued that many children who have bipolar have somewhat different symptoms than adults (Silva, Matzner, Diaz, Singh & Dummit, 1999). Thirdly, is the issue of differential diagnoses this is important because children with bipolar disorder have many symptoms that overlap with many different disorders and the mania that they show (which is included in the diagnosis for bipolar disorder) can be confused with different medical and neurological conditions (Weller, Calvert, & Weller, 2003). Fourthly, child onset of bipolar is thought to be very rare (Mash and Wolfe, 2003) with a lot of under diagnosis and misdiagnoses of the disorder (Sanchez, Hagino, Weller, Weller, 1999) which creates more debate over the prevalence of the disorder. Fifthly, the disorder that has been shown to overlap the most and be most co-morbid with many other disorders the most common co-morbidity for children diagnosed with bipolar disorder is attention-deficit hyperactivity disorder (Kowatch et al, 2005). Finally, bipolar disorder is thought to be highly heritable. This concept has been explored by looking at family, twin and adoption studies to help untangle a cause for the disorder (Althoff et al, 2005). These six areas of research into the disorder are essential and need more research to have a clearer understanding of child and adolescent onset of bipolar.

## **Accessibility & Sources of Information**

There is very little conclusive academic literature available on child and adolescent bipolar disorder. When researching this topic a few articles were found on psyc-info when the key words 'children with bipolar' were used. The main source of information that was used was academic peer reviewed articles and a few books found in the University of Canterbury library outlining the disorder.

## **Characteristics**

Bipolar Disorder is a chronic mental illness that is usually characterised by recurrent episodes of depression, mania and even mixed states (Bellenir, 2002). Research suggests that the symptoms that are seen in child onset bipolar differ from adult onset bipolar and furthermore is considered to be a more severe form of bipolar (Sanchez et al, 1999). A meta-analysis which reviewed seven different articles that were looking

at child and adolescent bipolar found that the clinical picture that is seen from children and adolescents being diagnosed with bipolar is periods of increased energy (hypomania or mania), distractibility, grandiosity, irritability, pressured speech, decreased need for sleep, racing thoughts and elation/euphoria (Kowatch et al, 2005). The meta-analysis also found that no one symptom was diagnostic, but that it was the total clinical picture which included those symptoms that would lead to a diagnosis. In addition, the symptom irritability may be severe, persistent and/ or violent (Weller et al, 2003).

The symptoms that have been reported to be the most controversial are grandiosity, euphoric/elated mood and irritability (Kowatch et al, 2005). Grandiosity and euphoric/elated mood have become required elements for Geller's definition of preadolescent and early adolescent bipolar. However, other authors have pointed out that bipolar may be diagnosed according the full diagnosis of the DSM and grandiosity and elation may not be seen (cited Kowatch et al, 2005). Separately, irritability is not specific when diagnosing bipolar as it is also a diagnostic feature to many other disorders. Kowatch et al (2005) stated that irritability may be more of an indicator that something is not right as apposed to being a specific symptom to any particular condition.

Geller et al (1995) found that another key characteristic of child and adolescent bipolar is complex and rapid cycling patterns. This rapid cycling was found to be in 80.8% of cases where the mean age of onset was early and suicidality, psychotic phenomena, mixed mania and hyperactivity where highly prevalent.

Other research reviews have reported that the mixed states of irritability and manic behaviour can include affective storminess, tantrums and defiant or aggressive behaviour (Silva et al, 1999).

### **Diagnosis**

Diagnosis of child and adolescent bipolar is made with the same DSM criteria used for adult onset diagnosis (McClellan and Werry, 1997). The DSM-IV-TR Criteria for a manic episode is defined as follows:

- A. A distinct period of abnormally and persistently elevated, expansive, and/or irritable mood, lasting at least 1 week.
- B. During the period of mood disturbance, three (or more) of the following symptoms have persisted (four if the mood is only irritable) and are present to a significant degree:
  - 1. grandiosity
  - 2. decreased need for sleep
  - 3. more talkative (pressured speech)
  - 4. flights of ideas (racing thoughts)
  - 5. distractibility
  - 6. increase in goal-directed activity
  - 7. excessive involvement in reckless activities

A mixed episode is diagnosed according to the DSM when a patient meets criteria for a manic episode and a depressive episode over at least a one week period. Hypomanic

Episode is also included in the DSM which has similar features to a manic episode but does differ in the duration, severity and degree of impairment criteria. The symptom must be present for at least four days and must produce an unequivocal change in functioning that is observed by others. However, by definition there is no marked deterioration in functioning, psychotic symptoms or need for hospitalisation; otherwise a manic episode is diagnosed (cited Mash and Wolfe, 2005; cited McClellan and Werry, 1997).

There is much controversy around the diagnosis of child and adolescent bipolar and there has been a suggestion that it may be beneficial to create another subtype of bipolar specifically for pre-pubertal and post-pubertal onset of bipolar (Nottelmann, & Jensen, 1998).

Sanchez et al (1999) suggested several reasons why there may be underdiagnosis or misdiagnosis of bipolar in children and adolescents; 1) there may exist a clinical bias against the diagnosis of mania in childhood; 2) symptoms overlap between bipolar disorder and other childhood disorders; 3) there is a low base rate of bipolar disorder relative to other childhood disorders; 4) there are developmental constraints and variability in the expression of symptoms in children and adolescents with bipolar.

An example of misdiagnosis was reported by Weller where 33 children met modified DSM-III-R criteria for mania. Weller found that of those 33 children 53% had originally been given another diagnosis (cited Sanchez et al, 1999). Due to the overlap of symptoms, and to address this issue, Biederman (1995) devised a profile on the Child Behaviour Checklist that can be used to separate the children with bipolar and the children with attention-deficit hyperactivity disorder (ADHD) (cited Kowatch et al, 2005). This has been used to reduce the misdiagnosis of ADHD in children that have bipolar disorder.

Just recently, to aid in diagnosis, a screening tool has been established that has been found to predict DSM bipolar in children (Faraone, Althoff, Hudziak, Monuteaux, & Biederman, 2005). The results showed that the CBCL-PBD provided a highly effective way of identifying subjects with a current diagnosis of paediatric bipolar. These results lead the authors to conclude that the CBCL-PBD may provide a highly efficient way of screening for childhood bipolar disorder (Faraone et al, 2005). The CBCL relies solely on parental answers to questionnaire items so is not affected by clinical traditions, clinical interpretations or interviewer training which are some of the diagnostic issues affecting the diagnosis of bipolar disorder in children and adolescents.

A correct diagnosis is extremely vital to a child's well being (Papolos and Papolos, 1999) to ensure subsequently that the treatment and the information about the specific disorder is correct.

### **Differential Diagnosis**

Symptoms that are presented in child and adolescent bipolar disorder are usually complex and overlap with many other conditions (Weller et al, 2003). Due to this the diagnosis needs to include a thorough psychiatric evaluation, medical evaluation and neurological assessment before a diagnosis should be given (McClellan and Werry, 1997).

Medical disorders can mimic symptoms of mania such as syphilis, encephalitis, hyperthyroidism (Silva et al, 1999) and prescription drug use (Sanchez et al, 1999). Neurological conditions such as head trauma and seizures need to be ruled out as these conditions can also mimic manic symptoms (Silva et al, 1999; Sanchez et al, 1999).

Sexual abuse has been found to be an important factor to consider when diagnosing a patient because the manic hyper-sexuality that is sometimes seen in adolescents diagnosed with bipolar (Bellenir, 2002) can often be manifested in children by self-stimulatory behaviours (Geller, & Luby, 1997).

Geller and Luby (1997) outlined the importance of differentiating specific language disorders from flights of ideas. This is because children and adolescents with language disabilities may sound like they have a thought disorder due to their inability to find the appropriate words to use when they are partaking in a conversation.

It has been found that there is a very high rate of adolescents being misdiagnosed as schizophrenic which is a very separate diagnosis to bipolar disorder (Carlson, 1995; Silva et al, 1999). The rate of misdiagnosis is estimated to be 50% or more (cited McClellan and Werry, 1999). In addition, Werry conducted a systematic follow-up of 59 patients who presented symptoms of psychosis from ages 7 to 17 years. The study found that 23 patients met full criteria for bipolar disorders however over half of these patients were initially misdiagnosed as having schizophrenia (cited Silva et al, 1999). The confusion can occur when adolescents with bipolar present symptoms such as hallucinations and delusions (McClellan and Werry, 1999) which are symptoms that normally are seen in clients with schizophrenia. These possible differential diagnoses highlight the need and importance for a thorough assessment of the client and the client's family history to ensure the right diagnosis is made.

### **Prevalence**

Bipolar disorder among adults and older adolescents has been reported from community samples to have a life-time prevalence of approximately 1% (Lewinsohn, Klein, & Seeley, 1995; Soutullo et al, 2005). Sanchez et al (1999) reported that adolescents aged 14 to 18 also have a life time prevalence of approximately 1%. In an international epidemiological study Soutullo et al (2005) reported that New Zealand has an estimated 2.4% life time prevalence of bipolar in adults.

Bipolar amongst children and adolescents is estimated to be rare (Silva et al, 1999; Sanchez et al, 1999). Kraepelin, (1921) reported that in 900 cases only 0.4% bipolar onset was prior to age 10 years (cited Silva, 1999). Meyer, Kobmann-Bohm, & Schlotke (2004) conducted a study to assess if German psychiatrists diagnose bipolar in children and adolescents. The results showed that 63% of the psychiatrists included in the study had diagnosed adolescent bipolar but only 7.8% of psychiatrists had diagnosed childhood bipolar. In retrospective studies of adults with bipolar disorder only 0.5% reported the age of onset between 5 to 9 years and 7.5% reported onset between 10 to 14 years. Further, reports in childhood mania suggest it may be more common in boys than girls (cited Sanchez et al, 1999).

However, literature on adult samples report that 20% to 40% of adults report onset of bipolar during childhood (cited Geller, & Luby, 1997). Soutullo et al (2005) report that a survey by Depression and Bipolar Support Alliance members in the US found that up to 59% of members had signs of bipolar prior to age 20 years. Similarly across 12 national patient organisations in 12 European countries 33.1% of patients with bipolar reported onset was prior to age 20 years (cited Soutullo et al, 2005). This evidence supports the concept that there is such a phenomenon as childhood onset of bipolar.

The prevalence of child and adolescent bipolar has not been well studied and has been proven to be very controversial. An epidemiological study in the UK did not detect any cases of pre adolescent mania (cited Soutullo et al, 2005), which is part of the diagnostic criteria for bipolar as stated previously. However, in Holland the prevalence has been reported to be 1.9% (cited Soutullo et al, 2005).

Soutullo et al (2005) suggest there may be discrepancies when researching prevalence rates of child and adolescent bipolar, which may account for the variation in figures, they suggest that; 1) there may be important differences in the methodology of the paediatric bipolar studies; 2) there may exist international bias among researchers that paediatric bipolar is rare; 3) the actual criteria used to diagnose bipolar may vary among countries; 4) the phenomenology of child and adolescent bipolar is different from adult bipolar (Soutullo et al, 2005).

### **Comorbidity**

Many children who are diagnosed with bipolar disorder also are diagnosed comorbidly with other disorders. A meta-analysis of the literature on child and adolescent bipolar revealed that ADHD is the most common co-morbidity followed by oppositional defiant disorder, anxiety disorder, conduct disorder and substance use disorder (Kowatch et al, 2005).

Symptoms that are presented in child and adolescent bipolar overlap with many symptoms associated with ADHD (Giedd, 2000). These direct overlapping symptoms include distractibility, poor impulse control, poor judgement and demanding behaviours (Mash and Wolfe, 2005). Other parts of the diagnosis for each disorder are difficult to separate for example a 'decreased need for sleep' in bipolar children verses sleep difficulties which is common in ADHD also 'flights of ideas' is a symptom of diagnosis in bipolar children and adolescents where as 'difficulty sustaining attention' is an ADHD diagnosis (Giedd, 2000). Other overlapping features also include impairments in social and family relationships, self esteem and school performance (Giedd, 2000).

Given the symptom overlaps just mentioned is it not surprising that bipolar is being diagnosed with increasing frequency in children who also have a diagnosis of ADHD (Nottelmann & Jensen, 1998). Studies have reported that the co-morbidity rates of children with bipolar and ADHD is approximately between 60% and 90% (cited Biederman et al, 2000). Wozniak et al (1995) found very high rates of co-morbidity with 94% of the children who were manic also met full DSM-III-R criteria for ADHD. The authors reported that the children had clinical features of both disorders, suggesting that co-morbidity was real which meant a lifetime history of both disorders (Wozniak, Biederman, Mundy, Mennin, & Faraone, 1995).

Other disorders are reported to have a high co-morbidity with bipolar such as conduct disorder which has been shown to be 69% co-morbid (cited Chang et al, 2000). Literature has also suggested a bi-directional overlap between bipolar disorder in adolescents and substance use disorders (Silva et al, 1999; Biederman et al, 2000). It has been shown that mania in adolescents significantly increased the risk for substance use disorders (cited Biederman et al, 2000).

Finally, symptoms that are present in bipolar disorder overlap with many other different disorders, as has been previously stated. Carson (1995) reported that as part of an epidemiological study 13% of adolescents from the general population with manic symptoms were found to have symptoms in virtually every other domain of psychopathology including anxiety disorders, depression, psychosis and behaviour disorders.

### **Causes**

Even though the causes of child and adolescent onset bipolar are still not fully understood, research into adults with bipolar has identified that bipolar disorder is one of the most heritable forms of mental disorders (McInnis et al, 2003). Geller, Fox, & Clark (1994) identified some predictors of bipolar in adolescents and young adults which include: 1) family history of bipolar, 2) sudden onset of symptoms, 3) psychomotor retardation, 4) severe depression, 5) delusions and finally, 6) prior history of switching to manic symptoms while receiving medication (cited Geller et al, 1994). It was also noted that the number one predictor for pre-pubertal onset of bipolar was having relatives with bipolar disorder (Geller et al, 1994).

Bipolar disorder in children and adolescents has also been identified as having substantial genetic contribution to the cause of bipolar disorder (Silva et al, 1999). Family studies have been used as evidence to examine the family pattern and look into the concept of whether a disorder has a certain degree of heritability (Althoff et al, 2005). One particular study showed that when they compared relatives of children without an affective disorder, relatives identified through children with bipolar or major depressive disorder had elevated rates of affective disorders. It was also shown that they also had increased severity of that affective disorder (Todd, Neuman, Geller, Fox, & Hickok, 1993). Furthermore, the risk of developing early onset affective disorders correlates to the degree of genetic relatedness to adults who have an affective disorder (Todd, Reich, & Reich, 1994).

Research on early onset of bipolar and mood disorders has found that the age of onset is significant. Strober et al (1988) found a higher prevalence of bipolarity in relatives of paediatric bipolar cases than those in older cases (cited Faraone, Glatt, & Tsuang, 2003). This finding is supported by Tsuang and Faraone (1990) who reviewed 16 family studies they found that elevated risk for mood disorders among relatives of probands who experienced an early onset of the mood disorder, as opposed to relatives with a later onset (cited Faraone et al 2003). In addition relatives of earlier onset bipolar patients were found to be more than twice as likely to have bipolar disorder than were relatives of later onset patients (cited Althoff et al, 2005). This research shows that there is a greater genetic role in early onset of bipolar (Faraone et al, 2005) and should regard them as more genetically homogeneous (cited Althoff et al, 2005).

Twin and adoption studies have been used to try and show how much of bipolar disorder can be attributed to genetics and how much can be attributed to the environment. Research using monozygotic and dizygotic twins has found an estimated heritability of 0.59 for bipolar (cited Althoff et al, 2005). Tsuang and Faraone reviewed 6 twin studies of bipolar. They concluded that about 60% of variance could be attributed to genetic factors, 30-40% attributed to common environmental factors and 10% to unique environmental factors (cited Althoff et al, 2005). Other twin studies have found evidence for greater genetic influence of 83% to 93% (cited Althoff et al 2005). Juvenile bipolar twin studies are rare, however one was found by Althoff et al 2005 which used Dutch twins in the study where they were assessed at ages 7, 10 and 12 years. The authors reported that 54% to 68% was attributed to genetics, 18% to 30% is common environment and 14%-17% could be attributed to unique environmental factors.

There are no adoption studies to date that look at the causes of juvenile bipolar, however an adult adoption study showed that biological parents of bipolar adoptees showed higher prevalence of psychiatric illness than the adoptive parents (cited Althoff et al, 2005).

Other causes of bipolar disorder have been associated with the differences in children and adolescents brains, contrasting those who have and who do not have bipolar disorder (Botterton, Vannier, Geller, Todd, & Lee, 1995). By using magnetic resonance imaging (MRI) Botterton et al (1995) examined the characteristics of children and adolescents who were diagnosed with mania. The MRI scans showed there were white matter abnormalities or ventricular abnormalities and that there were positive correlations between increasing age and both the right and left ventricular volumes. The authors concluded that there are neuromorphometric differences between children and adolescents with bipolar verses controls. In addition Blumberg et al (2003) found that through the use of brain scans they identified that bipolar in adolescents is related to reduced volume of the amygdala which plays an important role in the recognition and regulation of emotions in relation to depression (Mash and Wolfe, 2003).

## **Conclusion**

In conclusion, child and adolescent onset of bipolar is thought to be rare and has had little attention up until a few decades ago. There is much debate surrounding the diagnosis and prevalence of the disorder due to confusion about the definition and symptom overlap with other disorders. Children and adolescent with bipolar disorder show periods of elevated and irritable moods where they may display symptoms such as pressured speech, flights of ideas and reckless behaviour. More research needs to be conducted about this disorder and a clearer picture needs to be established about how it presents in children and adolescents.

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