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## A Retrospective Study Between the Relationships of Gender, Age of Onset, and Frequency of Problematic Behaviors in Early Onset Bipolar Disorder

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**A RETROSPECTIVE STUDY BETWEEN THE RELATIONSHIPS OF GENDER, AGE OF ONSET,  
AND FREQUENCY OF PROBLEMATIC BEHAVIORS IN EARLY ONSET BIPOLAR DISORDER**

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**at the**


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**MIRIAM BECKER**

**ABSTRACT**

This retrospective study examined adult individuals between 18-40 years of age who self-reported or were formally diagnosed with a bipolar disorder during their adolescent years. This study examined the relationship between gender, age-of-onset of bipolar disorder, and problematic behaviors in the early-onset bipolar disordered population. The relationship between satisfaction with treatment and the perception of quality of treatment received during adolescence were also examined.

T-tests and another statistical test were conducted with the two independent variables and the dependent variables comprising the frequency of problematic behaviors. Significance was found between the younger the age-of-onset of bipolar disorder and high-risk behaviors, and school-based problematic behaviors. Numerically, 75.5% of the females reported satisfaction with prior treatment. Gender was insignificant in this research study.

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## **CHAPTER I**

### **INTRODUCTION**

The scientific community has long recognized the existence of a bipolar disorder, originally named manic-depressive illness. The origins of the recognition of this severe mental illness began with the work of the ancient Greek physician Aretaeus of Cappadocia (circa AD 150) who assumed that melancholia and mania were two forms of the same disease (Marneros, 2001). Seventeen centuries later, due to the civil and decent treatment of the mentally ill in Paris at the turn of the 18<sup>th</sup> century, Falret (1851) and Baillarger (1854), independently and almost simultaneously published the recognition of mania and melancholia as manifestations of a single illness (Akiskal, 2002).

At the turn of the 20<sup>th</sup> century, Kraepelin completed his compelling methodological rationale establishing manic-depressive illness as a nosological disease entity that separated the psychotic illnesses from each other and clearly drew the perimeter around manic-depressive illness (Akiskal, 2002). "Kraepelin's extraordinary synthesis is important not because it draws the ultimately 'correct' picture of nature, but rather because it builds a solid and empirically anchored base for future

developments.” (Goodwin and Jamison, 1990, p.60). This was considered Kraepelin’s major accomplishment according to Goodwin & Jamison, In 1924, Eugene Bleuler introduced his classic contribution to psychiatry by departing from Kraepelin and viewing a patient as either predominantly manic-depressive or schizophrenic (Akiskal, 2002).

The question of whether this disorder can begin before puberty has been hotly debated for many years. Psychoanalysts rejected the idea of the existence of bipolar illness in children and adolescents, believing this population lacked the higher-level cognitive structures and psychodynamic maturity that were required to sustain and express both mania and severe depression (Goodwin & Jamison, 1990). When Anthony and Scott (1960) published their seminal study on manic-depressive illness in children, the criteria for this disorder were detailed so stringently, the diagnosis of an early-onset bipolar disorder diagnosis was rarely given to children or adolescents.

The literature surrounding the topic of bipolar disorder in children and adolescents has been the focus of substantial controversy in the last two decades. Experts have argued over the definition and diagnosis of bipolar disorder since the first description of a link between melancholia and mania, scientifically recorded by Aretaeus (Akiskal, 2002) and throughout the various editions of the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, 2000). There is evidence of a progressively growing consensus on both the existence of child mania and the vicissitudes of age-specific research (National Institute of Mental Health Research Roundtable on Prepubertal Bipolar Disorder, 2001). Akiskal (2002) believed the definition was broader than what had been included in the DSM-IV-TR and the



International Classification of Diseases, 9<sup>th</sup> Revision, Clinical Modification (ICD-10), (APA, 2000), stating it ranges from psychotic extremes to attenuated forms that manifest at the level of disordered temperament” (pp. 37-38).

Currently, the classic form of bipolar disorder (Kraepelin, 1921) is accepted as capable of existing in children and adolescents (Lewinsohn, Seeley, & Klein, 2003). The general consensus, with minor modifications, holds that DSM-IV (American Psychiatric Association, 1994) criteria for bipolar disorder can be used with children and adolescents. No community data exists on the prevalence of what has been called prepubertal, juvenile, and pediatric bipolar disorder, however, it may be relatively common in clinically referred children (Wozniak, Biederman, Mundy, Mennin, & Farone, 1995). Data from the Oregon Adolescent Project (OADP; Lewinsohn, Klein, & Seeley, 1995) a comprehensive research study documenting that 5% of bipolar patients reported symptoms prior to the age of 20, affirmatively offered evidence that this serious mental disorder begins in youth (Farone, 1998).

The beginning of the 1990’s found the mental health community asking several key questions regarding prepubertal mania and early adolescent bipolar disorder. These questions were addressed in the research literature of that period (Geller, et al.1995; Geller, et al. 2000; Geller, et al. 2001, 2002; Geller, et al. 1998; Geller, Zimmerman, et al. 2000; Geller, Zimmerman, Williams, et al. 2002):

1. Does prepubertal mania exist?
2. If it exists, would the pattern be similar to the typical adult episodes
3. with relatively well-intervening periods?

4. Would the mood be only irritable?
5. Do children with mania really just have severe attention-deficit-hyperactivity-disorder (ADHD) i.e., were they children with ADHD, who were having a bad day?

Geller and colleagues (2003) examined the literature on prepubertal mania and questioned: "What are the prepubertal equivalents of adult-onset mania?" (p.33). Geller et al. responded by stating that prepubertal youngsters presented with a disorder-type that resembled the most severe form of late-teenage/adult-onset mania. Another significant factor in the presentation of this illness was that young people displayed moods other than an irritable state. The various moods and behaviors children present are: Elated moods, grandiosity, grandiose delusions, flight of ideas/racing thoughts, decreased need for sleep, poor judgment, hypersexual behaviors, daredevil acts, silliness, and seeking out people with lack of inhibitions.

Furthermore, the research of Geller and colleagues (2003) supported the research hypothesis stating children were not inherently capable of pathological happiness, expansive thinking, or grandiose thinking that could be observed in late-teenage/adult onset mania. This statement also supported the belief of the psychoanalysts during the period from the 1960's-1980's stating that young children were incapable of experiencing manic episodes. However, Geller and colleagues suggested that manic-like behaviors in young children require greater observation and description (Carlson, 1980; 1995; Geller, et al., 2001; 2003; Goodwin & Jamison, 1990; Loranger & Levine, 1978; Weller, 2000; West 1997; and Wozniak, et al., 1995). The

Geller study also supported the hypothesis that young people who struggled with bipolar disorder comorbid with ADHD “show significantly greater impairment on items that assessed maternal-child warmth and paternal-child tension and peer relationships” (Geller, et al., 2003, p. 47).

In understanding the nature and management of a bipolar disorder in young people, age and gender are two extremely important independent variables that have been greatly under-reported (Schulman, Levitt, & Hermann, 2002). One goal of this dissertation research study was to explore the pattern of problematic behaviors that young people with bipolar disorder are at risk for encountering. Another goal was to explore whether age-of-onset and gender were related to the types of problematic behaviors frequently associated with this population.

One finding that emerged from prior research indicated there was a gender difference in the frequency of diagnosis, with adolescent males displaying a far greater frequency of bipolar disorder than females. However, this evidence was not conclusive. Carlson, Bromet, and Sievers (2000) have suggested that young people with early-onset mania (before the age of 20) were more likely to be male. Weller (2002) stated “In terms of gender differences, 69% male vs. 26.6% female will display a more complicated psychopathology (i.e., early-onset behavioral problems, substance abuse comorbidity, mixed episodes, and paranoid symptoms” (pp. 428-429).

Carlson, et al. (2000) reported finding, in a two-year prospective study of patients with early-onset bipolar disorder, that 70% male vs. 27% female patients were hospitalized for psychotic mania. The psychopathological behaviors displayed were:

higher rates of substance use disorders (70% male vs. 30% female), paranoia (100% male vs. 80% female), and childhood behavioral problems (61% male vs. 10% female).

The United States National Depressive and Manic-Depressive Association (NDMDA, 1994) found a strong link between early age-of-onset and psychological impairment. This study found participants with age-of-onset prior to 20 years had a significantly higher degree of dropping out of high school (55% male vs. 23% female) and having financial problems (70% male vs. 54% female). Continuing reports from this study reported findings of alcohol or drug abuse in 52% of respondents, self-injurious behaviors or injury to others in 46% of respondents, and committing minor crimes in 36% of respondents.

Earlier research studies reported adolescent males dominated in terms of rate of frequency of bipolar disorder, however, a bipolar disorder diagnosis was not rare in adolescent girls. The Oregon Adolescent Depression Project (OADP; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993; Lewinshon, Rhode, Klein, & Seeley, 1999; and Lewinsohn, Rhode, Seeley, Klein, & Gotlib, 2000) is an epidemiological, family history, and follow-up study of 1,709 randomly selected high school students. Among the students in this study diagnosed with a bipolar illness, the lifetime rate of bipolar illness was reported at 0.95% with 66.7% of the population being female-adolescent girls, aged 14-18 years.

Craig, et al. (2000) reported the following significant data from The Suffolk County First Episode project, a community study of patients hospitalized with psychosis. The data were positive for the presence of clear age and gender differences. This study

observed manic-disordered young people, hospitalized under the age of 20, and reported 33% of the participants were female.

It was also clearly documented that women were more likely than men to experience the rapid-cycling phase of a bipolar disorder (National Institute of Mental Health [NIMH]), 2003; Schulmann, Schaffer, Levitt, & Hermann, 2002; Tondo & Baldessarini, 1998; Wehr, Sack, Rosenthal, & Cowdry, 1998). Also, females appeared to be more likely to develop mixed manic-episodes, but this evidence was not conclusive. Unfortunately, since males predominate in the earlier research literature, more is known about the behaviors and symptoms the male-adolescent population exhibits.

There has been less research examining adolescent bipolar-disordered girls and their relationship with conduct-disordered problems, substance abuse problems, or attention-deficits, when compared to boys (Brady & Goldberg, 1996; Crick & Groper, 1995; Delligatti, Arkin-Little & Little, 2003; Lahey, et al., 2000; Reiger, et al., 1990; Scholevar & Scholevar, 1995; Schulmann, Schaffer, Levitt & Hermann, 2002; Sonne & Brady, 1999; Wilens, 1997; Zahn-Waxler, 1993; Zocco, 1993). It is not unusual for children and adolescents with bipolar disorder to also struggle with other psychiatric disorders and the coexistence of disorders impact the course and treatment of this illness. Research supports the most common diagnoses co-existing with early-onset bipolar disorder are ADHD (69%), followed by substance use disorders (39%), anxiety disorders (31%), Tourette's syndrome (8%), and bulimia nervosa (3%) (West, Strakowski, Sax, McElroy, & Keck, 1996).

Another gap in the research literature existed regarding the adolescent's self-perception of their behavioral problems during this developmental stage of life. Consequently, research was sparse in this area. In addition, there was little data on how young adults perceived the services received from mental health clinicians during adolescence. In line with this thinking, little data existed on the perception of the quality of mental health services received by this population, when in treatment for bipolar disorder, during their adolescent years.

### **Purpose of the Study**

The purpose of this research study was to explore the gender differences and significant or non-significant associations of high-risk/daredevil or acting-out behaviors in adults, aged 18-40 years of age, who reported adolescent symptoms or were clinically diagnosed with a bipolar disorder during adolescence. This study examined whether younger age-of-onset of bipolar disorder was associated with more high-risk behaviors among adults reporting adolescent symptoms of a bipolar disorder or adults diagnosed with a bipolar disorder during adolescence. This study continued with determining whether there was a gender difference in adult reports of the overall satisfaction of treatment received from the treating mental health clinicians during the adolescent years, as well as exploring gender differences in terms of the quality of services perceived through adult reports of adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.

Specifically, the purpose of this study was to address the following nine research hypotheses:

1. There will be a significant gender difference associated with the involvement of high-risk/daredevil or acting-out behaviors among adults who report adolescent symptoms of a bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.
2. Younger age-of-onset of bipolar disorder will be significantly associated with more high-risk/daredevil behaviors among adults who report adolescent symptoms of a bipolar disorder or adults who were diagnosed with a bipolar disorder during adolescence.
3. There will be a significant gender difference associated with sexually acting-out-behaviors among adults who report adolescent symptoms of bipolar disorder or adults who were diagnosed with a bipolar disorder during adolescence.
4. There will be a significant gender difference associated with illegal behaviors among adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence (e.g., shop lifting, the use of illegal substances, the deliberate destruction of other peoples' property, aggressive behavior to the point of threatening physical harm to people or animals, time spent in jail or a juvenile facility, carrying a weapon or using a weapon that could cause physical harm, i.e., a bat, brick, broken bottle, knife, or gun), having your middle school or high school file "unruly charges" filed against your

parents, involvement with Family and Children's Services and placement in foster home (s).

5. Early age-of-onset of bipolar disorder will be significantly associated with greater involvement of sexually acting-out behaviors in adults who adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.
6. Early age-of-onset of bipolar disorder will be significantly associated with a greater frequency of school-based problem behaviors among adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.
7. There will be a significant gender difference in the involvement of school-based problematic behaviors among adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.
8. There will be a significant gender difference with the overall satisfaction of treatment received among adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.
9. There will be a significant gender difference in rating the overall quality of mental health services received by adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.



### **The Significance of the Study**

The significance of this research study was that it might help mental health research clinicians understand and clarify the role gender plays in the frequency and type of problematic behaviors that an adolescent with a bipolar disorder often engages. The literature review revealed the paucity of research literature on the participants' perceptions of the quality of mental health treatment received during the adolescent years. Therefore, this study was also designed to add to the literature on participant perception of the quality of mental health treatment received during these years.

The research study may have significance in the following ways:

1. This study may help explain the role gender plays in terms of frequency and symptom expression in the child/adolescent bipolar-disordered population.
2. This study may help explain the roles gender and age-of-onset play in terms of problematic behaviors in the adolescent bipolar-disordered population.
3. This study may be informative in terms of learning the participants' perceptions of treatment satisfaction, received from mental health practitioners, during their adolescent years.
4. This study may be informative in terms of learning the participants' perceptions of the quality of services received during the adolescent years.

## **Definition of Terms**

### ***Bipolar I Disorder***

The essential feature of Bipolar I Disorder is a clinical course that is characterized by the occurrence of one or more Manic Episodes or Mixed Episodes. Often individuals have also had one or more Major Depressive Episodes, Episodes of Substance-Induced Mood Disorders, or of a Mood Disorder due to a general medical condition (APA, 2000, 382).

### ***Bipolar II Disorder (Recurrent Major Depressive Episodes with Hypomanic Episodes)***

The essential feature of Bipolar II is a clinical course that is characterized by the occurrence of one or more Major Depressive Episodes accompanied by at least one Hypomanic Episode. "Hypomanic Episodes should not be confused with the several days of euthymia that may follow the remission of a Major Depressive Episode" (APA, 2000, p. 392).

### ***Bipolar Disorder Not Otherwise Specified***

The Bipolar Disorder Not Otherwise specified category includes disorders with bipolar features that do not meet criteria for any specific Bipolar Disorder. Examples include: Very rapid alteration (over days) between manic symptoms and depressive symptoms that meet symptom threshold criteria but not minimal duration criteria for Manic, Hypomanic, or Depressive Episodes; Recurrent Hypomanic Episodes without intercurrent depressive symptoms. A Manic or Mixed Episode superimposed on Delusional Disorder, residual Schizophrenia, or Psychotic Disorder Not Otherwise Specified, Hypomanic Episodes, along with chronic depressive symptoms that are too

infrequent to qualify for a diagnosis of Cyclothymic Disorder. Situations in which the clinician has concluded that a Bipolar Disorder is present but is unable to determine whether it is primary, due to a general medical condition, or substance induced (APA, 2000, pp. 400-401).

### ***Conduct Disorder***

The essential feature of Conduct Disorder is a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated (Criterion A). Children or adolescents with this disorder often initiate aggressive behavior and react aggressively to others. They may display bullying, threatening, or intimidating behavior (Criterion A1); initiate frequent fights (Criterion A2); use a weapon that can cause serious physical harm (e.g., a bat, brick, broken bottle, knife, or gun) (Criterion A3); be physically cruel to people (Criterion 4) or animals (Criterion 5); steal while confronting a victim (e.g., mugging, purse snatching, extortion, or armed robbery) (Criterion A6); or force someone into sexual activity (Criterion A7). Physical violence may take the form of rape, assault, or, in rare cases, homicide. Deliberate destruction of others' property may include deliberate fire setting with the intention of causing serious damage (Criterion A8) or deliberately destroying other people's property in other ways (e.g., smashing car windows, school vandalism) (Criterion A9). Acts of deceitfulness or theft may include breaking into someone else's house, building, or car (Criterion A10); frequently lying or breaking promises to obtain goods or favors or to avoid debts or obligations (e.g., conning other people) (Criterion A11); or stealing items of nontrivial value without confronting the victim (e.g.,

shoplifting, forgery) (Criterion A 12). Children with this disorder often have a pattern, beginning before age 13 years, of staying out late at night despite parental prohibitions (Criterion A13). There may be a pattern of running away from home overnight (Criterion A14). Children with this disorder may often be truant from school, beginning prior to the age of 13 years (Criterion A15). In older individuals, this behavior is manifested by often being absent from work without good reason” (APA, 2000, pp. 93-94).

### ***Adolescent-Onset Type***

This subtype is defined by the absence of any criteria characteristic of Conduct Disorder prior to age 10 years. Compared with those with the Childhood-onset type, these individuals are less likely to display aggressive behaviors and tend to have more normative peer relationships (although they often display conduct problems in the company of others). These individuals are less likely to have persistent Conduct Disorder or develop adult Antisocial Personality Disorder. The ratio of males to females with Conduct Disorder is lower for the Adolescent-Onset Type than for the Childhood-Onset Type (APA, 2000, pp. 94-95).

### ***Substance Abuse***

- A. A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following, occurring within a 12-month period: (a) recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performances related to substance use;

substance–related absences, suspensions, or expulsions from school; neglect of children or household); (b) recurrent substance use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by substance); (c) recurrent substance related legal problems (e.g., arrest for substance-related disorderly conduct); (d) continued substance use despite having persistent or (recurrent social or interpersonal problems caused or exacerbated by the effects of the substance use (e.g., arguments with spouse about consequences of intoxication, physical fights).

- B. The symptoms have never met the criteria for Substance Dependence for this class of substance” (APA, 2000, pp. 197-198).

### ***Substance Dependence***

A maladaptive pattern of substance use, leading to clinically significant Impairment or distress, as maintained by three (or more) of the following, occurring at any time in the same 12-month period:

1. Tolerance, as defined by either of the following:
  - a. a need for markedly increased amounts of the substance to achieve intoxication or desired effect
  - b. markedly diminished effect with the continued use of the same amount of the substance
2. Withdrawal, as manifested by either of the following:

- a. the characteristic withdrawal syndrome for the substance refer to criteria A and B of the criteria sets for Withdrawal from the specific substances
  - b. the same (or a closely related) substance is taken to relieve avoid withdrawal symptoms
- 3. The substance is often taken in larger amounts or over a longer period of time than was intended
- 4. There is a persistent desire or unsuccessful efforts to cut down on substance use
- 5. A great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g., chain-smoking), or recover from its effects
- 6. Important social, occupational, or recreational activities are given-up or reduced because of substance use
- 7. The substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption” (APA, 2000, p.197).

### **Limitations of Study**

One limitation of this study was the use of a retrospective design. This was a limitation because memory is flawed and subject to distortion. The study relied on the self report of participants regarding the onset of their bipolar disorder or any other psychiatric disorders. The self report method was a limitation of this study, as young people may not always report onset of disorders or onset of diagnoses with scientific accuracy. A final limitation of this study was the introduction of a new instrument and its administration to the participants. Using a new instrument innately brings into question the reliability and validity of the instrument. The limited data on the problematic behaviors of adolescents with bipolar disorder and the lack of research focus on females allows for the potential of this exploratory research to be greater than the methodological limitations. Finally, small and local sample size limits the generalizability.

## CHAPTER II

### REVIEW OF THE LITERATURE

*I became insane with long intervals of horrible sanity. During these fits of absolute unconsciousness, I drank—God only knows how often or how much. As a matter of course, my enemies referred the insanity to the drink, rather than the drink to the insanity. Edgar Allen Poe*

In chapter II, a brief overview of the history of bipolar disorder has been documented. This review of literature has explained the diagnostic criteria that must be satisfied in order for children and adolescents to be given the diagnosis of a bipolar disorder. The review has continued with discussing the relationship between age-of-onset of bipolar disorder and substance use disorders and the complexity of this relationship while concurrently examining the relationship between the subtypes of bipolar disorder with substance use disorders.

Chapter II continues with addressing the relationship between age-of-onset of bipolar disorder and the diagnosis of conduct disorder in the adolescent population. A great deal of discrepancy both historically and currently has continued to exist when diagnosing girls and boys with conduct disorder (CD) (Scholevar and Scholevar, 1995).



Males have been consistently diagnosed at a greater frequency than females, specifically males under the age of 18 years of age. The prevalence rate for adolescent females with conduct disorder has been greatly underestimated possibly due to inappropriate diagnostic criteria, biased perception by those responsible for reporting behaviors and differential social constraints for each gender (Deliggatti, Arkin-Little, and Little, 2003). The relationship between conduct disorder in each gender has been reviewed in this study with special attention paid to aggressive behaviors and how aggression has been represented in each gender.

The relationships between prevalence, gender, and age-of-onset of bipolar disorder, in children and adolescents with the comorbidity of substance use disorder, conduct disorder, and ADHD have been examined to gain better understanding into this complex constellation of disorders. The current and controversial issues regarding the existence and severity of early-onset bipolar disorder and the vulnerability toward comorbid psychiatric disorders in terms of age-of-onset in the bipolar-disordered-adolescent population have been explored. The purpose of the following literature review has been to outline the history of bipolar disorder and define the relationships between early-onset bipolar disorder, substance use disorder, conduct disorder, and ADHD (in lesser detail). The end result was to gain deeper understanding into the complexity of these psychiatric disorders when co-existing with early-onset bipolar disorder. These disorders have proven to be extremely difficult to manage both clinically and for the individuals suffering from these diseases. The goal of this research study has

been to flush out the constellation of prospective problematic behaviors in which adolescents frequently engage while struggling with a bipolar disorder.

This study has continued with the examination of the relationship between age-of-onset of bipolar disorder and attention-deficit-hyperactivity disorder (ADHD), however, not with the same detail given to conduct disordered-behaviors and substance use disorder comorbid with early-onset bipolar disorder. Many studies have supported ADHD as the most highly comorbid psychiatric disorder with bipolar disorder. This topic has been recognized as far too vast for the scope of this current literature review, therefore, detailing the relationship of ADHD with adolescent bipolar disorder will remain for future research.

### **The Historical Origins of Bipolar Disorder**

The clarification of the definition of a bipolar disorder is an ongoing process with an extensive history. Its roots can be found in the work of the ancient Greek physician Aretaeus of Cappadocia (circa AD 150), who assumed that melancholia and mania were two forms of the same disease. Aretaeus actually believed that mania was a more severe form of melancholia (Marneros, 2001). Aretaeus was cognizant of the extreme excitement associated with mania and secondary personality changes. Of great interest to this dissertation research study was that Aretaeus also recognized mania as a disease of adolescents and young men. He believed this population of young men was given intermittently to “active habits, drunkenness and lechery,” because their life styles were far from moderate. Aretaeus noted this population had an exacerbation of symptoms in the springtime (Akiskal, 2002, p. 5).

The rediscovery of the relationship of mania to melancholia occurred 17 centuries later in Falret's "folie circular" and Baillarger's "folie a double forme" (Akiskal, 2002, pp. 5-6). Falret and Baillarger were both French "alienists," who "independently and almost simultaneously formulated the idea that mania and depression could represent different manifestations of a single illness" (Goodwin and Jamison, 1990, p. 59). This "rebirth" was made possible by the accomplishment of the civil and decent treatment of the mentally ill in Paris at the turn of the 18th century. Some researchers in the scientific community have considered Baillarger and Falret to be the fathers of the modern understanding of bipolar disorder as their work was represented in medical journals in 1851 (Falret) and 1854 (Baillarger) (Marneros, 2001).

Ultimately, at the turn of the 19th century, Kraepelin introduced his unique contribution, which was "his compelling methodological rationale based on rigorous observation. His work established manic-depressive illness as a nosological and, he hoped, a disease entity" (Aksiskal, 2002, p. 6). Akiskal believed the nosological entity was Kraepelin's unique contribution, however, it was also Kraepelin who segregated the psychotic illnesses from each other and clearly drew the perimeter around manic-depressive illness (Goodwin and Jamison, 1990). "Kraepelin's extraordinary synthesis is important not because it draws the ultimately 'correct' picture of nature, but rather because it builds a solid and empirically anchored base for future developments. This was considered Kraepelin's major accomplishment" (Goodwin and Jamison, 1990, p. 60). In 1924, Eugene Bleuler, gave his classic contribution to psychiatry and departed from Kraepelin by "conceptualizing the relationship between manic-depressive (affective)

illness and dementia praecox (schizophrenia) as a continuum without a sharp line of demarcation” (Goodwin and Jamison, 1990, p. 61). Bleuler viewed a patient as predominantly manic-depressive or predominantly schizophrenic. Bleuler also extended Kraepelin’s idea of manic-depressive illness by designating several subcategories and using the term affective illness.

### **The Relationship between Age-of-Onset of Bipolar Disorder and Substance Use/Abuse in Children and Adolescents**

A great deal of confusion and controversy, historically and currently, has continued to surround the topic of bipolar disorder in children and adolescents. Experts have argued over the definition and description of a link between melancholia and mania since Aretaeus Cappadocia, in the second century AD, and throughout the various editions of the American Psychiatric Association’s Diagnostic Manual (DSM-TR, 2000). Psychoanalytic theory, which was predominant in American psychiatry throughout the 1960’s to the 1980’s, led to the rejection of a bipolar disorder in children. The general trend in thinking, throughout this period, was that children lacked higher-level cognitive structures and the psychodynamic maturity that was required to sustain and express both mania and severe depression (Goodwin and Jamison, 1990). Carlson (1980) studied the rarity of mania in childhood and explored the interaction between cognitive maturity and manic-depressive illness, as did Geller and colleagues, 2003. The research by Carlson (1980) and Geller, et al. concluded, “child-age appropriate manic behaviors were equivalent to those found in older age groups” (Geller, 2003, p. 33).

Akiskal (2002) has done extensive research on bipolar disorder and found “that bipolar disorder is broader than what is included in the DSM-IV and ICD-10. It ranges from psychotic extremes to attenuated forms that manifest at the level of disordered temperament (pp. 37-38).” Akiskal has described the following definitions of the various forms of bipolar disorder: Bipolar I disorder, bipolar II (major depression plus hypomanic episode(s)), bipolar III, cyclothymia, bipolar disorder mixed states, bipolar disorder IV, and bipolar disorder not otherwise specified.

Bipolar II major depression plus hypomania, appears to be the most common phenotype and subtype of bipolar disorder (Akiskal and Mallya, 1987). The bipolar spectrum has emerged as a group of overlapping clinical subtypes, including bipolar I (manic, depressive, or mixed states), the most severe form of bipolar disorder. Followed by bipolar II, (major depression plus hypomanic episode(s)) Cyclothymia has presented as a low-grade affective manifestation of sub-depressive and mild hypomanic nature that occurs over long periods of the lifetime. Bipolar III has been recognized in clinically depressed patients who experienced hypomania during antidepressant treatment.

Bipolar mixed states is a subtype of bipolar disorder that consisted of simultaneous mixtures of both poles of the illness. Bipolar IV exhibits as depression superimposed on hypomania, bipolar disorder not otherwise specified (NOS), does not meet the criteria for the other types of BD, and rapid cycling or ultradian has been experienced with 365 lifetime episodes. It should be noted that the World Health Organization Classification in its 10th revision (ICD-10), does not provide for a formal

provision of rapid cycling or ultradian has been experienced with 365 lifetime episodes. It should be noted that the World Health Organization in its 10th revision (ICD-10), does not provide for a formal provision of rapid cycling in the international Classification (Akiskal, 2002).

The period beginning in the 1990's showed scientists asking several key questions regarding prepubertal and early adolescent development with regard to a bipolar disorder (Geller, et al. 2003, p. 25). The key questions were:

1. Did prepubertal mania exist?
2. Would the pattern, if it did exist, be similar to the typical adult episodes with relatively well-intervening periods?
3. Would irritability be the only prevalent mood?
4. Did children with mania really have just severe attention-deficit-hyperactivity disorder (ADHD)?

In selecting pediatric bipolar (PEA-BP) phenotypes that would be studied, the required two problems were considered: (1) irritability and (2) comorbid ADHD.

Phenotype has been defined as the "the expression of genes present in an individual" (Taber, 2001, p.1574). Irritability had been considered one of the most common symptoms of mania in children; however, it was also commonly present in bipolar disorder and in many other child-psychiatric disorders such as oppositional defiant disorder, conduct disorder, autism, and Asperger syndrome and this was a frequent reason for referral to psychiatric treatment (Geller, et al. 2002).

The second consideration was how to handle the high prevalence rate of comorbid ADHD in participants with PEA-BP. Geller reported in 1995, that she and her colleagues conducted a pilot study in which 88.9% of the participants with mania were less than 12 years of age and struggled with comorbid ADHD, as did, 29.4% of the participants who were older than 13 years of age. Geller and Luby (1997) arrived at the same conclusion; therefore, studying a phenotype that excluded comorbid ADHD provided a non-representative group of participants who were needed for this study.

With consideration of these two problems, the following phenotype was selected. Participants were required to meet the DSM-IV criteria for mania or hypomania with elated mood and/or grandiosity as one criterion. Using the above-mentioned criteria a non-representative group of participants needed for this research study allowed the study to diagnose mania without using only criteria that overlapped with DSM-IV ADHD criteria (e.g., hyperactivity and distractibility). The second consideration was that with this standard observed as a phenotype, the PEA-BP group would have at least two cardinal features (i.e., elation and/or grandiosity) of mania (Geller, et al., 2002).

The group that was selected for the PEA-BP consisted of males and females from 7 to 16 years of age and showed good physical health. Participants were also evaluated through case history and level of severity of illness as measured by the Children's Global Assessment Scale (CGAS; Bird, Canino, Rubio-Stipec, and Ribera, 1987) score of less than 60. Participants were required to meet DSM-IV criteria for current mania or mixed state

for at least 2 weeks, or DSM-IV criteria, for hypomania, for at least 2 months with elated mood, and/or grandiosity as one of the mania/hypomania criteria (Geller, et al., 2003).

The ADHD group consisted of males and females aged from 7 through 16 years of age, in good physical health, with participant scores evaluated through case history and represented by scores of CGAS less than 60, who met DSM-IV criteria for ADHD, with onset prior to age 7 and duration greater than 6 months. The CC (control) group was matched to the PEA-BP type subjects in terms of socioeconomic status (SES), ethnicity, ZIP code, in good physical health, who displayed no case history current or past, presenting with ADHD, bipolar disorder, or major depressive disorder diagnoses. The participants' scores on the CGAS were greater than 70 (Geller, et al., 2002).

The instruments used in this enormous study were: The Washington University in St. Louis Kiddie Schedule for Affective Disorders and Schizophrenia (WASH-U- KIDS; Geller, Williams, Zimmerman, Frazier, Beringer, and Warner, 1998; Geller, Zimmerman, et al., 2003), a semi-structured interview that was administered by experienced clinicians (and administered separately to mothers about their children and to children about themselves), narratives, CGAS, psychosocial assessments were obtained with the Psychosocial Schedule for School-Age (PSS; Puig-Antich, 1986; see Geller and DelBello, 2003) children and children about themselves. Social Economic Status was assessed through the use of the Hollingshead Four Factor Index of Social Status (Hollingshead, 1976 see Geller and DelBello, 2003, chap. 2), medication use and psychosocial therapies were coded with the treatment section of the Longitudinal Interval Follow-Up Evaluation (LIFE; Keller, et al.1987; see Geller and DelBello, 2003). The Prepubertal



Status Questionnaire (PSQ; Duke, Litt, and Gross, 1980 see Geller and DelBello, 2003) was completed by participants' older than 10 years of age at baseline, and medical records were obtained as well as teacher rating scales in (Geller, et al., 2003, pp. 25-50).

Geller, et al. (2003) reached the following conclusions and answered the original four questions this study addressed. The study examined prepubertal mania finding children, developmentally, cannot present with many of the manifestations of mania observed in late teenage/adult-onset mania "e.g. children will not 'max out credit cards' or engage in serial marriages" (2003, p. 33). However, child-age-appropriate manic behaviors were equivalent to those found in older age groups.

An example cited in this study of manifestations of mania in PEA-BP group would be: A) "a 7-year old boy was repeatedly taken to the principal for clowning and giggling in class (when no one else was), and was suspended from school. This child was requested to leave church, with his family, for similar behaviors" (Geller, et al., 2003, p. 34). Another example of PEA-BP that has met mania criteria cited in this study was when "a 9 year old girl continually danced around at home stating, 'I'm high, over the mountain high'" after suspension from school" (Geller, et al., p. 34).

The study reported that the PEA-BP phenotype was validated by reliable assessment, 6-month stability, and 1 and 2-year longitudinal diagnostic outcomes. A poor prognosis, over a 24-month period, was evidenced by low rates of recovery and relapse. Typical seven-year old children with PEA-BP were sicker than typical 27-year old individuals with late teenage/adult-onset mania. These results indicated that a PEA-BP resembled the most severe form of late-teenage-adult-onset mania by presenting with a

chronic, mixed manic, psychotic, continuously cycling picture. In terms of coexisting elated mood and irritability, the occurrence rate represented 87.1% (n=81) of the participants with PEA-BP (Geller, et al., 2003). This statistic was similar to the percent of “concurrent elation and irritable mood reported for adults with bipolar disorder in Goodwin and Jamison, 1990” (Geller, et al., p. 39).

The data were also significant in showing the prevalence of ADHD was high even in subjects selected for DSM-IV mania with cardinal symptoms of elation and/or grandiosity. This rate of ADHD in PEA-BP is dissimilar to late-teenage/adult-participants who had ADHD, oppositional defiant disorder/conduct disorder, and or depressive disorder during recovery were 32.8%, 24.1% and 29.3% onset bipolar disorder, respectively (Geller, et al., 2003, p. 44). This study was also significant for the finding that no participant developed a substance dependency disorder during the 2-year follow up period.

Geller and Luby (1997) reviewed child and adolescent bipolar disorder research between 1987 and 1997 and literature from Medline, previous searches, earlier articles, the authors’ experiences and an ongoing funded project “Phenomenology and Course of Pediatric Bipolarity” (NIMH, 1995). The results of this study detailed age-specific development (child, adolescent, and adult), DSM-IV criteria manifestations, comorbidity, and differential diagnoses; episode and course features were also provided. Geller and Luby (1997) concluded that the available data strongly suggested that prepubertal-onset BD is non-episodic, chronic, rapid-cycling, and displayed mixed manic states that may be comorbid with ADHD or CD; this variety of BD may also have features of ADHD or CD as

initial manifestations. This study found that systematic research on pediatric BD is in its infancy and will require ongoing and future studies to provide developmentally relevant diagnostic methods and treatment.

One of the key questions that a study of this magnitude has raised is whether the participants with PEA-BP will continue to resemble severely ill adults with bipolar disorder or will they begin to present with more typical late teenage/adult patterns of discrete episodes of mania or depression. Research has indicated that this childhood pattern was typically seen with sudden onsets and intervening periods when patients were functioning well. Another question, for future research, was whether the prevalence of comorbid ADHD will decrease as these subjects reach late adolescence and adulthood (Geller, et al., 2003).

It is significant to mention this study also addressed rates of recovery of participants living in intact homes versus those participants living in other situations as assessed by the Psychosocial Schedule for School-age Children-Revised (PSS-R, Puig-Antich, 1986 see Geller and DelBello, 2003) as described by the Overhaul Study Methods section (Geller, 2003). The instrument used in this study was the Cox Modeling Hazard Ratio (Geller, Craney, et. al., 2002) showing participants who lived with their intact biological families demonstrated significantly greater recovery rates than participants living in other situations. The Cox Modeling Hazard Ratio Measure suggested “2.2% of the participants living with their intact biological families (95% confidence level Interval [CI] = 1.2-3.8), were more likely to recover than those participants in other living situations” (Geller, et al., 2003, p. 42).

Another feature study demonstrated in this study recorded “rates of relapse after recovery by maternal-child warmth assessed with the PSS-R” (Geller, et al. 2003). This study predicted a significant relapse for participants who suffered from low-maternal warmth. Based on the Cox Modeling Hazard Ratio (Geller, et. al., 2003), participants with low-maternal warmth were “4.1(95% CI = 1.7-10.1) times more likely to relapse after recovery” (Geller, Craney, Bolhofner, et al., 2001). “Although the maternal warmth predictor is consistent with reports of adult mania, the intact family predictor may be unique to child mania “(Geller).

Papolos and Papolos (2002) have stated that children rarely fit a recognizable pattern in terms of early-onset bipolar disorder. Basically, “children have a more chronic course of illness where they cycle back and forth with few discernable periods in between. Some tend to cycle rapidly, more than four times a year, some cycle within the week or month and may be called ultra-rapid cyclers. Many cycle so rapidly that they fit a pattern called ultra-ultra rapid (ultridian) cycling.” They may have frequent spikes of highs and lows within a twenty-four hour period” (Papolos and Papolos, 2002, p. 6). The authors made reference to their own study in which 80% of the children tested (sample size not mentioned by authors), that developed early-onset bipolar disorder, had what is known as “bi-lineal transmission.” Bi-lineal transmission has occurred when an individual has substance abuse and mood disorder diagnoses appearing on both sides of their families.

The 1990’s Oregon Adolescent Depression Project (OADP; Lewinsohn, Hops, Roberts, Seeley, and Andrews) was an epidemiological, family history, and follow-up

study of a large cohort of community adolescents. The initial (T1) and OADP sample consisted of a randomly selected group of 1,709 high school students who were administered semi-structured diagnostic interviews and completed a comprehensive battery of inventories. One year later, (T2), 1,507 of the adolescents were reevaluated with the same instruments. At 24 years of age (T3), subjects were evaluated for a history of major depressive disorder or non-mood disorders, and a randomly selected subset of adolescents with no psychiatric diagnosis (T2) were evaluated for a third assessment (T3). Once again, OADP used the same semi-structured diagnostic interviews that they had previously used (Lewinsohn, Rhode, Klein, and Seeley, 1999; Lewinsohn, Rhode, Seeley, Klein, and Gotlib, 2000).

The results of this enormous project indicated:

1. The review of the write-ups for all bipolar disordered participants did not reveal one single case of rapid cycling.
2. There were only three cases indicating age-of-onset was less than ten years of age.
3. The mean age-of-onset of affective episode for the 18 bipolar subjects was 11 years of age. In most cases, the first episode was depressed and not manic.
4. Adolescents with bipolar disorder and subsyndromal bipolar disorder had high rates of comorbidity with anxiety disorders, disruptive behavior disorders, and substance use disorders.
5. The irritability may be severe, persistent, and violent.

6. The pattern of cycling must be ultridian (involving at least 365 episodes per year in which mania occurs for at least 4 hours at a time).
7. Comorbid psychiatric disorders and family history of bipolar disorder were common. Poor treatment response and recurrence were also common.

This research study has suggested the low number of subjects with prepubertal-onset bipolar disorder may be attributed to the sample selection. Lewinshon, Seeley, and Klein (2002) suggested, possibly, few adolescents with prepubertal bipolar disorder attended public high school. Another possible cause for the low rate of ultridian cyclers in this study, perhaps the version of the K-SADS (Kiddie Schedule for Depressive Disorders and Schizophrenia; Puig-Antich and Ryan, 1986) used in this study did not include items to detect ultridian cycling (Lewinsohn, et. al., 2002).

Geller, et al. (2002) recognized the possibility that bipolar-disordered children and adolescents have characteristics that were advantageous. These bipolar characteristics refer to those that were within the normal range of variation, not when taken to the pathological levels of intensity). These characteristics are most often found in the highly creative bipolar-disordered-child/adolescent population.

Many studies have indicated highly creative individuals experienced bipolar disorders more often than do other groups in the general population. Geller and DelBello (2003, p. 20) raised the question, "What are the characteristics of the bipolar spectrum disorders that contribute to creative achievement?" As cited in Jamison (1995), the following features should be considered: sharpened and unusually original thinking, high activity and energy levels, being optimistic, verbal fluency, and enhanced

motivation to achieve ambitious goals and somewhat grandiose thinking. Lewinsohn, et al. added the following traits to this list: enjoyment of being with people, social competence, and the ability to persuade and inspire others. The challenge and goal then becomes important to help young BD people take advantage of these traits while avoiding escalation to destructive avenues.

Carlson (1980) compared 19 bipolar children who were chronologically immature, prepubertal, but functioning appropriately for their age, with 21 bipolar adults who were biologically mature but functioning intellectually at a much younger level, mentally retarded bipolar-disordered adults. She tested a hypothesis advanced by Rutter (1972), Anthony (1975), Lester and LaRouche (1978), cited in Carlson (1980). This hypothesis required cognitive and psychodynamic maturity that was great enough to sustain and express both mania and pathological levels of bipolar disorder. The review suggested immature cognitive functioning affected the content of manic or depressive moods but it did not determine the presence or absence of mania or depression. Carlson believed further reasons were needed to explain the absence of manic-depressive illness in childhood with its increasing occurrence of biologic maturity.

Weckerly (2002) noted “atypical” pediatric mania is considered “atypical” when compared to classic mania as a point of reference. Mixed mania, a variant in which the predominant mood symptom is irritability, had been reported in 10-70% of the adult patients. A recent meta-analysis of 17 studies indicated that 31% of patients with BD experienced only mixed states. This is extremely important since mixed mania in adults is a variant in which the predominant mood disorder is irritability and has been

associated with younger age-of-onset, higher rates of comorbidity, and a family history of mood disorders. Weckerly concluded these observations have led some research scientists to conceptualize and recognize a “virulent form” of the disorder in adults that is similar to the ‘atypical’ childhood/adolescent-onset bipolar disorder.

In a National Institute of Mental Health (NIMH, 2001) round-table discussion, the panel of experts agreed bipolar disorder could be diagnosed in prepubertal children by using DSM-IV criteria. In addition to Bipolar type I Disorder, Bipolar Disorder Type II, and Bipolar Disorder, NOS (Not Otherwise Specified), could be given as a working diagnosis in children and adolescents. This panel agreed the most common type of adult-onset BD with discrete episodes of depression with clear onset and offset was not a common presentation in children. Rather, the most frequent course was a long-duration episode with rapid cycling and mixed mania. The presentation of BD in children and adolescents has been one of irritability and has been referred to as ‘atypical’ because the predominant mood was often one of irritability as opposed to euphoria as seen in adults (Weckerly, 2002).

It has appeared the study of early-onset bipolar disorder has preceded in much the same manner as the study of juvenile depression (Weller, 2000). However, giving a child or adolescent a bipolar diagnosis has remained much more controversial. In the 1960’s, the diagnostic criteria were so rigidly applied that the mental health field concluded that this disorder was non-existent in children. This conclusion was reached even though Kraepelin, 1921, described bipolar disorder.



Weller, Weller, Tucker and Fristad (1986) reviewed literature on severely disturbed children to shed light on determining appropriate diagnostic criteria for early-onset in 10-year old children with bipolar disorder. The DSM-III criteria were blindly applied and it was found that 50% of these children fulfilled criteria for mania, but had been diagnosed with schizophrenia, conduct disorder, ADHD, or another disorder. This review has strongly suggested the misdiagnosis or under diagnosis of early-onset bipolar disorder.

Weller, Calvert, and Weller (2003) found another difficulty in diagnosing BD in children and adolescents centered on the accountability for the developmental differences in bipolar disordered patients. Many symptoms commonly associated with mania, such as grandiosity, motor recklessness, and imaginative thinking, may be considered normal childhood behavior. However, the distinguishing features in children or adolescents with a bipolar disorder were that “children with mania do not respond to the appropriate contingencies of a consistently applied behavior management program.” Another problem was that similar actions were often identified by as a different category depending on the patient’s age. An example being that disruptive behavior is often attributed to oppositional defiant disorder in children, while in adults it may be attributed to BD.

Lish, Dime-Meenan, Whybrow, Price, and Hirschfield (1994) reported on the first large-scale self-survey of 500 members of the National Depressive and Manic-Depressive Association (National DMDA) struggling with a bipolar disorder. The purpose

of this study was to examine age-of-onset of bipolar disorder, recurrence of illness, and symptoms associated with BD to advance diagnosis and treatment of this illness.

A questionnaire was administered to members of the DMDA (Depressive and Manic Depressive Association, 1994) that was developed by The Wirthlin Group, a professional polling organization in cooperation with the National DMDA (1994). This questionnaire consisted of 154 items that addressed the following three topics: (a) the onset of the illness, and its subsequent course, (b) its impact on quality of life and psychosocial functioning and, (c) the path to clinical treatment and the nature of treatment (Lish, et al. 1994). The DMDA (1994) survey reported 59% of the members experienced their first symptoms of bipolarity in childhood or adolescence.

The study was significant in that long delays between symptom onset, treatment seeking, and the receipt of the proper diagnosis were common, and 45% of the subjects were positive for frequent relapse. Child and adolescent onset was associated with a positive family history of depression or mixed initial symptoms, frequent recurrence, and predominantly recurrence of symptoms that were associated with an increasing inability to function appropriately in the social environment. Social behavior improved with effective treatment and the proper medication. The significance of this study was that it supported the need for greater public health awareness and greater effort to promote early diagnosis and treatment of BD. The study emphasized that the treatment of bipolar disorder could be enhanced with future research on bipolar disorder with prominent anxiety symptoms and improved access to mental health care. This population was positive for frequent depressive symptoms.

West (1997) believed the (DMDA, 1994) study was significant in that it highlighted two important issues: (1) a bipolar disorder routinely began at a young age and had a marked impact on psychosocial development and (2) it was often easy to retrospectively chart the development and progression of early-onset bipolar disorder in adults while diagnosis in prepubertal children and adolescents was challenging due to the complex constellation of symptoms that are often present. West believed another factor of importance in the DMDA study was it highlighted the amount of research that examined the phenomenology and comorbidity of the child/adolescent bipolar population. Numerous studies have reported that mood disturbance in bipolar adolescents was predominantly one of irritability, rather than euphoria, and manic episodes have mixed features in patients experiencing co-occurring symptoms of mania and major depression.

It is significant to mention that West (1997) reviewed the phenomenology and comorbidity of child and adolescent bipolar disorder, recognizing that in the '90's, the child and adolescent population suffering from BD had gained a considerable amount of attention. West recognized that traditionally BD was thought of as an illness that began in late adolescence and early adulthood and was described as an illness marked by distinct periods of depression and mania. The bipolar spectrum expanded and has come to include a substantial percentage of patients with childhood and adolescent-onset bipolar disorder that have presented with a wide range of clinical symptoms.

Geller, et al. (2001) studied severely disturbed children and normal children to determine age-of-onset of BD and chronicity of this disorder in young people. Geller, et

al. looked at a total of 268 children; 93 with bipolar disorder, 81 with ADHD, and 94 healthy children or 'normals.' The average age of the bipolar child was slightly over 10 years of age and over one-half of these children had not reached puberty. Forty-three per cent were between the ages of 7 and 10 years of age. This study was significant in that approximately one-quarter of the bipolar children were seriously suicidal. Geller (p. 929) "In manic children we have found a more severe, chronic course of illness. Many children are both manic and depressed at the same time and will often stay ill for years without intervening well periods. These children frequently have multiple daily cycles of highs and lows."

Dalton, Cate-Carter, Mundo, Parih, and Kennedy (2003) sought to identify clinical predictors of suicide attempts in bipolar subjects. This study looked at 336 subjects struggling with bipolar I, bipolar II, and mixed, and mixed states of bipolarity. The research found that the lifetime rate of individuals who attempted suicide was 26.7% for the entire sample. Bipolar subjects when comorbid substance use disorder had a 39.5% life time rate of attempted suicides compared with a 23.8% life time rate of attempted suicide for those without substance use disorder. This research was significant for finding lifetime substance use disorder was associated with a higher rate of suicide attempts in subjects suffering with both disorders.

The findings were counterintuitive to the common notion that children would be less ill than their adult counterparts (Medscape News, 2001) would. This study was significant in that it supported the diagnosis of early-onset bipolar disorder, and argued that children who became ill with BD had a more serious course of illness than the adult

population who suffered from BD. Weller's extensive research in child and adolescent bipolar disorder led her to the conclusion that BD "is a severe and chronic condition, which seriously disrupts the lives of children, adolescents and adults by the means of increased rates of suicide attempts and completion, poor academic performance, disturbed interpersonal relationships, increased rates of substance abuse, legal difficulties and multiple hospitalizations" (Weller, 2002, p. 428).

Carlson, Bromet, and Sievers (2000) studied young participants to determine gender-specific evidence with regard to early-onset bipolar disorder. This study of psychiatrically hospitalized individuals suggested that young persons with early-onset mania, before the age of 21, were more likely to be male (69% versus 26.6%) and to have more complicated psychopathology, displaying an early onset of behavioral problems with comorbid substance use disorders, mixed episodes, and paranoid symptoms. This group of young people was likely to spend more time in hospitals overall, and less likely to completely remit after 24 months than subjects whose illness first emerged after 30 years of age.

With regard to the question of prevalence of BD and age-of-onset, Schulman, Schaffer, Levitt, and Herrmann (2002) addressed a study cited by Goodwin and Jamison (1990) who reviewed 898 cases of bipolar-disordered patients from 1977-1985 and estimated that 0.3% of bipolar patients became sick prior to 10 years of age.

Again, these studies supported research confirming early-onset bipolar disorder. The literature has supported that psychiatric disorders in children and adolescents were more difficult to diagnose than those afflicting adults. However, Berganza (2002) voiced

concern that little had been offered to this population in terms of solutions to the problems associated with early diagnosis of BD in children and adolescents. This has been a crucial issue deserving resolution, as early-onset bipolar disorder is a serious psychopathological problem that society cannot ignore. Berganza has suggested it would be efficacious to answer the following three diagnostic issues to facilitate early diagnosis of BD in children and adolescents: (1) to identify the symptoms of mania (2) to discriminate between mania and ADHD, when no psychotic symptoms are available, and (3) to discriminate between mania and schizophrenia when psychotic symptoms are present.

Carlson (2002) has stated that in terms of gender and age in a bipolar disorder, researchers must be thorough and clarify that when speaking of lifetime rates of bipolar disorder, the sample population must be identified as being obtained from a community sample versus acute mania obtained from a clinical sample. Carlson has continued to comment on “age-of-onset” stating that this has depended on the definition used. Carlson’s most significant finding, with regard to “mania and age-of-onset,” was her well-documented research hypothesis on “gender and outcome” and their interdependence on the age-of-onset of mania.

Goodwin and Jamison (1990) in a study representing a 2:1 female/male ratio of affective illness, ranging from 1:1 in Los Angeles, through 2:1 in Piedmont, California, found when the manic population was considered by itself, the ratio for the ECA bipolar disorder group was equal and the overall prevalence of affective illness was 0, 4%. Goodwin and Jamison found that the exception to this pattern was discovered in the

Amish study conducted by Egeland and Hollister in 1983. In this study, 58% of bipolar patients were male and 42% were female; age-of-onset was not noted. The seeming discrepancies here may be explained by two characteristics of the Amish Culture. The first line of thinking was that alcoholism explained an affective illness and sociopathy did not mask the expression of affective illness in Amish men and therefore presented a truer picture. Secondly, female depression may not be detected since, "Amish women occupy the role of protective, self-sufficient household managers and because of the dominant work ethic, somatic symptoms may be discounted" (Goodwin and Jamison, 1990, p.168). Goodwin and Jamison concluded rates of depression were higher in women than men but this was not true for manic-depressive illness. A bipolar disorder appears to be equally prevalent across genders.

### **The Relationship Between Age-of-Onset of Bipolar Disorder and Substance Use in Children and Adolescents**

Population based studies have documented that among all patients with major psychiatric disorders, those carrying a bipolar disorder diagnosis have the highest prevalence of comorbid substance use and dependence (Papolos, 2003, p. 85). Sonne and Brady (1999) found that within the population who abused substances, there was a much earlier age-of-onset of bipolar disorder, thereby indicating that the mood disorder preceded the substance use disorder and BD illness may have contributed to the initial cravings for addictive drugs. Clinical evidence has suggested that an untreated bipolar disorder greatly lessens the likelihood of abstinence from substance abuse. Akiskal (2002) has explained that the high comorbidity of age-of-onset of bipolar disorder and

substance use in children and adolescents cannot be explained away by chance. This was particularly true for BD and alcohol abuse. There continues to be a great deal of controversy regarding the age-of-onset of BD children that has been further complicated when BD children and adolescents have substance use disorders.

Feinman and Dunner (1996) tried to discern whether alcoholism was a complication of a bipolar disorder or a risk factor for BD. These researchers conducted a study of a total of 188 participants divided into three groups: (1) a primary group with bipolar disorder and no history of substance abuse, (2) a group with bipolar disorder complicated by substance abuse that began after the onset of bipolar disorder and (3) a secondary group with bipolar disorder that was preceded by substance abuse. The results of this study indicated that the group with bipolar disorder complicated by substance abuse had a significantly earlier age-of-onset of BD than the other groups. This study concluded that alcoholism was a risk factor of significance contributing to early-onset bipolar disorder. Research has supported that preadolescent children and alcohol abuse were closely associated with affective illnesses (Goodwin and Jamison, 1990).

Famularo, Stone, and Popper (1985) studied ten preadolescent children who abused or were dependent on alcohol. Seven of these children also struggled with bipolar disorder (subtype I or II not identified) or cyclothymia. The remaining three children suffered from closely related diseases; major depression with conduct disorder, atypical psychosis, and atypical affective disorder, thereby supporting the close



association between alcohol dependency/abuse in conduct disorder and bipolar disorder or closely related affective illness in preadolescent children.

Hatfield (1996) noted that it was not unusual for teenagers to have marked periods when they were feeling depressed, confused, and generally believed they were going crazy. Fleeting suicidal thoughts have passed through many of their heads, especially when confronted with the numerous emotional tasks required for emotional growth and maturity. Many adolescents have struggled with inadequate feelings and do not believe they will be able to meet the necessary requirements for growth and maturity. Often these adolescents struggle with feelings of isolation and loneliness and feel as though they are the only individuals in the world who have ever felt this way.

An adolescent with a bipolar disorder, struggling with these feelings, has often turned to alcohol and/or illegal substances to calm the roller-coaster type effect of the emotions they were experiencing. The use of alcohol and/or illegal substances in this manner has been defined as “self-medication”. Self-medication has become known as the process by which some individuals may abuse substances in attempting to use them to relieve other problems such as anxiety, pain, sleeplessness or other symptoms of bipolar disorder (Hatfield, 1993).

Prior work with the adult population suggested that early-onset bipolar disorder was associated with a higher risk for substance use disorders. Wilens, et al. (2001) assessed the risk for substance use disorder in children versus adolescent-onset bipolar-disordered patients. The adolescent population was based on teenagers aged 13-18 years of age. Structured psychiatric interviews were administered and studied

systematically in clinic subjects ( $n = 333$ ), with DSM-III-R bipolar disorder criteria substantiated. To evaluate the risk for substance use disorder and BD while attending to developmental issues, the authors stratified the BD sample into those with child-onset BD, less than or equal to, 12 years of age,  $n = 50$ , and those with adolescent-onset BD, 13-18 years of age,  $n = 36$ .

The results indicated that in mid-adolescence, youths with adolescent-onset BD were at significantly increased risk for substance use disorders compared to child-onset BD with 39% versus 8%;  $p = .001$ . Children with child-onset BD, when compared to adolescent-onset BD presented with 8.8 times the risk for substance use disorders. The existence of conduct disorder or other psychopathology within BD did not account for the risk of substance use disorder. The conclusion these authors reached was that mid adolescent-onset BD was associated with a much greater risk for substance use disorder than child-onset BD.

West, et al. (1996) studied a group of 34 adolescents hospitalized for mania and 86% of this population met criteria for additional psychiatric disorders. The most common comorbid disorder was ADHD (69%), followed by substance use disorders representing (39%) of this adolescent population. This study has supported the argument that BD adolescents were vulnerable to substance use disorders and this population was also highly vulnerable to other psychiatric disorders.

Strakowski (1992) explored the comorbidity of BD and alcohol abuse in adolescents ( $n = 41$ ) at first-time hospital admissions, in this youthful population of 20 years of age and younger and all presented with mixed or manic symptoms. Twenty-four

per cent of the subjects who participated in this study had a co-existing diagnosis of alcohol dependency. Dual diagnosis preceded the first hospitalization by more than 1 year in all but one person. Dual diagnosis has been the term used to define a patient who has experienced the coexistence of an emotional disorder and chemical dependency simultaneously (Velaso, Meyer, and Lippmann, 1997.)

Strakowski(1992) also observed that prodromal affective symptoms may have predated or have been concurrent with the onset of substance abuse. This could not be reliably determined from the data. “Emerging literature has suggested an excessive and bidirectional overlap between BD and substance abuse disorder in youths” (Wilens, 1999, p. 2).

Current studies have further indicated that juvenile-onset BD may be an illness that is strongly associated with substance use disorder (Wilens,1999). A prospective study of children and adolescents with and without ADHD confirmed BD was a risk factor for substance use disorder independently of ADHD (Biederman, et al.1997). Structured diagnostic interviews were administered to each child in this study and the results showed a positive relationship between BD and substance use disorder in children and adolescents. However, BD in very young children, less than 6 years of age, has continued to remain highly controversial.

Wilens (1999) stated that many studies suggested that parents often underreport substance use disorders in children, making it more difficult to determine if age-of-onset of BD was associated with vulnerability toward substance use disorders prior to adulthood. Wilens suggested future studies should integrate parent and youth

self-report, as well as objective assessments of substance use disorders, including laboratory toxicology testing that would more accurately identify substance use in children. He stated that adolescent-onset BD is a major and serious risk factor for adolescent substance use disorders. Wilens emphasized the need to accurately identify and appropriately treat manic symptomatology and mood instability as this may lead to decreased substance use disorder in high-risk youths.

West and colleagues (1996) stated there was an over-representation of BD in youths with substance use disorder. In a study of 40 hospitalized adolescents who suffered from BD, it was recognized that this population also struggled with substance use disorder. This study found that the psychiatrically referred adolescent outpatients with substance use disorders were more likely than those without substance use disorders to have comorbid BD (Wilens, Biederman, Mick, Faraone, and Spencer, 1997).

Clearly, there is an association between BD and vulnerability toward substance use disorders, this relationship included drug and alcohol use and dependence. However, many uncertainties have remained. Wilens (1999) reported, "Important developmental heterogeneity may be operant within juvenile BD based on whether the onset of the disorder was in early childhood or in adolescence and that developmental features would differentially affect whether the age-of-onset was in early childhood or adolescence" (p. 2). Earlier research has shown that the association between substance use disorders and BD was particularly strong among children with ADHD who developed BD during the follow-up period into mid-adolescence when compared with those youngsters who had an earlier onset of BD (Biederman, et al. 1997). In conclusion, it is

possible that developmental subtypes of BD with early or very early onset may differentially affect the risk of substance use disorders in youths (Wilens, 1999).

### **The Relationship between Early-Onset of Subtypes of Bipolar**

#### **Disorder and the Vulnerability toward a Substance Use Disorder**

“The comorbidity of substance abuse with mood disorders has been vastly underestimated” (Papolos, 2002, p. 350). In a recent random sample study of five hundred members conducted by the National Depressive and Manic Depressive Association, (DMDA, 1994), approximately 50% of the members reported abusing alcohol prior to the diagnosis and treatment of a mood disorder. This statistic of 50% was compared to a population of 13% of the patients who received the proper diagnosis and treatment and who admitted to abusing substances. The Epidemiological Catchment Area (ECA) data compiled in the 1990s (Reiger, et al. 1990) recognized a more specific statistic. The ECA study showed that 61% of bipolar patients had a history of substance abuse. Of this population, 15% used only drugs, 20% used alcohol alone, and 26% used both substances (Papolos & Papolos, 2002).

The paucity of literature that subdivides the bipolar spectrum into subtypes of BD disorder, with vulnerability toward other psychiatric disorders in children and adolescence, has been reported as alarming. This was due, partially, to the challenge of diagnosing a bipolar disorder in a child. The challenge remains great for several reasons:

- (a) The number of years alive is brief, and not adequate to establish a course of illness,
- (b) developmental factors are very much alive, because many children are in perpetual motion, lack impulse control, have difficulty tolerating frustration, and
- (c) many children

have vivid imaginations which are not construed as having a mental illness (Papolos & Papolos, 2002).

The diagnostic subtypes of bipolar disorder present different problems in the study of alcohol abuse and substance abuse (Goodwin and Jamison, 1990). The commonly held assumption that substance abuse among bipolar I patients was largely state-dependent was challenged by the Epidemiological Catchment Area program (ECA). The ECA (Reiger, et. al, 1990), showed a predominance of substance dependency over abuse. Bipolar II patients generally showed a more chronic-abuse pattern that most often worsened the course of their illnesses. It was often difficult and problematic to ascertain, in bipolar II patients, whether the abuse was primary or secondary.

The ECA study conducted by Reiger et al. (1990), addressed the adult BD population. This study determined that more than 60% of bipolar I patients and approximately 50% of bipolar II patients had a history of substance abuse. This study was significant for bipolar I and bipolar II, as subtypes of this disorder, stating that these two types of bipolarity were more vulnerable to substance use than the others. Unfortunately, the study was not specific to the child and adolescent population, and it was not clear whether exact extrapolation to a youthful population would be possible. This has often been problematic in the current research.

Sonne and Brady (1999) explored the relationship between bipolar disorder and alcoholism, focusing on the prevalence of this comorbidity and underlying theories that attempted to explain this complicated relationship. Their research supported the theory that a bipolar disorder represented a significant public health problem, and that

patients spend an average period of 10 years before they received the proper diagnosis of a bipolar disorder. This research supported the data stating that approximately 1% to 2% of the population struggled with a bipolar disorder that often started in early adulthood. However, the question remained, if it takes 10 years to properly diagnose a bipolar disorder, and current practice suggests BD does not usually develop until late adolescence, is this a true reflection of onset or does it misrepresent age-of-onset?

Sonne and Brady (1999) recognized and cited two large epidemiological studies of psychiatric disorders: the National Institute of Mental Health's Epidemiological Catchment Area Study (ECA) conducted by Reiger, et al. (1990) and the National Comorbidity Survey (NCS) conducted by Kessler, Crum, Warner, et al. (1996). As cited in Sonne and Brady, the ECA (1990) revealed that 60.7% of the participants struggled with an alcohol or drug use disorder; 46.2% of the participants with bipolar I disorder also had an alcohol or other drug use disorder; and 40.7% of the participants had a drug abuse or dependence diagnosis. The percentages of alcohol-use disorder and substance abuse disorders were greater than 100% due to overlap.

In the ECA Study (Reiger, et. al., 1990), it was also noted that 48% of this population struggled with a bipolar II disorder and a substance use disorder. Thirty-nine point two per cent (39.2%) had an alcohol-use disorder, and 21% of the population had a drug abuse or dependence problem. These figures also represent overlap. Sonne and Brady (1999) reported that the ECA Study (1990) included work by Helzer and Pryzbeck (1988). These research scientists cited that mania, bipolar I disorder, and alcohol-use disorders were far more likely to occur together, in this population, at the rate of 6.2%,

than would be expected by chance. The NCS study (Kessler, et. al.,1996), with regard to the comorbidity of mood disorders and alcoholism, cited statistics that were similar to the results reported by Sonne and Brady. According to these statistics, it appeared evident that bipolar I and bipolar II disorders were the two subtypes of bipolar disorder most highly comorbid with alcohol and substance abuse diagnoses.

### **The Relationship between Age-of-Onset of Bipolar Disorder with the Vulnerability Toward Conduct Disorder**

Conduct disorder (CD) has been considered a complicated group of behavioral and emotional problems when seen in youngsters. Children with this disorder have great difficulty following rules and behaving in socially acceptable ways. These children were often viewed by their peers, adults, and social agencies, as “bad” or delinquent, rather than mentally ill (The American Academy of Child and Adolescent Psychiatry, [AACP] 2003). “Current evidence supports a distinction between the symptoms of oppositional defiant disorder and many symptoms of conduct disorder, but there has been a continuing controversy about whether aggressive symptoms should be considered to be part of oppositional defiant disorder or of conduct disorder” (Papolos, 2003, p. 83).

The AACP (2003) has reported that the following behaviors have been frequently seen in children or adolescents with conduct disorder:

1. bullies, threatens, or intimidates others
2. uses weapons that could cause serious physical harm to others (a bat, brick, broken bottle, knife or gun)



3. physically cruel to people or animals
4. steals from a victim while confronting them
5. forces someone into undesired sexual activity

The following study examined the prevalence rate between bipolar youths and conduct-disordered children. The prevalence rate of bipolar disorder and conduct disorder in bipolar youths was high and it has been reported as 41%-69% (Kuthcher, Marton, and Kornblum, 1989; Kovacs and Pollack, 1995; Biederman, Farone, Chu, and Wozniak, 1999).

Kovacs and Pollack (1995) studied and concluded that eight 13-year-old bipolar-disordered youths who struggled with comorbid conduct disorder, experienced fewer mood episodes and a greater number of symptoms. This study was also significant for higher rates of substance abuse among the parents of the bipolar youths with comorbid conduct disorder. This debate remained similar to the debate with ADHD and bipolar youth and the question still has continued as to whether conduct disordered youths reported a separate illness or a manifestation of bipolar disorder itself. The study conducted by Kovacs and Pollack (1995) was significant indicating that 69% lifetime rate comorbidity existed and 54% rate of episode was comorbid with conduct disorder.

Furthermore, the study reported CD predated the first bipolar episode for 11 youth and postdated it for 7 other children. Twelve per cent of the 26 children struggled with primary uncomplicated affective illnesses, a somewhat greater number of BD episodes, and a slightly better overall clinical course. The Kovacs and Pollack (1995) study also indicated that children with bipolar disorder and conduct disorder showed

elevated rates of substance use disorder when the history of their fathers was positive for comorbid bipolar disorder and conduct disorder. This study was further significant in suggesting an elevated rate of maternal mania in mothers whose children had an affective disorder in the absence a conduct disorder diagnosis.

The conclusion of the Kovacs and Pollack study (1995) showed comorbid CD may exist in a large number of young BD subjects, therefore confusing the clinical presentation and possibly accounting for some of the failure to detect BD in the child and adolescent population. Comorbid CD youths appear to be associated with a poorer clinical course and the overall indications were that comorbid CD might identify a subtype of a very early onset bipolar disorder.

Wozniak, et al. (2002) in personal communication with Biederman, et al. (2000) regarding the above-mentioned study, compared relatives of four groups of clinically referred probands defined as having (1) CD and mania (n=26 probands, 92 relatives), (2) mania without CD (n= 19 probands, 58 relatives), (3) CD without mania (n=16probands, 58 relatives), and (4) control participants without mania or CD (n= 102 probands, 338 relatives).

Biederman, Farone, Monica, Chu, and Wozniak (1998) believed there was a bidirectional overlap between juvenile mania and conduct disorder in children. This study systematically investigated the overlap between juvenile mania and CD in a sample of children. It was hypothesized that neither CD nor manic symptoms were secondary to the other disorder and that children with juvenile mania and CD, would have correlates of both disorders.

The children and adolescents meeting DSM-III-R diagnostic criteria were evaluated through the use of structured interviews for CD, mania, and CD plus mania. Of 186 children and adolescents with mania, and 192 with CD, 76 subjects satisfied criteria for both CD and mania. This number represented 49% of youths with CD and 41% of youths with mania. In terms of psychiatric comorbidity, CD and mania displayed different features of each disorder regardless of the comorbidity with the disorder.

This study suggested that in these comorbid cases, CD symptoms should not be viewed as secondary to mania. Also, manic symptoms should not be viewed as secondary to CD. This data has suggested a positive relationship between the child/adolescent age of onset for CD and bipolar disorder. This study recognized CD and BD as separate and different mental illnesses, each with an individual entity. Cogan (2002) found that early-onset bipolar disorder was commonly comorbid with other psychiatric behaviors, particularly disruptive behaviors. Cogan has suggested that the major symptomatic difference between ADHD, conduct disorder, and bipolar disorder was that disruptive disorders were chronic and presented insidiously, while mania was episodic and reflected fluctuating mood changes. CD has often emerged in early childhood or adolescence. CD children and adolescents have exhibited the potential for the painful consequences seen in mania. Unlike manic children however, the conduct-disordered child's motives were more hurtful, vindictive, and anti-social. Psychotic symptoms were not seen in CD, where they do present during an acute manic episode (2002).

Fisher (1997) showed children with CD were 37% comorbid with borderline personality disorder, 15% comorbid with major affective disorder (unipolar or bipolar disorder), 6% were comorbid with the schizotypal disorders, 3% were comorbid with the schizophrenia and 3% were also comorbid dysthymic disorders. Age-of-onset has been supported as a positive indicator between the relationship of bipolar disorder and the vulnerability towards a conduct disorder.

Biederman, et al. (1997) found children with oppositional defiant disorder, conduct disorder, oppositional behaviors, and comorbid psychiatric behaviors were examined and displayed more severe symptoms, particularly in a bipolar disorder. This study was significant for a positive correlation between early-onset bipolar disorder and vulnerability toward conduct disorder.

Papolos and Papolos (2002) have commented on an earlier study by Kutcher and colleagues (1999) stating that Kutcher, et al. examined the comorbidity of conduct disorder in a group of 96 adolescent outpatients. The study was significant in that 19 participants in the group had a primary diagnosis of bipolar disorder; and the remaining 77 participants had received “other” psychiatric diagnoses. In a study conducted by Papolos, 27% of their entire sample had conduct disorder, 42% of the bipolar subgroup were also given a secondary diagnosis of conduct disorder. This study showed that there was significant vulnerability in the bipolar age group toward CD. A great deal of debate and controversy still remains in terms of what to “label” these entities who meet criteria for more than one diagnostic category and more directly, which disorder takes precedence in terms of treatment (Papolos, 2003).

Currently, research supports a distinction between the symptoms of oppositional defiant disorder and conduct disorder, however, much controversy continues surrounding the issue of whether aggressive symptoms should be considered part of oppositional defiant disorder or conduct disorder (Papolos, 2003).

Farone, et al. (1998) used data from an earlier study of 120 families they had conducted to determine whether conduct disorder, ADHD, and bipolar disorder in boys' with ADHD should be considered 'alternative manifestations' of the same family of disorders. The families were stratified into bipolar, antisocial, and other types. The study looked at the risk to relatives separately from for probands with and without this comorbid conditions and divided the groups of ADHD-conduct disordered probands into those patients with bipolar disorder and those without bipolar disorder. The results of the study reported to be consistent with the hypothesis that anti-social ADHD and bipolar and ADHD subtypes are different manifestations of the same family condition.

Kovacs and Pollack (1995) reported conduct disordered-behavior can occur before or after the manifestations of bipolar symptoms. By determining the age-of-onset for bipolar disorder in 11 of 18 bipolar youths, conduct disorder appeared prior to the first episode of mania, for 7 participants and conduct disorder occurred subsequent to the first episode of mania or hypomania. Ultimately, this sample was too small to confirm or reject definite conclusions, but it was quite clear on the fact that clinically, these disorders were commonly linked.

Weller, Calvert, and Weller (2003) examined comorbid occurrences of BD and CD in mood-disordered children. This study found that of the 41% to 74% of the bipolar-

disordered children studied, 40% had a primary diagnosis of conduct disorder. This study supported previous research stating that bipolar disorder symptoms can be severe in young patients and may be similar to the extreme behaviors seen in patients with conduct disorder. Irritability, hostility, and impulsivity are recognized as common symptoms of both disorders. Bipolar-disordered children usually present with an abrupt onset, whereas conduct disorder often presents with a prodromal period and becomes progressively worse over time.

Biederman, Farone, Wozniak, and Monteaux (2000) compared relatives of four proband groups. A proband has been defined as “the initial subject presenting a mental or physical disorder, who causes a study of his or her heredity in order to determine if other members of the family have had the same disease or carry it” (Taber, 2001, p. 1680). The four proband groups were: (1) conduct disorder plus bipolar disorder, (2) bipolar disorder without conduct disorder, (3) conduct disorder without bipolar disorder, and (4) control subjects without bipolar disorder or conduct disorder. This study found the effects of bipolar disorder and conduct disorder in probands, when added together, predicted the risk for substance use disorders in relatives, and that the combination of conduct disorder plus bipolar disorder in a youthful population predicted high rates of substance abuse disorder in relatives.

Fisher (1997) stated that disturbance of conduct was the most common reason for a child or adolescent to be referred to a child psychiatrist. Between 33% and 50% of the child and adolescent population referred to outpatient clinics were for anti-social or

aggressive behaviors. Fisher considered conduct disorder the most common psychiatric diagnosis for the adolescent age group.

Biederman, Farone, Wozniak, and Monteaux (2002) have suggested there was a strong association between pediatric bipolar disorder and conduct disorder (CD). Prior research supported the consistency with the well-documented comorbidity between CD and major depression, and research supports that juvenile depression often leads to a bipolar disorder diagnosis.

Geller and Luby (1997) found that even with the conservative criteria from the DSM-IV, conduct disorder occurred in approximately 22% of BD children and 18% of BD adolescents. Their research supported that BD subjects comorbid with CD subjects have also displayed poor judgment and grandiosity. This research supported a higher relationship of comorbidity, in terms of age-of-onset, in children, rather than the adolescent CD-BD population.

In children, BD comorbid with CD was associated with poor functioning and increased risk for psychiatric hospitalization (Borchardt and Bernstein, 1995). This population also had a higher familial and personal risk for mood disorders, other than CD subjects who had a higher personal risk for personality disorder. This research was significant, in that it suggested that subjects diagnosed with CD and BD may have had both disorders.

Biederman, Farone, Chu, and Wozniak (1999) found that conduct disorder (CD) was strongly associated with pediatric bipolar disorder. Their study looked at a sample of youths with ADHD to investigate the relationship between BD and CD. This research

showed a striking similarity in the features between BD, regardless of CD, in an ADHD adolescent population. This study reported the age of onset of mania was similar with or without CD.

Biederman, et al. (2002) agreed with previous studies that suggested, like ADHD, CD was strongly associated with pediatric mania. Kovacs and Pollack (1995) reported a 69% rate of CD children in a sample of manic youth, who displayed a more complicated course of mania. Biederman, Mick, Farone, et al. (2000) cited the Zurich longitudinal study conducted by Wicki and Angst (1991) which found that hypomanic cases had more disciplinary problems at school, and committed more thefts during juvenile years than children with major depression. This was well documented as a precursor to early-onset bipolar disorder. Wozniak et al. (2002) in personal communication with the authors in the above-mentioned study by Biederman, Mick, Farone, et al. (2000), compared relatives of four groups of clinically referred probands defined as having (1) CD and mania (n=26 probands, 92 relatives), (2) mania without CD (n=19 probands, 53 relatives), (3) CD without mania (n=16 probands, 58 relatives), and (4) control subjects without mania or CD (n=102 probands, 338 relatives).

Biederman, Farone, Monica, Chu, and Wozniak (1998) believed there was a bidirectional overlap between juvenile mania and conduct disorder in children. This study systematically investigated the overlap between mania and CD in a sample of children. It was hypothesized that neither CD nor manic symptoms were secondary to the other disorder and that children with 2 disorders would have correlates of both. The children and adolescents meeting DSM-III-R diagnostic criteria were evaluated through



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Cogan (2002) found that early-onset bipolar disorder was commonly comorbid with other psychiatric behaviors, particularly disruptive behaviors. She has suggested that the major symptomatic difference between ADHD, conduct disorder, and bipolar CD has often emerged in early childhood or adolescence. CD children and adolescents have exhibited the potential for the painful consequences seen in mania. Unlike manic children however, the conduct-disordered child's motives were more hurtful, vindictive, and anti-social.

In a study conducted by Biederman, et al. (1997) children with oppositional defiant disorder, conduct disorder, oppositional behaviors, and comorbid psychiatric behaviors were examined and displayed more severe symptoms, particularly in a bipolar disorder. This study was significant for a positive correlation between early-onset bipolar disorder and vulnerability toward conduct disorder.

A great deal of debate and controversy has continued in terms of how to label entities who meet criteria for more than one diagnostic category and more directly, which disorder takes precedence in terms of treatment (Papolos, 2003). Currently, research has supported a distinction between the symptoms of oppositional defiant disorder and conduct disorder, however, much controversy has remained regarding the issue of whether aggressive symptoms should be considered part of oppositional defiant disorder or conduct disorder (Papolos, 2003).

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Kovacs and Pollack (1995) confirmed the strong association between conduct disorder and bipolar disorder in their study of 26 bipolar youths. This study indicated that 18 of these subjects struggled with conduct disorder at some point in their lives, yielding a 69% lifetime comorbidity rate. Kovacs and Pollack found that over one-half of their sample, or 54% of the entire bipolar group, had overlapping mania or hypomanic episodes with conduct disorder.

Papolos and Papolos (2002) reported that conduct-disordered behavior could occur before or after the manifestation of bipolar symptoms, by determining the age-of-onset for conduct disorder, in 11 of 18 of the bipolar youths. Conduct disorder appeared prior to the first episode of mania, for 7 subjects, and conduct disorder occurred subsequent to the first episode of mania or hypomania. Ultimately, this sample was too small to confirm definite conclusions, but it was quite certain that clinically, these disorders were commonly linked.

Two questions of significance, have been raised by Papolos and Papolos, (2002):

1. Are conduct disorder symptoms directly associated with bipolar disorder as co-occurring diagnosis, therefore implying that they are inherited together?
2. Are these defiant and oppositional behaviors expressed primarily during full episodes of mania and hypomania, implying that these behaviors are motivated by mood disorders?

Papolos and Papolos (2002) stated “until we know more about the underlying causes of child psychiatric disorders, no diagnosis should be discounted because another disorder is present” (p. 44). These authors have also noted that in addition to the confusion of subjects having two disorders, conduct disorder and early-onset bipolar disorder, that both of these disorders have been found to be comorbid with ADHD.

Due to the numerous overlapping symptoms that co-occur with early-onset bipolar disorder, research has shown how difficult it has been for clinicians and research scientists to separate bipolar disorder as an independent clinical entity. In terms of

bipolar disorder with the comorbidity of conduct disorder the most recent studies have shown childhood-onset bipolar disorder has high rates of comorbidity with ADHD, conduct disorder and obsessive compulsive disorder (Papolos, 2003). The comorbidities, of entities other than a bipolar disorder, were more easily recognizable which has been extremely problematic in diagnosing early-onset bipolar disorder. With this problem identified, there have been long periods before the child or adolescent received the proper diagnosis of a bipolar disorder and finally the appropriate treatment.

Goodwin and Jamison (1990) also stated that a bipolar illness in adolescents can be confused with antisocial personality disorder. The overlapping features of both disorders are displayed by “impulsivity, shoplifting, substance abuse, difficulties with the law, and aggressiveness” (p. 190). Goodwin and Jamison have cited Bowden and Sarbia (1980) as stating that “factors that may be useful in differentiating adolescent affective illness from antisocial personality disorder include family history, premorbid personality, and the association in bipolar patients, of antisocial behavior with elevated or irritable mood, the absence of conscience, and a relative lack of peer group influence on behavior.”

### **The Relationship between Gender and Bipolar Disorder**

A great discrepancy currently exists when diagnosing girls and boys with conduct disorder (CD) (Scholevar and Scholevar, 1995). The rate of conduct disorder in boys under the age of 18 years ranges from 6% to 9% of the population (Scholevar and Scholevar, 1995). The current rate of diagnosis of conduct disorder in girls has been greatly underestimated and several explanations have been offered as the reasons for

the under representation in this population (Zoccolillo, 1993). The underestimation of the diagnosis of conduct disorder in girls may be due to:

1. The inappropriate diagnostic criteria
2. Biased perceptions by those responsible for reporting problematic behavior
3. The differential social constraints for each gender

Girls who have struggled with conduct disorder face a poor prognosis “including early and violent death, arrest, substance abuse and dependence, antisocial personality disorder, failure to finish high school, promiscuity, pregnancy and contraction of sexually transmitted diseases” (Brandone, Moffit, Caspi, Dickson, Stanton, and Plath, 1998, pp.594-601 cited in Arkin-Little and Little, 2003, p.187). Differences between affective illness and antisocial personality disorder include family history, premorbid personality, and the association in bipolar patients, of antisocial behavior with elevated or irritable mood. Conduct disorder, historically, has been significant for the absence of conscience and a relative lack of peer group influence on behavior.

Conduct disorder is the second most common psychiatric disorder in adolescent girls (Cohen, Cohen, and Brooks, 1993). Research scientists have been faced with the question as to why there be such a great discrepancy of diagnosis of conduct disorder in girls, when compared to boys, and what were the reasons for the paucity in the literature on such a warranted subject? Further questions that have been left unanswered are: “Why might CD rates be higher in girls than current information has suggested? What are the possible causes and risk factors for CD in girls? What

assessment and intervention techniques have been suggested by available research in this area?" (Deliggatti, Arkin-Little, and Little, 2003, p.187).

Several researchers have attempted to offer an explanation for the paucity of literature on CD girls: (1) Perception among mental health professionals was that the existence of CD amongst girls was rare and most outcome studies have concentrated on boys, alone, or combined boys and girls together (Robins, 1986). (2) "Much of the research on antisocial behavior has come from the criminal justice system and males have a much greater arrest and imprisonment record and commit more serious crimes than females" (Zoccolillo, 1993, p. 69).

It has been recognized that the criteria for CD in the DSM-IV (APA, 1994) and previous versions of this publication were derived largely from studies that concentrated on boys (Lahey, Goodman, et al. 2000; Spitzer, Davies, and Barkley, 1990). The validity of the criteria has never been established on the female population. Of great significance was the finding that most conduct-disordered girls do not exist within psychiatric populations, namely the criminal justice system.

#### **Potential Causes for the Underestimation of Diagnosis of Conduct Disorder in Girls**

It should be made clear that much of the reasoning that has validated the under diagnosis of CD has been linked directly to the lack of research on this population (Deliggatti, Arkin-Little, and Little, 2003). Deligatti, et al. have stated another reason for the lack of diagnosis of CD in girls has been the seemingly large amount of inappropriate diagnostic criteria. These research scientists believe that inappropriate diagnostic criteria combined with the biased perceptions of those responsible for reporting the

problematic behaviors are to be blamed for the lack of behaviors in girls (Zann-Waxler, 1993). Shoplifting has been found to be more prevalent in girls along with apprehension and other covert behavior, rule violations and violations of the law. The current diagnostic criteria have placed greater emphasis on more visible externalizing behaviors; therefore, boys with CD are more frequently identified, diagnosed, and treated than girls (Zann-Waxler, 1993).

### **Girls and Boys Present Differently with Conduct-Disordered Behaviors**

Boys and girls present symptoms of disruptive behavior disorders in different ways (Kann & Hanna, 2000). Internally focused behaviors such as anxiety, shyness, withdrawal, hypersensitivity and somatic complaints were more common in girls (Zoccolillo, 1993). The internally focused behaviors have resulted in a different pattern of antisocial, abusive and exploitive behaviors resulting in inaccurate data on this population (Kann and Hanna, 2003, p.185).

### **Gender Differentiation and Aggression in the Conduct-Disordered Population**

Historically, girls have displayed more sophisticated social skills than boys and it is possible that their “heightened interpersonal awareness” has made it easier for them to live their lives in an undetected manner, while deviating from social expectations (Zann-Waxler, 1993). This more highly developed interpersonal awareness has constituted a form of aggression present in females, when compared to males. Aggression presented differently between the genders. Crick and Grotpeter’s (1995) research on gender differences in the presence and presentation of aggression has helped explain this phenomenon: “Girls present with relational aggression rather than the more overt

physical aggression seen in boys. Boys with CD may be found fighting in the hallway of school, girls with CD may be more likely to practice covert relational aggression. Boys' aggression is consistent with normative male goals of instrumentality and physical dominance on boys in social relations to girls" (Deliggatti, Arkin-Little, and Little, 2003).

Relational aggression may be in the form of angrily retaliating against a child by excluding her from the play group, purposely withdrawing friendship or acceptance in order to hurt or control another child, or spreading rumors about a child in order to cause other children to reject a peer. The salient feature of this research is that aggression has presented itself in both boys and girls. Crick and Grotpeter (1995) have suggested that when both forms of aggression are used in identifying behavioral problems, aggressive boys and girls may be identified with almost equal frequency. These researchers have also suggested that "boy and girls use forms of aggression that are intended to damage their peer's most valued goals; physical dominance in boys and social relations in girls (Deliggatti, Arkin-Little, and Little, 2003, p. 185).

**The Relationship between Age-of-Onset of Bipolar Disorder and the Vulnerability toward a Diagnosis of Conduct-Disordered Behaviors in Adolescent Girls and the Vulnerability toward a Diagnosis of Attention-Deficit-Hyperactivity-Disorder**

Biederman (2002) reported that ADHD is the most common neurological disorder, estimated to affect between 4% and 12% of all school-aged children. The chief features of ADHD are inattention, hyperactivity, and impulsiveness. This disorder has been frequently associated with substantial impairments, such as, low self-esteem, poor family and peer relationships, school difficulties and academic underachievement.



These are core criteria represented in the DSM-IV that warrant the diagnosis of ADHD when observed in children. To address the diagnostic complexity of early-onset bipolar disorder, a great deal of research has focused on the phenomenology and comorbidity of this population. ADHD, as a comorbid diagnosis with BD has received a great deal of attention and this has been important for several reasons. Essentially, etiologically, early-onset bipolar disorder appears to have evolved from a constellation of symptoms equivalent to ADHD (West, 1997).

Biederman, et al. (1996) evaluated the psychiatric, cognitive, and functional correlates of ADHD children with and without comorbid BD. DSM-III-R structured interviews and blind raters were used to examine psychiatric diagnoses and a 4-year follow-up in ADHD and control children. The eligible children in this study were Caucasian, non-Hispanic, male children and adolescents, 6-17 years of age, with an IQ greater than 80. Additionally, subjects were evaluated for cognitive, academic, social, school, and family functioning.

This study reported that 23% of the children diagnosed with ADHD eventually developed mania. BD disorder was diagnosed in 11% of the children at baseline and in an additional 12% of the children at a 4-year follow-up period. It was important to recognize that every symptom of ADHD was a symptom of mania, however, every symptom of mania was not present in an ADHD diagnosis. This data suggested a core constellation of symptoms might initially be present and overlap with time; however, each disease had its own identity. Winokuor, Coryell, Endicott, and Akiskal (1993) researched ADHD as a comorbid diagnosis in manic adolescents, and prior research has

indicated a high comorbidity between these two psychiatric disorders. Winokuor, et al. reported that 21% of patients with bipolar disorder had histories of ADHD or ADHD-like symptoms in childhood, compared with only 9% in patients with major depressive disorder.

Milberger, Biederman, and Farone (1995) conducted a research study to determine whether ADHD was an artifact of symptom overlap with other psychiatric disorders. One hundred and forty boys with ADHD were studied, and 15 of these boys had a comorbid diagnosis of BD. A subtraction method and proportion method to correct for symptom overlap between ADHD and BD was implemented and this study found that 7 (47%) and 12 (80%) of the children continued to meet criteria for BD after these methods were administered. Fifteen (100%) of the children with comorbid ADHD and BD continued to meet the criteria for ADHD, and the authors of this study concluded that neither ADHD, nor BD was an artifact of symptom overlap.

Wozniak, Biederman, Mundy, Menin, and Farone (1995) examined 262 clinically referred preadolescent children with ADHD diagnosis. The Child Behavior Checklist (CBCL) was administered to all participants in the study, and the CBCL research findings were: (1) 16% of the children met diagnostic criteria for mania, (2) the clinical picture of these children represented irritability and mixed states, (3) 98% of these children met criteria for both mania and ADHD, and (4) the children struggling with mania were at the highest risk for major depression, psychosis, psychiatric hospitalization and impaired psychosocial functioning.

Further information provided showed that the BD children were found to have had significant elevation in all the clinical scales of the Child Behavior Checklist (CBCL) when compared with the ADHD children. The highest scores were seen in the Delinquent Behavior, Aggressive Behavior, Anxious/Depressed, and Thought Problems scales. The end result of this study has suggested that early-onset BD children suffer from a severe psychiatric condition that manifests itself in an enormous range of psychopathology and dysfunction. Data was also positive for stressing a strong relationship between early-onset BD and ADHD in the pre-adolescent population (Farone, et al. 1997).

Farone, et al. (1997) questioned the comorbidity of ADHD as a marker for juvenile-onset mania. They examined 637 consecutive admissions from the pediatric unit of psychiatry at Massachusetts General Hospital in Boston. Sixty-eight children (13 years of age) who satisfied the criteria for mania were subjects in this study. These youngsters were compared with 527 non-manic referrals and 100 controls. The purpose of this study was to compare the characteristics and correlates of mania in referred adolescents and to determine whether ADHD was a marker for early-onset mania.

The results showed that with the exception of comorbidity with ADHD, there were more similarities than differences between the children and adolescents with mania in course and correlates. There was an inverse relationship between the rates of comorbid ADHD and age-of-onset of manic behavior. These were higher in manic children, intermediate in adolescents with childhood-onset mania, and lower in adolescents with adolescent-mania. The research concluded that ADHD was more

common in childhood-onset compared with adolescent-onset subjects of bipolar disorder and suggested that in some subjects, ADHD may signal a very early onset of bipolar disorder. Results were also supported by clinical similarities between child-and-adolescent cases that provided evidence for the clinical validity of childhood-onset mania.

Geller and Luby (1997) suggested for some prepubertal-onset-bipolar-disordered children hyperactivity manifestations began in preschool age and were followed by a full manic syndrome during the early grade school years. The data supported that hyperactivity was the first developmentally, age-specific manifestation of prepubertal BD. This hypothesis was consistent with the higher prevalence of ADHD in prepubertal versus adolescent-onset bipolar disorder. Many studies have been indicative of the high prevalence of symptoms of hyperactivity in bipolar children and adolescents, Geller and Luby found that when subjects who were initially seen because of BD symptomatology, and that approximately 90% of the prepubertal subjects and 30% of adolescent participants were diagnosed with ADHD. In conclusion, Geller and Luby (p.4) believe “Validation in the distinctness of coexistent ADHD versus similar symptom clusters, but dissimilar pathogenesis, must await future naturalistic course, family genetic, and other neurobiological studies.”

### **The Interaction between Prevalence, Gender, and the Age-of-Onset of Bipolar Disorder**

At this time, prevalence rates, age of onset and the clinical course of BD do not differ in terms of gender (Schulman, Schaffer, Levitt and Herrmann, 2002). This data

confirmed that the rapid-cycling form of BD was more commonly found in the female population. However, the hypothesis that underlying thyroid abnormalities may explain this phenomenon has not been conclusively addressed. The data also recognized the postpartum period as a high-risk time for depression in women when compared with men.

Goodwin and Jamison (1990) found that affective illness was greater in women, than men, but this was due to the higher prevalence of unipolar women with BD to develop psychosis. These scientists stated that “a sampling of studies from around the world shows that the ratio of affective illness in females/males ranges from 1:3 to 3:1” (p.168 According to Schulman and colleagues (2002), the female population seemed more likely to develop mixed manic episodes, but this evidence was based on limited data. The data between phenomenological differences of young people and mixed age range samples were inconsistent and substantial differences have not emerged. Mondimore (1999) reflected, “women are no more likely than men to suffer from a bipolar disorder. The hormonal changes that accompany menstruation and pregnancy affect the course of bipolar disorder in women and deserve special attention, as do some patterns of symptoms more often experienced by women than men with bipolar disorder.” (p.169) Mondimore reported results (Anonymous, 1999) of a retrospective study wherein BD women were given questionnaires concerning premenstrual symptoms. The results reported that 60% of the women reported a worsening of their premenstrual symptoms.

Leibenluft (2000) explored clinical challenges that women with a bipolar disorder and the clinicians who treat them still require addressing. Leibenluft stated the major clinical challenge facing this population is in the management of rapid cycling bipolar disorder (RCBD) during the postpartum period of life. The treatment of depression in postpartum women was the most difficult aspect of this disease to treat and manage. Of great concern for this group of women was that the risk for relapse during this phase was uniquely high.

Three hypotheses have been suggested in the literature to better understand the increased RCBD among women (Leibenluft, 2000, pp. 5-8).

1. The hypothesis that has sparked the greatest research interest focuses on the possible role of hypothyroidism and the fact that it is more common in women than men.
2. The second major hypothesis that has attempted to explain the increased risk of RCBD among bipolar women has examined the possible role that gonadal steroids may play during mood cycling. Research has suggested the possible analogy of the menstrual cycle-related mood-cycling present in a dysphoric disorder (APA, 1994) to menstrual cycle-related mood cycling that may be present within a bipolar disorder and account for the increased risk for developing RCBD in this population.
3. The third set of hypotheses has tried to explain and understand the preponderance of women who experience rapid cycling by addressing

gender difference in terms of mood-stabilizing and antidepressant medications.

Research has recognized that antidepressant medications may contribute to manic episodes and also rapid-cycling (cited in Wehr and Goodwin, 1979 and 1987 in Leibenluft, 2000). Leibenluft recognized the lack of research on pregnancy in bipolar women and the existing data showed that pregnancy per se does not increase the risk of relapse in bipolar women. However, it is well documented that the risk of relapse for bipolar patients who are non-compliant with taking medication, is high. It has also been accepted that it would be difficult for a bipolar woman to carry a baby to term without the help of medication (Leibenluft).

Bipolar women may experience more depressive episodes than bipolar men and may require more medication. The increased use of antidepressant medication by women may account for the increased risk of rapid cycling in this population. The research scientist in the above-mentioned study acknowledges, to date, there are no published studies of gender differences to mood stabilizers.

This study also reported results of rapid-cycling bipolar women who were asked to chart moods on a daily basis. There was no association between mood symptoms and the menstrual cycle in rapid-cycling bipolar-disordered women. At this time there does not appear to be a clear and existing relationship between bipolar symptoms and a women's menstrual cycle. However, there may be a group of women with a bipolar disorder who were at higher risk for developing BD symptoms pre-menstrual, but more data is needed to accept or reject the hypothesis.

Liebenluft (2000) believes three possible gender differences that existed between men and women were:

1. “The prevalence of rapid-cycling among women, defined as four or more episodes per year has appeared more frequently in women than in men.
2. Bipolar women may be at a higher risk for depressive episodes than bipolar men.
3. Bipolar women may present with mixed episodes as opposed to pure mania.” (p.76)

A “gender-aware” approach was necessitated “by the fact that at least one reproductive transition, parturition, has a rather marked impact on its course (p. 10). Many studies have been positive for incomplete evidence indicating that the female population was more likely to develop mixed episodes. However, this information was found on limited data. Inconsistent data still remained regarding the phenomenological differences between youth and mixed age samples, no substantial differences have emerged. Finally, the clinical course of early-onset BD has reported mixed results with respect to recovery and relapse.

In conclusion of this extensive study, Leibenluft, (2000) stated “In a sample of patients with RCB, we found that both sleep duration and time of awakening predicted mood state the next day....It is unfortunate that a patient’s time of awakening is more difficult to manipulate pharmacologically than time of sleep onset, because the former appears to be more clinically relevant than the latter” (p.13). Leibenluft has shown the difficulty of managing RCB for both patient and clinician, particularly during the



postpartum period or when a patient is rapidly cycling. She stated that the hope for treatment for this disorder rests with ongoing clinical trials and with anticonvulsant agents and atypical antipsychotic medication.

### **Summary of Literature Review**

A great deal of controversy and confusion, both historically and currently, has continued to surround diagnosing bipolar- disordered children and adolescents. Many expert researchers and clinicians have continued to debate whether bipolar disorder should be viewed as a part of a spectrum of disorders, ranging from unipolar depression to psychotic disorders and schizophrenia, or viewed as a group of distinct diagnostic entities that include three bipolar disorder types and cyclothymia. The (NIMH, 2001) round-table discussion agreed that a bipolar disorder could be diagnosed in children by using DSM-IV (APA, 1992) criteria, and in addition to Bipolar Disorder Type I and Bipolar Disorder Type II, Bipolar Disorder NOS (Not Otherwise Specified) could be given as a 'working diagnosis' in children and adolescents.

This literature review has created a framework for understanding the past history and current on-going theories and controversy surrounding the diagnosis of an adolescent diagnosed with a bipolar disorder. The clarification of the definition of a bipolar disorder is an on-going process with an extensive history. The Greek philosopher, Areteaus of Cappadocia, established the roots of this disorder in the second century AD. This review has traced the origin and definition of bipolar disorder from conception through the present time. This review has continued with examining bipolar-disordered adolescents struggling with comorbid conduct-disordered behaviors

and substance use disorders. This population has been studied in regard to: age-of-onset, prevalence, gender, social economic status, behaviors and symptoms. The goal of this research project has been to flush out the constellation of problematic behaviors frequently engaged in by adolescents with a bipolar disorder.

The mental health field is lacking in terms of need for better criteria to differentiate atypical and typical bipolar disorder. Also, there was limited literature describing early-onset bipolar disorder in the female child/adolescent population. There also appears to be a gap in the literature in terms of antisocial behavior in the female child/adolescent population. Little has been recorded in terms of how an early-onset bipolar disorder affects the female child/adolescent in terms of anger, rebellion, and venues of acting-out against societal norms.

This study further examined the relationship between conduct-disordered behaviors and substance use disorders comorbid with the adolescent bipolar-disordered population and also included limited data on the comorbidity of ADHD with this population. This study addressed young adults who have struggled with these psychiatric disorders as adolescents in order to gain greater knowledge into the symptoms, behaviors, and level of functioning of this population.

It was of interest to this researcher to determine how young adults viewed the treatment they received by the mental health community, as adolescents, and what areas were in need of improvement to better understand the perception of satisfaction level and quality of care provided by the mental health community to this population. The Client Satisfaction Questionnaire (CSQ-8; Larsen, Attkisson, Hargreaves, and

Nyguen, 1979) was administered to the participants in this study to gain insight into these issues. To gain deeper insight into the behaviors and symptoms of conduct-disordered behaviors co-existing with early-onset bipolar disorder, The Adolescent Questionnaire, created by this researcher, was also administered to the participants in this study.

Finally, this study looked at the statistical relationships between gender and frequency of problematic behaviors and age-of-onset and frequency of problematic behaviors with early-onset bipolar disorder, substance use disorder, and conduct-disordered-behaviors to determine the relationship between gender and frequency and age-of-onset and frequency of problematic behaviors in the early-onset bipolar disordered population.

This research study was also designed to separate primary and secondary diagnoses in these complex disorders when diagnosing the child and adolescent population. It is furthermore the hope of this researcher to enhance the diagnostic sensitivity of gender and age-specific criteria in the adolescent bipolar-disordered population when comorbid with conduct-disordered behaviors and substance use disorder problems. Research has indicated the sooner clinicians and research scientists are able to correctly diagnose this population, the more accurately individuals will be diagnosed and, hopefully, produce more positive treatment results (Weller, 2002). The end product of accurate and time appropriate diagnosis will ideally reflect better over all mental health for this population. The end result would be decreased negative, destructive symptoms, and behaviors, producing healthier adolescents.

The following chapter describes the methodology utilized to understand the relationship between age-of-onset of BD in the adolescent population with the comorbidity of substance use disorder, and conduct-disordered behaviors. The study of ADHD and comorbid adolescent bipolar disorder has proven too extensive for this research study. Of great interest to this research study was how an adolescent with comorbid psychiatric diagnoses, manages or mismanages “feelings” as displayed through acting-out behaviors and displaying antisocial behavior.

The current literature has proven to be greatly limited in terms of the detailed behaviors, symptoms, and level of functioning of the adolescent bipolar-disordered population comorbid with conduct-disordered behaviors and substance use disorders.

## **CHAPTER III**

### **METHODOLOGY**

#### **Introduction**

The purpose of this retrospective study was to explore the relationship between gender and frequency of the problematic behaviors most frequently associated with early-onset bipolar disorder. Conduct-disordered behaviors and substance-use problems were examined to gain further insight into the problematic behaviors that this population often engages. This study continues with examining the participants' degree of satisfaction with the mental health services received during adolescence and the quality of mental health services received during these earlier years. This study hopes to add insight into the existing body of knowledge concerning an early-onset bipolar disorder.

The following section describes the procedures followed in this research study and includes a section describing the participants who volunteered time, and had the required energy to participate in this research study. Chapter 3 includes the procedures that were used to obtain the data necessary for hypothesis testing, the data collection procedure, instruments, the research design, variables, the coding of variables, and a

description of quantitative data analysis. This researcher administered three paper and pencil measures, the instruments, to the 49 participants who were referred to this study and who met the criteria for participation in this study.

Prior to data collection, the research design was reviewed and approved by Cleveland State University's Institutional Review Board for Human Subjects in Research (IRB). The research design was found to be in compliance with federal regulation for the protection of human subjects' participation for study.

### **Procedure**

The intent of this study was to determine whether frequency and gender affected specific types of problematic behaviors associated with adolescents diagnosed with early-onset bipolar disorder. Based on the number of variables and statistical task, a sample size of 60 individuals was acceptable for the purposes of this study. The total number of participants who were able to complete the paper and pencil measures was 49 and considered to be large enough for the current study's methodology. Verification of consent contained in Appendix A.

The independent variables in this study were: gender and age-of-onset. The dependent variables in this study were: (a) illegal behaviors, (b) school-based problem behaviors, (c) problem behaviors, (d) sexual behaviors, (e) satisfaction with treatment, and (f) satisfaction with quality of treatment received during the adolescent years. The convenience sample in this study was recruited by the mental health professionals at an Ohio, community-based, mental health facility. The inclusion criteria in the sampling were: (a) Participants self-reported having a bipolar disorder as an adolescent; (b)

participants in this study were currently diagnosed with a bipolar disorder diagnosis by a licensed mental health practitioner, i.e., a psychiatrist, nurse practitioner, counselor, or social worker; (c) participants were between the ages of 18-40 years of age. In the demographic questionnaire, the majority of participants reported age-of-onset of bipolar disorder as being in the 20-year old age bracket. There were several plausible explanations for this discrepancy and the reasoning has been discussed in the discussion section of chapter 5.

In the statistical analyses of the data, the number used for age-of-onset was the written number the participant recorded on The Demographic Questionnaire. Five female participants recorded age-of-onset between 14-17 years of age and two female participants recorded being 18 years of age, the beginning of adulthood. Two male participants reported being younger than 18 years of age at age-of-onset of bipolar disorder and two female participants were uncertain of their age-of-onset, therefore, the current age of these participants were used, and the age-of-onset was recorded as an “estimate.”

The sample size for the dependent variable, illegal behaviors, was small ( $n = 20$ ), as not all participants responded to all parts of the question. When the reliability was computed, if one participant was missing a response, the participant’s scores across all the variables were not included (see Table 10).

### **Data Collection**

A letter requesting permission for this researcher to work with the mental health clinicians and patients was written to the administration of the participating

facility (see Appendix B). The letter explained this researcher was a doctoral candidate in the Counseling track of the Urban Education and Human Services program at Cleveland State University. The letter further explained the research was being conducted in order to fulfill the dissertation requirement of the program and was examining the relationship between gender and frequency of problematic behaviors in the early-onset bipolar-disordered population. To ensure confidentiality, the participants would be identified by a coded-number. Only this researcher and the dissertation advisor, of the study, would have access to the names of the participants. When this dissertation study was completed and approved by this researcher's Ph.D. committee at Cleveland State University, a copy of the study will be made available to the participating mental health facility. Approval by the mental health agency was granted to this researcher to conduct this study (see Appendix C).

The letter written to the participating clinicians included a description of the study, criteria required of participants, and purpose of this research study (see Appendix D). If interested in participating in this study, the mental health clinicians referred their patients to this research project. The patients were instructed to contact this researcher at the cell phone number provided in the letter to the clinicians. Participation in this study was on a voluntary basis. The convenience population in this study, was currently diagnosed with a bipolar disorder diagnosis during adolescence.

To facilitate data collection, the researcher arranged for potential participants to contact this researcher via cell phone, after he/she was referred to the study by their mental health clinician. The volunteer was asked to leave a contact telephone number



for this researcher. This researcher responded to all potential participants within 24 hours of receiving a phone message. If the volunteer met the inclusion criteria, the researcher and potential participant arranged to meet in a non-physician office at the participating mental health facility.

The Informed Consent Statement (see Appendix E) was explained to each participant and signed prior to the administration of the three paper and pencil measures administered in this study. All participants willingly signed the statements and were informed that his/her name would remain anonymous. The participant was further informed that for the purposes of this study, participants would be identified by a coded-number, and all data would be stored in a locked safe, out of plain view, in the researcher's home.

Each participant met with this researcher for the purpose of data collection, for approximately 20-30 minutes. All participants received a "gift certificate" valued at \$20.00 redeemable at a national retail store. The gift certificate, provided by this researcher, was given as an incentive for participating in this study and as a means of thanking the participants for their involvement in this research study.

Two male participants had great difficulty calming down in order to complete the paper and pencil measures. Both men were in the 30 year-old age bracket and each participant took between one and one and one-half hours to settle down. During this extended period of time, participants spoke about past behaviors and trouble they had encountered with the law.

It proved most effective for the clinicians to contact this researcher by phone and refer potential participants to this study, when the patient was in session with their clinician. The referred patients were escorted to the non-physician office, used by the researcher for the purpose of this study, by a staff member, or were met in the lobby of the participating facility by this researcher.

The purpose of the data collection session was fivefold: A) To administer the three paper and pencil measures, B) To explain the meaning of informed consent and ask participants to sign Informed Consent Statements, C) To explain the rationale for creating this study, D) To clarify the importance of each male and female's participation in the study. All participants were also given the phone number to the IRB office at Cleveland State University and encouraged to contact the office, if necessary, and E) To clarify the meaning of confidentiality and anonymity. This researcher was available to answer questions in terms of the research study.

The initial sample size was  $n = 54$ , however, six participants were non-compliant resulting in the current sample size of  $n = 49$ . In discussion with the referring psychiatrist, it was believed this group of six potential participants failed to comply with the research study for the following reasons: (a) The potential participants all scheduled appointments with this researcher, however, (b) The potential participants failed to keep their scheduled appointments. Therefore, the sample size for this study was  $n = 49$ .

One participant did not speak English and saw her psychiatrist with a Spanish-speaking interpreter. This participant was able to participate in the study with the help

of her interpreter. The interpreter read and explained the Informed Consent Statement to the participant and all paper and pencil measures, as well. The participant signed the Informed Consent Statement and the interpreter completed the measures as instructed by the participant.

In October 2006, this researcher became concerned that clinician referrals were slowing down and wanted to explore other possible avenues of obtaining access to participants. The IRB suggested this researcher contact college and university counseling centers. This advice was adhered to, but did not prove to be necessary, as the required number of participants was obtained in a timely manner.

The following nine research hypotheses were created for the purpose of this study:

1. There will be a significant gender difference associated with the involvement of high-risk/daredevil or acting-out behaviors among adults who report adolescent symptoms of a bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.
2. Younger age-of-onset of bipolar disorder will be significantly associated with more high-risk/daredevil behaviors among adults who report adolescent symptoms of a bipolar disorder or adults who were diagnosed with a bipolar disorder during adolescence.
3. There will be a significant gender difference associated with sexually acting-out-behaviors among adults who report adolescent symptoms of

bipolar disorder or adults who were diagnosed with a bipolar disorder during adolescence.

4. There will be a significant gender difference associated with illegal behaviors among adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence (e.g., shop lifting, the use of illegal substances, the deliberate destruction of other peoples' property, aggressive behavior to the point of threatening physical harm to people or animals, time spent in jail or a juvenile facility, carrying a weapon or using a weapon that could cause physical harm, i.e., a bat, brick, broken bottle, knife, or gun), having your middle school or high school file "unruly charges" filed against your parents, involvement with Family and Children's Services and placement in foster home (s).
5. Early age-of-onset of bipolar disorder will be significantly associated with greater involvement of sexually acting-out behaviors in adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.
6. Early age-of-onset of bipolar disorder will be significantly associated with a greater frequency of school-based problem behaviors among adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.

7. There will be a significant gender difference in the involvement of school-based problematic behaviors among adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.
8. There will be a significant gender difference with the overall satisfaction of treatment received among adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.
9. There will be a significant gender difference in rating the quality of mental health services received by adults who report adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.

### **Instruments**

The three instruments administered in this study were: (a) The Demographic Questionnaire (see Appendix M); (b) The Client Satisfaction Questionnaire (CSQ-8; Larsen, Attkisson, Hargreaves, & Nyugen, 1979) (The copyright is held by Dr. Clifford Attkisson at the University of California at San Francisco); and (c) The Adolescent Questionnaire (Becker, unpublished) (Appendix M).

#### ***The Demographic Questionnaire***

The demographic questionnaire asked the participant to record the age-of-onset of bipolar disorder. The mental health history section of this paper and pencil measure asked the participant to identify the bipolar disorder episode that first brought the

participant to the attention of a mental health professional, and the severity of their illness during adolescent years. Furthermore, the questionnaire asked the participant if they had ever been given a formal diagnosis of conduct disorder. If the response was “Yes,” the participant was requested to state the age they were first diagnosed with a conduct disorder by a mental health clinician.

Participants were asked if they had ever been given the formal diagnosis of substance use disorder, if the response was “Yes,” the age-of-onset was requested. Participants were asked about participation in acting-out or high-risk/daredevil behaviors, and whether they had ever spent time in a Juvenile Detention Home or Jail, and to identify the frequency of problematic behaviors. The frequency of problematic behaviors refers to the number of times a specific behavior, causing trouble for the participant, repeated itself throughout the participants’ lifetime.

### ***The Client Satisfaction Questionnaire (CSQ-8)***

The Client Satisfaction Questionnaire (CSQ-8; Larsen, et al.,1979) was developed as a standardized measure of client satisfaction represented in a single global score. This instrument can be used in a wide variety of settings. Larsen, et al. initially identified nine program dimensions in which clients might vary regarding their satisfaction: Physical surroundings; support staff; kind/type of service; treatment staff; quality of service; amount, length, or—quantity of service; outcome of service; general satisfaction and procedures. Nine items were written for each dimension, were reviewed by experts and reduced to 31 items, which then comprised the original version of the CSQ. Field-testing

was examined in community mental health centers and the 8-item form (CSQ-8; Larsen, et al.,1979) and two parallel 18-item forms (CSQ-18A and CSQ-18B) were developed.

The items are rated on four-point Likert-type scale that does not allow for neutral responses. The total scores are computed by summing across items with higher scores reflecting greater satisfaction. The Client Satisfaction Questionnaire (Larsen et al.,1979) was utilized to determine how satisfied the participants had been with the treatment they received from mental health providers during their adolescent years. The reliability testing of the CSQ has documented high internal consistency (Wilkin, Hallam, and Doggett, 1992). Cronbach's alpha was calculated at  $p = .05$ , to determine internal consistency of this instrument (Cronbach, 1951). The internal consistency of the Client Satisfaction Questionnaire (Larsen, et al., 1979) was high ( $\alpha = .924$ ,  $n = 46$ ), computed for the purposes of this study.

Research reported the 8-item version had produced higher item-total correlations and inter-item correlations than the 18-item versions. Larsen, Ngyuen, and Attkisson (1981) using a sample of 92 clients from a mental health day treatment program, found alternate forms of reliability coefficient alphas estimated at .82 between the two parallel forms (CSQ-18A and CSQ-18B; Larsen, et al.,1979).

The results of this research found no significant differences between mean scores on the two forms. Greenfield (1983) reported internal consistency in a five-year follow up study ( $n = 1, 267$ ), with coefficient alphas of .83 and .88 for CSQ-3 (Larsen, et al., 1979) and CSQ-4 (Larsen, et al.,1979), in modified versions of the CSQ-8 (Larsen et

al.,1979), when used as part of a larger questionnaire of client satisfaction in a university counseling service study.

Greenfield reported internal consistency, respectively, when used as part of this larger study. Greenfield found differences in scores according to gender, student level, major, and the type of problems requiring therapeutic intervention (the differences in these specific areas were not detailed in this study). To explain validity of this instrument, several studies that compared the CSQ (Larsen, et al.) with other measures of client satisfaction and outcome have provided evidence that has supported the validity of this instrument (Wilkin, et al. 1992).

Hill (2003) reported the most commonly used patient satisfaction questionnaire in the outcome research literature was the Client Satisfaction Questionnaire (CSQ-8; Larsen, et al., 1979). This instrument is also supported in terms of reliability and validity. The Client Satisfaction Questionnaire (CSQ-8) (Larsen, et al.) was used in the current research study because it was the most commonly used instrument in terms of patient satisfaction questionnaires in the outcome research literature. Research also reported the 8-item version produced higher item-total correlations than the 18-item version (Wilkin, et al.1992) The CSQ-8 (Larsen, et. al.) was also supported throughout the research literature, in terms of reliability and validity. Based on prior research, this instrument was selected for use in the current research study.

The independent variables in the current research study were gender and age-of-onset. The dependent variables measured by this instrument and used to collect data on the participants include: (a) Participant report of satisfaction with the quality of



services received; (b) participant report if he/she received the kind of services desired; (c) participant report if the services met their needs; (d) participant report if he/she would refer he/she would refer his/her friends to the program; (e) participant report of satisfaction in terms of the amount of help received; (f) participant report whether the program helped him/her deal more effectively with his/her problems; (g) participant report of satisfaction with treatment received; and (h) participant report of whether he/she would return to program, if needed.

This researcher contacted the University of San Francisco (see Appendix H), the institution that holds the original copyright for this instrument, and requested permission to use this questionnaire in the current research study. The copyrighted material for the (CSQ-8; Larsen, et al.1979) is held by one of the original authors of the Client Satisfaction Questionnaire (CSQ-8; Larsen, et al.,1979), Dr. Clifford Attkisson. Permission was granted to this researcher to use theCSQ-8 (see Appendix I) in the current research study.

### ***The Adolescent Questionnaire***

The Adolescent Questionnaire (Becker, unpublished) was created by this researcher to help identify symptoms and behaviors of early-onset bipolar disorder in the child and adolescent population not identified by existing instruments. This questionnaire also attempted to identify problematic behaviors frequently associated with early-onset bipolar disorder not addressed in currently existing instruments. The rationale and list of references utilized in the development of this instrument was determined by conducting a thorough search of Educational Test online, PsychInfo,

Medline/Medscape, and psychological abstracts. Research continued with an intensive review of book chapters, article reviews, and asking this researcher's dissertation committee for suggested source materials, also previous versions of this potential instrument were utilized.

This search was conducted between the years of 2000-2005 and used the following text words: early-onset, bipolar, attention-deficit-hyperactivity-disorder (ADHD), alcohol abuse/disorder, substance use disorder, conduct disorder and conduct-disordered behaviors in females and males. This research project covered the period from 1990-2005 and yielded about 500 articles. Each reference was scrutinized, and only the most relevant and representative references were included in this study.

The result of this extensive and exhaustive review revealed the lack of, and therefore need for, a questionnaire that would specifically address the gender and frequency of problematic symptoms and behaviors with the early-onset bipolar-disordered population, possibly struggling with co-existing psychiatric problems and/or disorders, specifically: ADHD, substance use disorders and behaviors, and conduct-disordered behaviors. Essentially, no instrument currently existed addressing the specific criteria needed for this study. The instruments reviewed did not adequately address the problematic behaviors most frequently associated with the adolescent bipolar-disordered population.

The Adolescent Questionnaire (Becker, unpublished) consists of 22 Likert-type scales, similar to the scales represented by the Client Satisfaction Questionnaire (Larsen, et al. 1979). The questionnaire was developed as a self-report inventory, answered

retrospectively by the participants in this study. This instrument addressed and attempted to answer details on problematic behaviors associated with early-onset bipolar disorder not addressed in the CSQ-8; Larsen, et al.,1979) or other standardized instruments.

This questionnaire was created for adults, between 18-40 years of age, who had been diagnosed with a bipolar disorder. This researcher recognizes the limitations of a self-developed and retrospective questionnaire. The purpose of other existing standardized instruments is in accord with the diagnoses of the DSM-IV-TR (APA, 2000). The goal of this research questionnaire was to flush out the constellation of prospective, problematic behaviors that an adolescent with a bipolar disorder might display.

The internal consistency reliability coefficient for The Adolescent Questionnaire (Becker, unpublished) was computed utilizing Cronbach's alpha, with  $p = .05$  (Cronbach, 1951). The internal consistency of The Adolescent Questionnaire (Becker, unpublished) was high ( $\alpha = .917$ ,  $n = 20$ ). The sample size for this instrument was low due to the fact that if a participant did not answer all of the questions on the instrument, the responses of that participant were not computed in data analysis.

The Adolescent Questionnaire (Becker, unpublished) was piloted with 3-4 participants for ease of use and clarity of this instrument. This questionnaire also provided part of the structure for the meeting between the volunteer/participants and this researcher. The questionnaire examined the relationship between gender and frequency of involvement with problematic behaviors during the participants' adolescent years. This paper and pencil measure also examined the relationship

between adolescent-onset bipolar disorder and the use of alcohol and/or illegal substances and the statistical results have been reported in chapter IV. This will be the initial presentation of The Adolescent Questionnaire (Becker, unpublished), therefore reliability and validity cannot be determined.

Data gathered through the use of this questionnaire provide a fuller picture of the young person's life by examining the symptoms and acting-out of high-risk/daredevil behaviors displayed by this group of adolescents. The Adolescent Questionnaire (Becker, unpublished) helped identify the problematic behaviors that individuals with early-onset bipolar disorder engaged and more clearly and correctly associates these behaviors and symptoms with the correct psychiatric disorders, specifically, substance use disorder and dependence, and conduct disorder. The additional value of this questionnaire, potentially, rests with the instrument's ability to assist mental health clinicians who work with the dual-diagnosed population, in terms of the accuracy of diagnosis and appropriate treatment. Dual diagnosis, for the purposes of this study, is understood to mean the co-existence of one or more psychiatric disorders experienced, simultaneously, by the same individual.

### **Analysis of Data**

The quantitative data in this research study were analyzed utilizing descriptive statistics, including the mean, median, standard deviation, frequencies, and percentages. All data were coded, i.e., assigning numerical values to non-numeric categories, entered into the computer, and a data file was constructed. A spreadsheet was used for data entry and data management.

Statistical analysis was conducted on the quantitative data to examine the relationships between gender, frequency, and age-of-onset of problematic behaviors most frequently associated with an adolescent bipolar disorder. Two sets of statistical analyses were conducted in the analysis of the data. First, t-tests were conducted using regression techniques as suggested by Judd and McClelland(1989). The t-tests were conducted in order to test the relationships between gender and varying types of problem behaviors. The second statistical measure performed per hypothesis, was a statistical test procedure. Statistical test procedures were conducted to analyze the relationship between frequency and gender; and age-of-onset with the various problematic variables that often co-exist with the early-onset bipolar-disordered-population. The statistical test techniques used were suggested Judd and McClelland (1989).

When the questionnaires were computed for reliability testing, only, the entire subject was deleted if parts were left unanswered. In terms of different research questions, the number of participants who answered the particular question, or had a particular characteristic relating to the behavior, i.e., illegal behaviors were reported. Participant characteristics were all reported, where applicable.

These instruments were used to test the fundamental hypothesis underpinning this research project that gender and problematic behaviors affect the age-of-onset and the frequency of the varying types of problematic behaviors associated with early-onset bipolar disorder. The independent variables in this study were: (a) Gender and (b) Age-of-Onset. The dependent variables were: (a) Illegal Behaviors, (b) School-Based-

Problem-Behaviors, (c) Problem Behaviors, (d) Sexual Problem Behaviors (e) Satisfaction with treatment during the adolescent years, and (f) Satisfaction with the quality of treatment received during adolescence.

## **CHAPTER IV**

### **PRESENTATION OF DATA ANALYSIS**

The primary objective of the current study was to determine the relationship between gender, age-of-onset, and the frequency of problematic behaviors in the early-onset bipolar-disordered population. In line with this, two sets of statistical analyses were conducted. First, t-tests were conducted using regression techniques (Judd & McClelland, 1989). The t-tests were used to test the relationships between gender and the frequency of varying types of problem behaviors. Second, statistical test procedures were conducted to analyze the relationships between age-of-onset and the frequency of varying types of problem behaviors. In the following section a description of the participants has been presented, followed by instrument reliability, and a description of the statistical tests utilized in the current study. In subsequent sections, the results of each of the hypotheses, has been presented. Data were collected between August and October 2006.

#### **Description of Participants**

The final sample was comprised of 49 participants. The upper age limit for participation in this study was 40 years of age. This sample size was sufficient to test the

hypotheses of this study. This is a convenience sample referred by the mental health clinicians of an Ohio-based, mental health facility. Thirty-two of the participants were female (75.5% of the total study) and 17 participants (24.4%) were male. Two of the female participants were not certain of the age they were given a bipolar disorder diagnosis.

Table 1 describes the participants in this study by gender, age of bipolar disorder diagnosis (based on self-report), age of conduct disorder diagnosis, age of substance use disorder diagnosis, and the participants' current age. As can be seen from the table, 32 of the participants in the current study were female and 17 of the participants were male. The two female participants', who were uncertain of age-of-onset of bipolar disorder, have been recognized as "estimate" in Table 1 and their current ages were used in statistical analysis.

Table 1.

Participant Data

Participant	Gender	Age of Diagnosis			Current Age
		BPD	CD	SUD	
01	F	14	N/A	N/A	21
02	F	17	6	17	26
03	F	26	N/A	N/A	27
04	M	35	N/A	N/A	35
05	M	N/A	N/A	N/A	32
06	M	13	16	N/A	20



Participant	Gender	Age of Diagnosis			Current Age
		BPD	CD	SUD	
07	F	14	20	16	21
08	F	26	N/A	24	26
09	F	31	N/A	N/A	31
10	F	16	N/A	N/A	20
11	M	26	N/A	N/A	35
12	F	27	N/A	N/A	27
13	M	28	N/A	N/A	33
14	F	20	N/A	14	31
15	M	12	N/A	14	23
16	M	18	N/A	19	27
17	F	26	N/A	26	26
18	F	25	N/A	25	25
19	M	35	13	N/A	35
20	M	31	N/A	N/A	31
21	F	40	N/A	23	40
22	F	25	N/A	N/A	25
23	M	25	N/A	23	25
24	F	36 (estimate)	N/A	N/A	36
25	M	12	6	13	22

Participant	Gender	Age of Diagnosis			Current Age
		BPD	CD	SUD	
26	F	24	N/A	N/A	24
27	M	26	N/A	N/A	29
28	F	37	N/A	23	40
29	F	36 (estimate)	N/A	N/A	N/A
30	F	32	N/A	N/A	32
31	F	13	N/A	13	30
32	F	12	N/A	14	30
33	F	34	N/A	N/A	34
34	F	21	N/A	N/A	40
35	F	14	N/A	31	33
36	F	18	N/A	N/A	31
37	F	23	N/A	N/A	23
38	F	31	N/A	N/A	40
39	F	29	N/A	30	36
40	F	29	N/A	N/A	29
41	F	30	N/A	18	40
42	F	23	N/A	N/A	23
43	F	31	28	28	33
44	F	33	30	30	33

Participant	Gender	Age of Diagnosis			Current Age
		BPD	CD	SUD	
45	F	23	N/A	17	40
46	F	23	N/A	N/A	24
47	F	20	N/A	N/A	21
48	F	30	N/A	30	30
49	F	N/A	N/A	N/A	30

BPD - Bipolar disorder diagnosis; CD - conduct disorder diagnosis; SUD - substance use diagnosis

The Demographic Questionnaire provided biographic data regarding the participants. The results indicated the current mean age of participants in this study was 29 years of age for females and 30 years of age for males. The mean age-of-onset for formal diagnosis of female participants with bipolar disorder was 23 years of age and 24 years of age for males (Table 2).

The mean age for participants' initial diagnosis with conduct disorder was 11 years for females and 16 years for males, which represented a difference of five years. The data result indicated the mean age of participants diagnosed with substance use disorder was 21 years for females and 16.75 years for males. The sample size per gender and disorder were also recognized.

Table 2.

Distribution of Diagnosis of Participants by Gender and Age of Onset

Diagnosis	Female		Male		Total Number
	Age	Number	Age	Number	
Bipolar Diagnosis	23.3	30	24.2	17	47
Conduct Disorder	11.0	2	16.0	5	7
Substance Use Disorder	21.0	13	16.7	4	19
All Diagnoses	29.95	37	30.1	12	49

Data regarding race per gender was also gathered, the major responders were Euro-American (85.7%, n = 42). European Americans outnumber African American, Hispanic Americans, and Native American racial groups (see Table 3).

Table 3.

Distribution of Participants by Race

Race	Number	Percentage
African American	2	4.1
Hispanic American	1	2.0
Euro-American	42	85.7
Native American	1	2.0
Other	3	6.1

Data was also gathered on the level of education completed by the participant (see Table 4).

Table 4.

Education Level of Participants by Gender

Highest Education Level	Males		Females	
	Number	Percentage	Number	Percentage
High School Graduate	1	2.0	3	6.1
Some College	5	10.2	13	26.5
College Graduate	4	8.2	13	26.5
Graduate School	2	4.1	6	12.2
Other	--	--	2	4.1

Data on marital status distribution were reported in Table 5. The majority of participants (61.2%) were single, followed by participants in married or committed relationships (22.4%). Divorced participants represented 10.2% of the sample, and no one in the sample reported being widowed (see Table 5).

Table 5.

Distribution of Participants by Marital Status

Marital Status	Number	Percentage
Single	30	61.2
Married/Committed	11	22.4
Separated	3	6.1
Divorced	5	10.2
Widowed	--	--

Table 6.

Distribution of Participants by Employment History

Employment	Males		Female	
	Number	Percentage	Number	Percentage
Full Time	3	6.1	12	25.5
Part-Time	1	2.0	9	18.4
Unemployment	8	16.3	16	32.7

Table 7.

Distribution of Participants by First Bipolar Episode Requiring Treatment

Episode	Male		Female	
	Number	Percentage	Number	Percentage
Manic	--	--	4	8.2
Depression	4	8.2	21	42.8
Mixed-State	8	16.3	12	24.5

Data was collected on participants by gender, substance use disorder, and mean age at the time of initial diagnosis (see Table 8).

Table 8.

Distribution of Participants by Substance Use Disorder at Initial Diagnosis

Gender	Mean Age	Number	Percentage
Male	16.75	4	8.2
Female	25	14	28.6

Data were collected on whether the participant had ever been diagnosed with a conduct disorder diagnosis during their adolescent years (see Table 9). The data indicate that females were diagnosed with a conduct disorder at a (mean) younger age than males. The frequency between males and females was equal. The percentage of male participants diagnosed with conduct disorder represented was almost twice as many as

the female participants, and the percentage of the total sample size, per gender, was almost equal.

Table 9.

Distribution of Participants by Conduct Disorder at Initial Diagnosis

Gender	Mean Age	Number	Percentage
Male	16	2	4.1
Female	11	2	6.1

Table 10.

Distribution of Participants by Dependent Variables

Variable	N	Mean	SD	Range	Skew
Illegal Behaviors	20	23.15	8.66	11 to 46	.97
School-Based Problem Behaviors	44	13.48	4.58	5 to 23	.20
Problem Behaviors	41	11.73	5.49	6 to 29	1.40
Sexual Behaviors	46	4.41	2.47	2 to 10	.69
Satisfaction with Treatment	46	19.96	5.94	8 to 32	.06

### Instrument Reliability

Internal consistency reliability coefficients of The Client Satisfaction Questionnaire (CSQ-8; Larsen, Attkisson, Hargreaves, & Nyguen, 1979) and The Adolescent Questionnaire (Becker, unpublished) were computed with Cronbach's alpha, (Cronbach, 1951) and were found to be high (alpha = .917) (n = 20) and (alpha = .924) (n



= 46) respectively. This was the first time The Adolescent Questionnaire was administered, therefore it was not possible to analyze the validity of this questionnaire.

### **Statistical Tests**

Two types of statistical analyses were conducted. First, t-tests were conducted to test the relationships between gender and the varying types of problematic behaviors (variables) associated with early-onset bipolar disorder. The results are presented in ANOVA summary tables. The techniques used in this study were based on the well-accepted statistical techniques of Judd and McClelland (1989). Specifically, the following four behaviors, the descriptive dependent variables, have been identified: Illegal behaviors, School-Based Problem Behaviors, Problem Behaviors, and Sexual Problem Behaviors. This study further examined the fifth dependent variable, the participants' satisfaction with treatment during adolescent years, followed by the sixth dependent variable, regarding the participants' perceptions of quality of treatment received, during the adolescent years.

Second, statistical test procedures were conducted to analyze the relationship between age-of-onset of bipolar disorder and the varying problematic behaviors that frequently co-exist with an early-onset bipolar disorder (Judd & McClelland, 1989). An alpha level of significance of .05 was used to interpret all statistical tests, computed using Cronbach's alpha (Cronbach, 1951).

### **Research Question 1**

*There will be a significant gender difference associated with the involvement high-risk/daredevil or acting-out behaviors among adult reports of adolescent symptoms of a bipolar disorder or adults diagnosed with a bipolar disorder during adolescence.*

Table 11 presents the results of the hypothesis test and show non- significant results. The female population (M = 11.80, SD = 4.98) (n = 30), scored slightly higher than the male population (M = 11.54, SD = 6.98) (n = 11). But the difference was not statistically significant: F (.017), p = .897.

Table 11.

ANOVA Results for the Relationship between Gender and High-Risk Behavior

Model	SS	df	MS	F	Sig
Regression	.522	1	.522	.017	.897
Residual	1205.527	38	30.911		

### **Research Question 2**

*Younger age-of-onset of bipolar disorder will be significantly associated with more high-risk/daredevil behaviors among adult reports of adolescent symptoms of a bipolar disorder or adults who were diagnosed with a bipolar disorder during adolescence.*

Table 12 shows the summary table of the ANOVA results between the mean scores of the independent variable age-of-onset and the dependent variable high-risk

behaviors with an alpha level of .05 ( $n = 25$ ). The negative coefficient ( $b = -.25$ ) indicated that the younger age-of-onset of the individual the greater the frequency of high-risk behaviors  $F(5.206)$ ,  $p = 0.029$ .

Table 12.

ANOVA Results for the Relationship between Age-of-Onset and High-Risk Behavior Reported During Adolescence

Model	b	SS	df	MS	F	Sig
Regression	-.25	151.352	1	151.352	5.206	0.029
Residual		899.537	34	29.075		

### Research Question 3

*There will be a significant gender difference associated sexually acting-out behaviors among adult reports of adolescent symptoms of bipolar disorder or adults who were diagnosed with a bipolar disorder during adolescence..*

Table 13 indicates the summary table of the ANOVA results for the relationship between the independent variable gender, and the dependent variable sexually risky behaviors. Although females reported more sexual problems ( $M = 4.79$ ,  $SD = 2.66$ ) ( $n = 34$ ) than males ( $M = 3.33$ ,  $SD = 1.4$ ) ( $n = 12$ ), the difference was not statistically significant ( $F = 3.25$ ),  $p = .078$ . The sample size for females; ( $n = 34$ ) and for males: ( $n = 12$ ).

Table 13

ANOVA Results for the Relationship Between Gender and Sexuality Acting Out Behaviors

Model	SS	df	MS	F	Sig
Regression	18.927	1	18.927	3.250	.078
Residual	256.225	44			

#### Research Question 4

*There will be a significant gender difference associated with illegal behaviors among adult reports of adolescent symptoms of bipolar disorder or adults diagnosed with a bipolar disorder during adolescence (e.g., shop lifting, the use of illegal substances, the deliberate destruction of other peoples' property, aggressive behavior to the point of threatening physical harm to people or animals, time spent in jail or a juvenile detention facility, carrying a weapon or using a weapon that could cause physical harm, i.e., a bat, a brick, broken bottle, knife, or gun, having your middle school file "unruly charges" against you, involvement with Family and Children's Services and placement in foster home(s).*

Table 14 shows the summary table of the ANOVA results for the relationship between gender and illegal behavior. Females reported a greater frequency of illegal behaviors ( $M = 19.00$ ,  $SD = 2.00$ ) ( $n = 5$ ) than males ( $M = 24$ ,  $SD = 9.61$ ) ( $n = 15$ ), the differences, however, were not statistically significant.

Table 14.

ANOVA Results for the Relationship between Gender and Illegal Behavior

Model	SS	df	MS	F	Sig
Regression	114.817	1	114.817	1.578	.225
Residual	1309.733	18	72.763		

### Research Question 5

*Early age-of-onset of bipolar disorder will be associated with a greater frequency of illegal behaviors among adolescents who self-report or were diagnosed with a bipolar disorder.*

Table 15 shows the summary table of the ANOVA results for the relationship between Age-of-Onset of bipolar disorder and Illegal Behaviors. The association is not significant ( $p = .244$ ).

Table 15.

ANOVA Results for the Relationship between Reported Age-of-Onset of Bipolar Disorder and Illegal Behaviors

Model	b	SS	df	MS	Sig
Regression	-.31	103.385	1	103.385	.244
Residual		1130.392	16	70.650	

### Research Question 6

*Early age-of-onset of bipolar disorder will be associated with a greater frequency of school-based problem behaviors among adolescents who self-report or have been diagnosed with a bipolar disorder.*

It was hypothesized that early age-of-onset would be associated with a greater frequency of school-based problem behaviors among adolescents diagnosed with a bipolar disorder. The findings in Table 16 support this hypothesis. The negative coefficient indicates that the younger the age of onset, the greater the frequency of school-based problems ( $F = 15.425$ ,  $p = .000$ ).

Table 16.

ANOVA Results for the Relationship Between Reported Age-of-Onset of Bipolar Disorder and the Frequency of School-Based Problematic Behaviors During Adolescence

Model	b	SS	df	MS	F	Sig
Regression	-.32	254.301	1	254.301	15.425	.000
Residual		593.515	36	16.487		

### Research Question 7

*There will be a gender difference in the frequency of school-based problem behaviors among adolescents who self report or were diagnosed with a bipolar disorder.*

Table 17 shows the summary table of the ANOVA results for the relationship between Gender and School-Based Problem Behaviors, although females ( $M = 13.30$ ,  $SD$

= 4.52) scored slightly lower than males ( $M = 14.00$ ,  $SD = 4.94$ ), the difference was not statistically significant.

Table 17

ANOVA Results for the Relationship Between Gender and School-Based Problem Behavior

Model	SS	df	MS	F	Sig
Regression	4.008	1	4.008	.188	.667
Residual	896.970	42	21.3356		

### Research Question 8

*There will be a gender difference with the overall satisfaction of treatment among adolescents who self-report or were diagnosed with bipolar disorder.*

It was hypothesized that gender would affect the overall satisfaction with treatment among adolescents diagnosed with a bipolar disorder. The findings do not support this hypothesis. Although females ( $M = 19.94$ ,  $SD = 6.30$ ) scored slightly lower than males ( $M = 20.00$ ,  $SD = 4.71$ ), the difference was not statistically significant.

Table 18.

ANOVA Results for the Relationship Between Gender and Treatment Satisfaction

Model	SS	df	MS	F	Sig
Regression	.024	1	.024	.001	.979
Residual	1587.889	44	36.0888		

Age-of-Onset was negatively skewed with treatment satisfaction. The relationship between Age-of-Onset and Treatment Satisfaction was significant. However, the sample size was small and not diverse in ethnicity. This was an additional finding that was determined during the analysis of the data (see Table 19).

Table 19.

ANOVA Results for the Relationship Between Age-of-Onset and Treatment Satisfaction

Model	b	SS	df	MS	F	Sig
Regression	.27	190.313	1	190.313	5.910	.020
Residual		1223.587	38	32.200		

It was hypothesized that gender would affect the overall quality of treatment received by this population during the adolescent years. The response to this research question was summarized by the results of the “Client Satisfaction Questionnaire (CSQ-8) (Larsen, Attkisson, Hargreaves, & Nyguen, 1979).

The first question on this instrument refers to the quality of services received by the participant during his/her adolescent years. The results indicated that 46 participants were satisfied with the overall treatment received as adolescents. The females reported: (M = 19.94; SD = 6.30; Range = 5.94; Skew = .06). In terms of gender, 12 participants were male (24.5%) and 37 participants were female (75.5%). The female participants expressed slightly higher ratings of the quality of the treatment received as adolescents.



### **Research Question 9**

*There will be a gender difference in rating the overall quality of treatment received by adolescents who self-report or were diagnosed with a bipolar disorder.*

The response to this research question was summarized by the statistical results of the “Client Satisfaction Questionnaire” (CSQ-8). The first question on this instrument refers to quality of treatment received. Nine women reported prior treatment as “Excellent” or “Good” and 13 women reported the quality of treatment as “Fair.”

The findings reported that 46 participants were satisfied with the quality of treatment received as an adolescent and the female participants were more satisfied than the males. The sample size was too small to report a significant effect.

## **CHAPTER V**

### **SUMMARY OF FINDINGS AND DISCUSSION**

This chapter provides an overview of the study, the findings, and the conclusions of the research hypotheses. Chapter V continues with addressing recommendations for future research, suggestions for clinicians and clinician/educators, as well as recognizing the limitations of this dissertation research study and suggesting future directions for work with the early-onset bipolar-disordered population.

#### **Overview of the Study**

The purpose of this study was to examine the relationship between gender, age-of-onset, and the frequency of problematic behaviors (high-risk/daredevil) in adult participants reporting adolescent symptoms of a bipolar disorder or who were formally diagnosed during adolescence. High-risk/daredevil behavior was determined by reference to the DSM-IV-TR (APA, 2000) criteria for mania, oppositional defiant disorder diagnosis, conduct-disordered behaviors, including criteria that must be met to satisfy a conduct disorder diagnosis, and substance use and/or dependence diagnosis.

Ultimately, four types of high-risk behaviors were identified: (a) Illegal Behaviors, (b) School-Based Problem Behaviors, (c) Problem Behaviors, i.e., conduct-disordered

behaviors (not involving the justice system), and D) Sexual Problem Behaviors. The other dependent variables examined were: A) Satisfaction with treatment received during adolescence and B) Views of quality of treatment received during adolescence.

Table 20.

The Findings of the Research Questions

Research Questions	Significant	Non-Significant
1. There will be a gender difference in the frequency of high-risk/daredevil or acting out behaviors among adolescents who self-report or were diagnosed with a bipolar disorder.		X
2. Younger age-of-onset of bipolar disorder will be associated with high-risk/daredevil behaviors among adolescents who self-report or have been diagnosed with a bipolar disorder.	X	
3. There will a gender difference in the frequency of sexually acting-out behaviors among adolescence who self-report or were diagnosed with a bipolar disorder.		X
4. There will be a gender difference in the frequency of illegal behaviors among adolescents who self-report or have been diagnosed with a bipolar disorder.		X

Research Questions	Significant	Non-Significant
5. Early age-of-onset of bipolar disorder will be associated with a greater frequency of illegal behaviors in adolescents who self-report or were diagnosed with a bipolar disorder.		X
6. Early age-of-onset of bipolar disorder will be associated with a greater frequency of school-based problem behaviors in adolescents who self-report or were diagnosed with bipolar disorder.	X	
7. There will be a gender difference in the frequency of school-based problem behaviors in adolescents who self-report or were diagnosed with a bipolar disorder.		X
8. There will be a gender difference with the overall satisfaction of treatment with adolescents who self-report or were diagnosed with a bipolar disorder.	X	
9. There will be a gender difference in rating the overall quality of mental health services received by adolescents who self-report or were diagnosed with a bipolar disorder.		X

### **Description of Participants**

This sample size was comprised of 49 participants. This sample size was sufficient to test the hypotheses of this study. The group of participants was a convenience sample recruited by the mental health clinicians of an Ohio-based mental health facility. Thirty-two of the participants were female (75.5%) and 17 participants (24.5%) were male. Two of the female participants were uncertain of the specific age they were initially given a bipolar disorder diagnosis. This study was not designed to include specific numbers of male or female participants.

Earlier studies conducted in the current research literature did not encounter difficulty in recruiting participants for their studies for the following reason. Studies conducted in psychiatric settings consisted of patients who were hospitalized and diagnosed in accord with the standards of the Diagnostic and Statistical Manual (DSM) of the appropriate year, by the referring psychiatrist, psychologist or other licensed mental health clinician. Many of the studies were conducted in non-psychiatric settings i.e., juvenile detention centers or jails. The participants in these studies were court-ordered and diagnosed in accord with the DSM standards of the according year.

### **Instruments**

The measures were: A) The Demographic Questionnaire, B) The Client Satisfaction Questionnaire (CSQ-8; Larsen, Attkisson, Hargreaves, and Nyguen, 1979), and The Adolescent Questionnaire (Becker, 2004). All participants completed The Adolescent Questionnaire and the internal consistency was high ( $\alpha = .917$ ,  $n = 20$ ).

Similarly the internal consistency of the Client Satisfaction Questionnaire (CSQ-8) was high ( $\alpha = .924$ ,  $n = 46$ ).

### **Data Analysis**

First, data were statistically analyzed using t-tests to analyze gender and the varying types of problem behaviors associated with adults who reported adolescent symptoms of a bipolar disorder or were diagnosed during adolescence. Secondly, another statistical test was conducted to analyze the relationships between age-of-onset and the varying types of problem behaviors associated with adults who reported symptoms of a bipolar disorder during adolescence. Judd and McClelland (1989) provided the statistical techniques used for analysis in this study.

### **Synthesis of Significant and Non-Significant Findings**

#### ***The Relationship Between Age-Of-Onset of***

#### ***Bipolar Disorder and Problematic Behaviors***

The most significant finding in this research study was that age-of-onset of bipolar disorder proved to be a strong predictor of problematic behaviors in this population. The results of this study indicated the younger the age-of-onset of bipolar disorder, the greater the association with high-risk/daredevil behaviors. All adult participants in the study reported adolescent symptoms of a bipolar disorder or were formally diagnosed with bipolar disorder during their adolescent years.

Table 12 shows the summary table of the ANOVA results between the mean scores of the independent variable age-of-onset and the dependent variable high-risk behaviors with an alpha level of .05 ( $n = 25$ ). The negative coefficient ( $b = -.25$ ) indicated

that the younger the age-onset of the individual the greater the frequency of high-risk behaviors  $F(5,206)$  (Table 12).

The research hypothesis stating younger age-of-onset of bipolar disorder will be associated with high-risk/daredevil behaviors (Research Question 2) was statistically supported by the data (Table 12) at the .05 level of significance. However, the results of the current study did not support the hypothesis stating early-age-of onset of bipolar disorder will be associated with a greater frequency of illegal behaviors in adults who reported adolescent symptoms or adults who were formally diagnosed with a bipolar disorder (Research Question 5).

This result was not congruent with earlier research (Akiskal, et al.,1985; Stroeber, Schmidt-Lackner, Freeman, Bower and DeAntonio, 1995). Prior research found an increased rate of suicide attempts, completion, and legal difficulties in bipolar-disordered children and adolescents.

Pliszka, Sherman, Barrow, and Irick (2000) reported anti-social behavior in bipolar youth as a cause for great concern, stating that 10 of 50 youths at an urban juvenile detention center met criteria for mania, another 10 met criteria for major depressive disorder, and one met criteria for bipolar disorder, mixed type. These researchers concluded there was a high rate (42%) of affective disorders among juvenile offenders.

The findings, however, did suggest that males with a bipolar disorder presented for treatment of substance use disorder at an earlier age than females (Table 2). The findings indicate there was a negative association between the independent variable,

age-of-onset, and the dependent variable, illegal behavior, but there was not a statistically significant effect (Table 14). This study indicated females reported a greater frequency of incidence of illegal behavior, the mean scores, however, were not significant (Table 10).

The findings in this research study support Research Question 6: Early age-of-onset will be associated with a greater frequency of school-based problem behaviors in adolescents who self-report or were diagnosed with bipolar disorder. The negative coefficient indicated the younger the age-of-onset, the greater the frequency of school-based problem behaviors (Table 15).

There was a significant association between age-of-onset and high-risk behaviors (Research Hypothesis 2), however, when specifically looking at illegal behaviors, the results were not significant. A feasible explanation for this result could be the sample size was too small to indicate significance. Another possible explanation for the insignificant result might be the participants' inability to be honest with this researcher in terms of involvement with illegal activities and illegal behaviors during their adolescent years.

In terms of conduct disorder, female participants ( $n = 2$ ), the mean age indicated 11.0 (yrs.) and male participants ( $n = 5$ ), with a mean age of 16.0 (yrs.) finding these female participants reported an earlier age of onset by five years. In terms of substance use disorder for the female participants, ( $n = 13$ ) analyses resulted in a mean age of 21.0 (yrs.), and findings for male participants ( $n = 4$ ) resulted in a mean age of 16.7 (yrs.). The



male participants in this study were diagnosed with a substance use disorder at a significantly earlier age by 4.3 (yrs.), than the female participants.

The findings in this research study support the hypothesis that early age-of-onset will be associated with a greater frequency of school-based problem behaviors (Research Question 6). The negative coefficient indicated the younger the age-of-onset, the greater the frequency of school-based problem behaviors (Table 15). This research hypothesis was in agreement with earlier studies (Fristad and Goldberg-Arnold, 2003; Kovacs and Pollack, 1995; Lewinsohn, Seeley, and Klein, 2003; Papolos and Papolos, 2002; Schulman, Schaffer, Levitt, and Hermann, 2002).

### ***The Relationship between Gender and Bipolar Disorder***

In terms of gender, the findings in only one of the six research questions relating to gender, showed significance. The findings of this study indicated, overall, females were more satisfied with the treatment received from mental health clinicians during their adolescent years than males. It was hypothesized that gender will affect the overall satisfaction with treatment among adolescents diagnosed with a bipolar disorder (Research Question 8). Overall satisfaction is high. Forty-six participants were satisfied with the treatment received as an adolescent. In terms of gender, 12 participants were male (24.5%) and 37 participants were female (75.5%).

In Research Question 9 it was hypothesized there will be a gender difference in rating the quality of mental health services received as an adolescent. The findings were summarized into the statistical results of the Client Satisfaction Questionnaire (CSQ-8; Larsen, et. al., 1979). And the results were found to be non-statistical.

The first question on this instrument refers to rating the quality of treatment received by mental health clinicians. The results indicated 46 adult participants, retrospectively, were satisfied with the quality of treatment received as adolescents and female participants were more satisfied than males. Thirty-four female participants were satisfied with the quality of treatment received, however, eight females reported the prior treatment was "Poor," and one female participant had no prior treatment. Ten male participants were satisfied with prior treatment, one male participant reported prior treatment as "Poor."

The female participants expressed slightly higher ratings with the overall satisfaction of treatment received as adolescence. The female participants ( $n = 37$ ) responded accordingly: Excellent ( $n = 6$ ), Good ( $n = 10$ ), Fair ( $n = 13$ ), and Poor ( $n = 8$ ). The male participants ( $n = 12$ ) responded accordingly: Excellent ( $n = 2$ ), Good ( $n = 3$ ), Fair ( $n = 5$ ), and Poor ( $n = 2$ ). Unfortunately, the range of level of satisfaction was very small with only 7 of 37 female participants rating care as less than good. Therefore, it is not surprising that no statistical significance was found (Research Question 9).

A basic problem with this research question was the type of treatment the participants received was not indicated. In other words, if the participant identified compliance and satisfaction with medication, individual therapy, and/or group therapy, potentially, gender and the type of treatment might be more easily recognized and gender-specific.

Earlier studies both support and challenge the findings of the current study regarding gender. Carlson, Bromet, and Sievers (2000) studied young participants to

determine gender-specific evidence with regard to early-onset bipolar disorder. Their study of psychiatrically hospitalized individuals suggests young persons with early-onset mania, before the age of 21, were more likely to be male (69% versus 26.6%) and to have more complicated psychopathology, displaying an early-onset of behavioral problems with comorbid substance use disorders, mixed episodes, and paranoid symptoms.

More research is needed relating directly to gender and early-onset bipolar disorder. Goodwin and Jamison (1990) reported equal frequency in the overall prevalence of affective disorder. Goodwin and Jamison found the exception to this pattern was discovered in the Amish study conducted by Egeland and Hollister in 1983. The findings of this 1983 study suggest that 58% of the patients struggling with bipolar disorder were male and 42% were female.

An area for future research in terms of gender is the relationship between bipolar disorder, gender, and family history. Research supports this disorder is predisposed in certain families (Akiskal, 2002; Papolos and Papolos, 2002). It will be interesting to look at family histories and examine the relationship between maternal and paternal bipolar diagnoses and the gender of the children, specifically researching the gender more frequently diagnosed with bipolar disorder. Potentially, ongoing studies will expand to first-degree relatives.

The hypothesis stating there will be a gender difference in the frequency of sexually acting-out behaviors (Research Hypothesis 3) was not supported by the data. However, females reported more sexual problems than males, yet the difference was

not statistically significant, possibly due to the small sample size. These results are consistent with earlier research between the relationship of sexually acting-out behavior and gender. Papolos and Papolos (2002) reported bipolar-disordered adolescents could be impulsive, hypersexual, and indulge in extremely risky behavior, but Papolos and Papolos did not find gender difference either.

The current study indicated the female population ( $M = 11.80$ ,  $SD = 4.98$ ) ( $n = 30$ ), scored slightly higher than the male population ( $M = 11.54$ ,  $SD = 6.98$ ) ( $n = 11$ ), but the difference was not significant:  $F(.017)$ ,  $p = .897$  (Table 11). Female participants reported a greater incidence of illegal behavior than males; however, the mean scores did not indicate statistical significance (Table 11). Findings of prior research indicated the female population was grossly underestimated in terms of illegal behaviors (Delligatti, Arkin-Little, and Little, 2003). These researchers believed the possibility for the under estimation of illegal behaviors in females was based on the lack of research in this population and the seemingly large amount of inappropriate diagnostic criteria for conduct disorder in the female population.

Earlier research reported a strong relationship between bipolar-disordered youth and illegal behaviors but did not indicate gender differences (Goodwin and Jamison, 1990; The ECA Study, 1990; The NCS Study, 1990; Sonne and Brady, 1990; West and Colleagues; Wilens, 1996 and 1999; Papolos, 2002). The findings of the current study are consistent with earlier research regarding the insignificance of the relationship between gender and illegal behaviors in the early-onset bipolar-disordered population. The Adolescent Questionnaire (Becker, 2004) further asked if the participants' middle or

high school ever filed “unruly charges” against the participant or if the participants were ever involved with Family and Children Services and/or placed in foster home(s), but non-significant results were still reported.

The findings in this research study indicated gender did not affect the frequency of school-based problem behaviors among adults who reported adolescent symptoms or were formally diagnosed with a bipolar disorder during adolescence. However, the study did find females scored slightly lower than males, indicating the females displayed fewer problem behaviors at school than males, but the difference was too small to prove statistically significance.

Studies in earlier research literature showed non-significant results in terms of gender and school-based problem behaviors (Geller, Bolhofner, Craney, Williams, DelBello, and Gunderson, 2000; Quackenbush, Kutcher, Robertson, Boulos, Chaban and Bird, 1996; Schulman, Schaffer, Levitt, and Hermann, 2002).

### **Limitations of Study**

The first limitation of this study was that it was retrospective in design. The participants were 18-40 years of age, given the passage of time, poor memory, and poor mental health, it seem feasible that accurate recollection of adolescent behaviors might prove questionable.

The second limitation of the current study was the small sample size. Forty-nine participants responded to three paper and pencil measures. With a small sample size, it is difficult to make generalizable statements with regard to the findings of the data.

Furthermore, almost three-quarters of the participants in this study were female and belonged to the European American racial group.

The third limitation of the current study was the introduction of The Adolescent Questionnaire (Becker, unpublished). This is the first time this questionnaire was administered and it was not analyzed in terms of instrument reliability and validity, as this was not a function of the study.

The fourth limitation of this research study was that the study did not describe the type of treatment the bipolar-disordered participants received as adolescents, e.g., medical treatment, psychotherapy, or a combination of medicine and talk-therapy. This is a limitation because if the separate treatments were identified by gender and age-of-onset of bipolar disorder, potentially, more exact findings could be treated.

### **Recommendations for Future Research**

The quantitative findings of this research study both support and challenge the earlier research discussed in the literature review. The following discussion summarizes varying conditions both in context and design of the current research study in comparison to earlier studies. First, there was an obvious discrepancy between the number of participants who self-reported having a bipolar disorder diagnosis during adolescence (the entire population in this study) and the age-of-onset of clinical diagnosis of bipolar disorder, per participant. Only seven participants, five female and two male participants stated they were clinically diagnosed with a bipolar disorder before the age of 18 years. Several questions are raised as a result of the discrepant responses.

The second area for future research requires an in depth knowledge of the individual perspectives on the etiology of the individual's bipolar disorder. All participants in this study self-reported having a bipolar disorder illness during adolescence. In retrospect, possibly, the participants have achieved greater self-awareness of their adolescent behaviors and have also gained knowledge regarding a bipolar disorder illness, and currently believe that he/she struggled with this disease during adolescence. Furthermore, the question of error of the initial diagnosis must be raised. In other words, possibly the participant was given an initial diagnosis of bipolar disorder, but was unaware of this fact, therefore, accounting for the small number of participants ( $n = 7$ ) reporting the clinical diagnosis of early-onset bipolar disorder. In keeping with this line of thinking, more research is needed in terms of asking adolescents about their own experiences. In other words, we need to discover the correct questions to ask adolescents, in order to gain insight into their world and the perspectives held by these young people of their universe.

It is inherently difficult to diagnose a bipolar disorder, particularly in its milder forms (Papolos, 2003). This study supports the need for more sensitive diagnostic criteria. In terms of this dissertation study, if more sensitive diagnostic criteria existed, possibly more participants would have received the clinical diagnosis of bipolar disorder during adolescence, i.e., at an earlier age.

The need for more sensitive diagnostic criteria is not the only problem in diagnosing early-onset bipolar disorder. Determining the initial diagnosis of bipolar disorder is challenging and frequently goes unrecognized or is misdiagnosed in young

people. There are several possible reasons for these errors. For many years clinicians were reluctant to give this serious diagnosis to young people, even though early-onset bipolar disorder was classified by Emil Kraepelin (1921) and recognized even earlier in ancient medicine (Akiskal, 2002; Goodwin and Jamison, 1990).

Another reason for misdiagnosis, according to earlier research, was clinical and epidemiological studies strongly suggest juvenile mania was frequently not recognized as a bipolar disorder. Clinicians often diagnosed one or more of the multiple co-existing psychiatric disorders with bipolar disorder as the primary disorder (Biederman, et al., 2000; Lewinsohn, Klein, and Seeley, 1995; Papolos and Papolos, 1999).

One of the most interesting findings in the current research study is that five out of the six research questions referencing gender, all showed insignificant results, with the exception of Research Question 9. In Research Question 9, females reported greater satisfaction with the quality of treatment received during adolescence than males. Therefore, the third area open for future research to explore is the relationship between gender and early-onset bipolar disorder. Future research should study “what” gender-specific qualities, differences, and behaviors are associated with an early-onset bipolar disorder diagnosis, by gender. Furthermore, future research should be able to explain the possibility, that perhaps no gender difference exists in early-onset bipolar disorder, and females and males are equally represented throughout the course of this illness, if in fact, this proves to be true.

The fourth area requiring more research is an understanding between the relationship of early-onset bipolar disorder and other psychiatric illnesses frequently



associated with this disease. Several questions need to be addressed: 1) Does a bipolar disorder occur simultaneously with other psychiatric disorders, or are clusters of symptoms that suggest distinct disorders, merely precursors on a developmental continuum that eventually expresses itself as a full-blown bipolar disorder? 2) Is early-onset bipolar disorder a specific subtype of this disease that can be defined genetically? 3) Is the bipolar disorder missed, in terms of diagnosis, when an individual presents with co-existing psychiatric disorders?

The fifth area in need of research is a revision of The Adolescent Questionnaire (Becker, unpublished). The questionnaire needs to be more specific in terms of the prior treatment received by the participants: 1) Did the participant receive medicine, alone? 2) Did the participant receive a combination of medicine and talk-therapy? 3) Did the participant receive talk-therapy, alone? 4) Did the participant become a member of group therapy, for bipolar-disordered adolescents? The questionnaire should ask more gender-specific questions relating to symptoms and behaviors experienced by this population to further define gender and problem behaviors.

The sixth area in need of future research is age-of-onset. The age-of-onset of bipolar disorder was reported as 18 years of age and younger, by all participants in the current research study. However, only seven participants received a bipolar disorder diagnosis, by a mental health clinician, during adolescence. In retrospect, the participants in this study may have received a different diagnosis during their adolescent years, as this is not unusual, based on the difficulty of accurately diagnosing early-onset bipolar disorder, however, the participants may have been unaware of this fact. The

possibility of error also exists. In other words, the participants may be incorrect in terms of their own knowledge of their initial diagnoses, and perhaps more participants were diagnosed with a bipolar disorder than the findings indicate.

Research needs to be specific in terms of identifying the deviant behaviors and the exact age at which the behaviors became a problem for the individual. For example, the relationship between early-onset bipolar disorder and problem behaviors, e.g., school-based problem behaviors, illegal behaviors, substance use and/or dependence, and conduct-disordered behaviors need to be clearly identified and accurately associated with the age-of-onset.

The seventh and final area for future research in this study concerns the striking similarities existing between a bipolar disorder and conduct disorder. Patients are frequently given both diagnoses, simultaneously. However, the major distinction between the two disorders is that a bipolar disorder is an inheritable disease, suggesting that one or both of the parents, or other family members have a bipolar disorder, therefore predisposing offspring, in the family constellation, to a bipolar disorder. There is not a “known” gene that predisposes individuals toward a conduct disorder diagnosis. A great deal more is needed, in terms of research and in understanding the appropriate treatment for individuals struggling with both disorders, simultaneously.

### **Recommendations for Future Clinicians and Clinician Educators**

The first area to be addressed by future clinicians and clinician educators is learning to ask the correct questions of adolescents struggling with a bipolar illness. This suggestion is based on the possible misdiagnosis and under diagnosis of this illness in

the past (and the possible current over diagnosis of bipolar disorder in the youthful population). A small number of participants ( $n = 7$ ), retrospectively, identified receiving the formal, clinical diagnosis bipolar disorder, during adolescence 13-18 years. A possible explanation for this small sample size is the misdiagnosis or under diagnosis of bipolar disorder as the result of inaccurate questions being asked on the part of the treating mental health professionals. Also, the possibility of error exists, based on lack of knowledge of the initial diagnosis, by the participant.

The second area to be addressed by future clinicians and clinician educators is the recognition of gender-specific problem behaviors, and whether they exist at all. The professionals must astutely observe and document problem behaviors, in this population, in order to determine if gender plays a significant role in early-onset bipolar disorder. The current study did not find that gender played a significant role in the relationship between early-onset bipolar disorder and problem behaviors. Future research should resolve this issue.

The current research study looked at sexually risky behaviors in terms of gender in the early-onset bipolar disordered population. This area remains open for study by future clinicians and clinician educators as this population frequently encounters problem sexual behaviors. This study did not identify evidence that gender was statistically meaningful, however, females did report a greater frequency of sexual problems.

Fluctuations in sexual behavior, desire, and thought were observed in this population, as far back as Aretaeus of Cappadocia (150 AD) (Goodwin and Jamison,

1990). The DSM-IV-TR (APA, 2000, p.358) states that, “Increased sexual drive, fantasies, and behavior are often present” during manic episodes and “In some individuals, there is a significant reduction from previous levels of sexual interest or desire” during depressive episodes (p. 349).

Several rating scales have been developed to examine the sexual drive during manic episodes of a bipolar illness (Mick, Biederman, Pandina, Farone, 2003, NIMH; Pavuluri, Henry, Devineni, Carbray, and Birmaher, 2004; Young Mania Rating Scale, Young, Briggs, Ziegler, and Meyer, 1978). Rating scales have also been developed to look at the sexual drive during depressive episodes of this illness, with The Beck Depression Inventory being the most widely accepted scale (Barrera and Garrison-Jones, 1988; Beck, Brown, Epstein, and Steer, 1988). Future clinical work will possibly benefit from the use of these highly respected scales, in terms of validity and reliability, and further explore the sexual problem behaviors encountered by this population during both phases of this illness and work toward resolution of the problem behaviors.

The second area to be addressed by future clinicians and clinician educators pertains to gender and the frequency of illegal behaviors among adolescents with a bipolar illness. Females reported a greater incidence of illegal behaviors ( $M = 24.53$ ,  $SD = 9.61$ ) than males ( $M = 19.00$ ,  $SD = 2.00$ ), however, the difference in the mean scores was not statistically significant. A logical area for future clinical study will be the type of illegal behaviors engaged in by gender, why, and how to prevent this behavior.

In terms of age-of-onset and the frequency of illegal behaviors, the findings of this study did not show significance, however, in Research Question 2, younger age-of-

onset was significant for high-risk/daredevil behaviors. It will be interesting for future clinicians and clinician educators to learn the specific high-risk behaviors this population most often engaged in, and why these individuals stopped short of problems involving the legal system, and whether this limit was intentional or not. In other words, was this group of individuals aware of what constituted legal and illegal behaviors? A therapeutic environment hopefully provides the safe arena needed to explore these difficulties. Future clinical work might examine why the adolescent behaves as he or she does, i.e., what is so terribly exciting about illegal behavior (if that is the reason behind the behavior) and work toward resolution of these difficulties.

The third area in need of study by future clinicians and clinician educators is the relationship between early age-of-onset and school-based problem behaviors. The findings in the current study were significant, indicating the younger the age-of-onset of bipolar disorder, the greater the frequency of school-based problem behaviors. This researcher believes this finding could be of great help for future clinicians, clinician educators, patients and society-at-large. The earlier a troubled adolescent is identified, the greater the hope for a better prognosis. The clinical setting hopefully provides an atmosphere to explore the problems adolescents encounter in school and offers young people respite and resolution. In terms of clinician/educators, the hope is that he/she, potentially, could identify troubled adolescents and reach out to these individuals. Also, potentially adolescents who are struggling with internal turmoil or problems at home, could feel comfortable in asking to speak with a teacher, in order to gain insight to their difficulties, and ultimately comfort and resolution to their problems. This is a significant

finding of this study that holds great hope for future clinicians, clinician educators, and adolescents. School behavior, the successes and failures, that occur in the school environment, greatly influence the future behaviors of the individual and, ultimately, society-at-large.

The fourth area to be addressed by future clinicians and clinician educators is that of gender and school-based problems. This study showed insignificant results between these variables. Through the use of self-inventory scales, possibly greater light will be shed on this yet, unresolved issue of gender and school-based problem behaviors in this population.

The fifth and final area to be addressed by future clinicians and clinician educators is gender and the views of satisfaction with the quality of treatment received. The current study indicated insignificance, however, females (75.5%) were more satisfied than males (Research Question 9). Again, a therapeutic environment is the appropriate milieu for an adolescent to discuss his likes and dislikes concerning prior treatment. More specifically, mental health clinicians hopefully will learn what works for the individual, in terms of improving mental health, and what does not.

When a bipolar disorder co-exists with another psychiatric disorder achieving an accurate diagnosis is often difficult. Disentangling a bipolar disorder from other co-existing psychiatric disorders is difficult, however, only when the correct disease is identified, will the suffering individuals receive the correct diagnosis and treatment.

The diagnosis of bipolar disorder in children and adolescents remains a difficult and controversial topic. This issue was explored in a recent study conducted by the New

York State Psychiatric Institute and Columbia University (Olfson and colleagues, 2007).

There is great concern in the mental health field regarding the current diagnosing of young people with a bipolar disorder diagnosis as there has been a reported 40-fold increase of bipolar diagnosis in children/adolescents, from an estimated 20,000 doctor visits in 1994 (for persons under 19 years of age), to 800,000 doctor visits in 2003. The controversy surrounds the possibility of misdiagnosis, possibly under-diagnosis in the past, and the possible current over-diagnosis complicated with the surge of the use of anti-psychotic medicines currently prescribed for children.

Dr. Mark Olfson was the senior author of the study from scientists at the New York State Psychiatric Institute and Columbia University (2007). This group of research scientists was from New York, Maryland, and Madrid, analyzed data from a National Center for Health Statistics, focusing on doctors in private or group practices. This team reported a considerable overlap with other psychiatric conditions including, ADHD, conduct disorder, anxiety disorders, and depression. The study suggests the need for “hard science” in terms of validating psychiatric diagnoses in children.

### **Summary**

The purpose of this research study was to examine the relationship between gender, age-of-onset, and the frequency of problem behaviors in the early-onset bipolar-disordered population. Age-of-onset proved to be a strong predictor of problem behaviors, in other words, the younger the age-of-onset of bipolar disorder, the greater the frequency of acting-out behaviors.

Specifically, the findings suggest the younger the age-of-onset of bipolar disorder, the greater the frequency of high-risk/daredevil behaviors (Research Hypothesis 2) and the greater the risk of school-based problem behaviors (Research Hypothesis 6). Gender proved to be insignificant in all pertinent research questions with the exception of Research Question 8 finding 75.5% of the female population was satisfied with the quality of treatment received during adolescence.

It was hypothesized that gender will affect the frequency of high-risk/daredevil behaviors in adolescents suffering from a bipolar disorder. The results were computed and summed in The Adolescent Questionnaire (Becker, 2004) and The Demographic Questionnaire showing insignificant findings in terms of gender and high-risk/daredevil behaviors, sexually-risky behaviors, and school-based problem behaviors. These findings were congruent with prior research however; the earlier studies suggest the form in which aggressive behavior displays itself differs between females and males.

It was also hypothesized that gender will affect illegal behaviors in adolescents diagnosed with a bipolar disorder, the results were insignificant, however, the females scored slightly higher than the males (Research Hypothesis 4). It was also hypothesized that gender will affect the frequency of sexually risky behaviors among adolescents diagnosed with a bipolar disorder. Females reported more sexual problems, than males, but the results were not statistically significant (Research Hypothesis 3). It was hypothesized that gender will affect the frequency of school-based problem behaviors (Research Hypothesis 7), but the results were insignificant.



These findings contribute to our understanding of the relationship between gender, age-of-onset, and the frequency of problem behaviors in early-onset bipolar disorder. The more important finding in this study was that age-of-onset of bipolar disorder was a strong predictor of problem behaviors. Clearly, earlier studies referenced age-of-onset and bipolar disorder, but not as a strong predictor of problem behaviors in this population. These findings lend support to the importance of early and accurate diagnoses in this group of individuals.

It is also the hope of this researcher that as the counseling field advances, the question of the role of gender and age-of-onset will be resolved. Also, with the development of more sensitive diagnostic criteria, the correct diagnosis will be given to individuals struggling with early-onset bipolar disorder co-existing with other psychiatric illnesses. The primary objective being, an earlier diagnosis of bipolar disorder and more successful treatment will lead to the prevention and possible elimination of this debilitating, frightening, dangerous, and severe mental illness.

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## **APPENDICES**

## APPENDIX A

### IRB APPROVAL



## Cleveland State University

College of Graduate Studies and Research  
Office of Sponsored Programs and Research  
Institutional Review Board (IRB)

### Memorandum

DATE: 9 June 2006

TO: Patrick Murray, Preliminary Reviewer

FROM: Patrick Murray  
Graduate Assistant for Compliance,  
Office of Sponsored Programs & Research

RE: IRB for Human Subjects, Request for Preliminary Review  
Protocol #: 26262-WEL-HS  
Applicant: Elizabeth Welfel  
Co-Investigator: Miriam Becker  
Title: The relationship between gender and frequency of problematic behaviors  
in early onset bipolar disorder

The referenced protocol is attached for your preliminary review. Upon final determination of initial protocol disposition, the Preliminary Reviewer must complete this cover sheet as applicable and forward to the IRB Coordinator.

If you have any questions or require assistance with this process, please contact Ms. Barbara Bryant at 687.3624 or via e-mail at b.bryant@csuohio.edu.

#### Preliminary Review Determination:

☐ Exempt 45 CFR 46.101 ☐ Expedited Review ☒ Regular IRB Review

Signature: \_\_\_\_\_

Date: 6/9/2006

cc: Protocol File

Attachment(s)

Diagnosed bipolar patients.

Mailing Address: 2121 Euclid Avenue, KB 1150 • Cleveland, Ohio 44115-2214  
Campus Location: Keith Building, Room 1150 • 1621 Euclid Avenue • Cleveland, Ohio  
(216) 687-3630 • Fax (216) 687-9382

## **APPENDIX B**

### **INFORMATION LETTER**

To Whom It May Concern:

I am a Doctoral Candidate at Cleveland State University. I am conducting a research study in order to fulfill the dissertation requirement for the doctorate in Urban Education and Human Services. This survey is being conducted under the advice and guidance of Dr. Elizabeth Welfel, Ph.D. who has agreed to participate in this study.

I am deeply committed to learning more about early-onset bipolar disorder. Specifically, the relationship between gender, frequency, and the relationship with other mental disorders strongly associated with early-onset bipolar disorder. As this severe mental illness is often comorbid with substance use and conduct-disordered behaviors, my interest has extended to these disorders as well. The purpose of this study is threefold: This proposed research study will look at the relationship between gender and frequency of diagnosis in early-onset bipolar disorder, secondly this proposed research study will examine the relationship between gender, frequency, and substance use in the early-onset bipolar disordered population, and the third content area will examine the relationship between gender, frequency, and problematic-behaviors in the early-onset bipolar-disordered population. This study will involve the use of three paper and pencil measures, including a demographic data measure and will require an estimated 20-30 minutes to complete.

Specifically, I am requesting you to identify physicians/mental health practitioners on your staff who treat adult patients between the ages of 18-28 years of age on an out patient basis. Once identified, I will contact the physicians/mental health practitioners myself and ask if they are willing to participate in this research study. Their involvement would require the selection of patients, from their patient-base, who have been diagnosed with a bipolar disorder, hopefully during adolescence, and have the ability to respond to retrospective questionnaires the volunteer patient/participants will be given a letter explaining the study to these individuals. My cell phone will be set-up for patient/participants to contact me and I will respond to potential participants within 24 hours. I will meet with participants in a non-physician office. To ensure anonymity, the participants will put all measures in a sealed envelope with an identifying code number; there will be no use of legal names.

All participants will be compensated for their participation in this research study. The participants will each receive a coupon valued at \$20.00 that will be redeemable at a local food chain, i.e., Wal-Mart.

There appear to be no identifiable risks associated with participating in this project. However, I will be available to answer questions about this study when I collect completed questionnaires at the interview session when the measures are completed. The results of this research study will be made available to all physicians and participants after all data has been completed, collected, and analyzed. If you have any questions about this research study, including physician and patient participation, please contact me.

Your assistance and participation in this research effort is greatly appreciated. If you have any questions about the rights of the individual participants associated with this project, please contact the Cleveland State University's Review Board at (216) 687-3630.

Sincerely,

Mimi Becker  
Ph.D. Candidate

## **APPENDIX C**

### **APPROVAL OF RESEARCH STUDY**

Ms. Mimi Becker

May 30, 2006

RE: Approval of Research Project

On May 10, 2006, the AGENCY Board of Trustees voted unanimously to approve the recommendation of our Quality Improvement Team (QIT) to authorize your research project at Agency. The research project referenced is entitled "The Relationship Between Gender and Frequency of Problematic Behaviors in Early-Onset Bipolar Disorder" for your PhD candidacy at Cleveland State University. It is our understanding that this project will commence immediately and has a proposed completion date of December 31, 2006. If at some point it is determined that this completion date is not achievable, please contact Agency to discuss all options.

Approval of the above referenced research project is contingent upon full compliance with the proposal that was submitted to Agency and all of the revisions needed to comply with regulations from the Ohio Department of Mental Health. If you have any questions or changes/modification to propose please contact Ms. Laurie Rider, Quality Improvement Manager, immediately at 440-354-9924. Ms. Rider will serve as the primary Agency administrative contact for this project.

Please note that Agency reserves the right to terminate this authorization at its discretion and to audit the research project as needed to ensure that the administration of informed consent and the maintenance of confidentiality procedures are being carried out in accordance with the agreed-upon protocol. Furthermore, if this research project does not follow the protocol and places study subjects at increased risk, Agency may require that this research project discontinue all work on the project until the situation is remedied.

Thank you for inviting Agency to participate in this project. We are pleased to be a partner with you and Cleveland State University. We look forward to receiving and reading the final research report.

Sincerely,

Office of the Administrator

## **APPENDIX D**

### **LETTER TO CLINICIANS**

Dear Clinicians,

I am a Doctoral Candidate at Cleveland State University. I am conducting a research study in order to fulfill the dissertation requirement for the doctorate in Urban Education and Human Services/Counseling. This survey is being conducted under the advice and guidance of Dr. Elizabeth Welfel, Ph.D., who has agreed to participate in this study.

I am deeply committed to learning more about early-onset bipolar disorder. Specifically, the relationships between gender, frequency, substance use problems, and conduct-disordered behaviors in the early-onset bipolar-disordered population. The purpose of this study is threefold: First to look at the relationship between gender and frequency of diagnosis in early-onset bipolar disorder, secondly to examine the relationship between gender, frequency, and substance use disorder in early-onset bipolar disorder; and the thirdly to examine the relationship between gender, frequency, substance use disorders, and problematic behaviors in the early-onset bipolar-disordered population. This study will also look at patient satisfaction, if the patient/participant was treated by a mental health clinician during his/her adolescent years. Data will be gathered using three paper and pencil measures that include demographic data.

I am requesting the mental health practitioners of the Agency; identify the potential patient/participants for this study. Potential participants must carry a bipolar diagnosis and fall between the ages of 18-35 years of age. Selected individuals must also be able to respond to questions, retrospectively. I will contact the clinicians myself and ask if he/she is willing to participate in this research study. The mental health practitioner's involvement would require the selection of patients from their patient-base, who have been diagnosed with a bipolar disorder, hopefully during adolescence. When the mental health practitioners have given me permission to work with their patients; the clinicians will be given a letter explaining the study, to be distributed to potential patient/participants.

There will be three methods that potential patient/participants will be able to contact me. First, my cell phone will be set-up for patients to contact me directly at (216) 374-3444; secondly, patients can leave direct contact numbers with their clinicians, at the Agency, and I will contact the potential patient/participants myself. I will respond to the potential participants and meet with all participants, individually, in a non-physician office at the Agency, and then administer the paper and pencil measures. To ensure confidentiality, the participant will put all measures in a sealed envelope with an identifying code number; the use of legal names will never appear, anywhere, in this research study.

All participants will be compensated for their participation in this research study. The participants will each receive a coupon valued at \$20.00 that will be redeemable at local supermarkets. Since participation in this study is strictly voluntary, participants may withdraw from this study at any time, without penalty.

There appear to be no identifiable risks associated with participating in this project. The results of this research study will be made available to all physicians, other mental health practitioners, and participants after all data have been collected and analyzed. If you have any further questions regarding this research study, including physician, mental health clinician, and patient participation, please contact me at (216) 896-9720.

Your assistance and participation in this research effort is greatly appreciated. If you have any questions about the rights of the individual participants associated with this project, please contact the Cleveland State University's Review Board at (216) 687-3630.

Sincerely,

Mimi Becker, MA  
Ph.D. Candidate

## **APPENDIX E**

### **INFORMED CONSENT LETTER**

Dear Research Participant:

I am a Doctoral Candidate at Cleveland State University. I am conducting a research study in order to fulfill the dissertation requirement for the doctorate in Urban Education and Human Services Program with a specialty in Counseling. I have also taken an additional year of psychology course work that will permit me to sit for psychology licensure. This survey is being conducted under the supervision of Dr. Elizabeth Welfel, Ph.D.

Our initial contact will be by phone. If you are willing to participate in a research study on early-onset bipolar disorder, please contact me at (216) 372-3444. Please leave me your name and a telephone number that I can call to contact you. I will return all telephone messages within 24 hours after receiving them. There are no apparent risks associated with participating in this study.

Today, you are 18 years of age or older, however, this study is asking you to look back on your behavior as a young boy or girl.

The four major area of interest to this study are as follows:

- This study looks at young boys and young girls, to determine, which sex, young girls or young boys, were more frequently diagnosed with bipolar disorder.
- This study looks at young boys and young girls who have been diagnosed with a bipolar disorder, to determine who struggled more with alcohol or drug abuse; young boys or young girls.
- This study looks at young boys and young girls who have been given the diagnosis of bipolar disorder, who have struggled with alcohol and drug use, to determine, which sex, young boys or young girls, struggled more often with problematic behavior, such as, trouble at home, trouble at school, and/or trouble with the law.
- If you saw a mental health professional as a teenager, this study determines how satisfied you were with the help you received from the mental health clinician who treated you as an adolescent.

In order for me to show my appreciation, to you, for participating in this study, each participant will receive a \$20.00 coupon (given to each participant at the time we meet to complete the paper and pencil measures). The coupon is redeemable at a local supermarket. I am grateful to each participant for his/her willingness to participate in



this research project. Hopefully, this study will also be helpful to future scientific research on early-onset bipolar disorder. It is also my hope that this piece of research will help both the patients who struggle with early-onset bipolar disorder and the mental health clinicians who treat young people.

You also, always, have the right to withdraw from the study and I will be available to discuss the situation with you. If you have been referred to this study through psychiatric referral, your doctor or mental health clinician, will be available to help you at your regularly scheduled sessions, should any questions arise.

Your responses on the questionnaires will be kept strictly confidential. Neither your name nor any other identifiable information about you will ever appear in any part of the printed results of this research study. You will be identified through a number that matches the paper and pencil measures that you have completed. The supervisor listed above and I are the only persons who will have access to the completed questionnaires and these responses will be stored in a locked filing cabinet on site in my home, the filing cabinet will not be in plain view. Your participation in this study is voluntary and greatly appreciated; while there may not be a direct benefit to you by your participating in this study, your participation will lend itself to a more global understanding of the relationship between gender, frequency of diagnosis, substance use disorders, and conduct-disordered behaviors in the early-onset bipolar-disordered population.

The summary of the results of this study will be made available to you, if you are interested, after all the data are collected and analyzed.

Thank you for participating in this study. If you have any questions about your rights as a research participant, please contact the Cleveland State University's Review Board at (216) 687-3630.

Thank you.

Sincerely,

Mimi Becker, MA  
Ph.D. Candidate

---

Participant

Date

## APPENDIX F

### LETTER TO DR. ATTKISSON

Dr. C. Clifford Attkisson  
Department of Psychiatry  
University of California  
San Francisco, California 94143

December 17, 2005

Dear Dr. Attkisson:

My name is Miriam Becker and I am a Doctoral Candidate at Cleveland State University in Cleveland, Ohio. My purpose in writing to you is to request permission to use the "Client Satisfaction Questionnaire (CSQ-8)" developed by Larsen, Attkisson, Hargreaves, and Ngyuen (1979) in my research study to fulfill the dissertation requirement for the doctorate in Urban Education and Human Services. This survey is being conducted under the guidance of Dr. Elizabeth Welfel who has agreed to participate in this study.

I am deeply committed to learning more about early-onset bipolar disorder. specifically, the relationship between gender, frequency, and the relationship with other mental disorders strongly associated with early-onset bipolar disorder. The purpose of this study is threefold: First to look at the relationship between gender and frequency in early-onset bipolar disorder; secondly to examine the relationship between gender, frequency, and substance use in early-onset-bipolar-disorder, and thirdly to examine the relationship between gender, frequency, and problematic behaviors in the early-onset bipolar-disordered population. Data will be gathered using three paper and pencil measures that include demographic data. Completion of these surveys will require an estimated 20-30 minutes.

Two means of data collection are involved in this study: First, I will be contacting physicians, psychologists, counselors and social workers at community mental health facilities and requesting their participation in the study. Secondly; is through placing an advertisement in several of the local colleges and university newspapers in the Cleveland area. The participating mental health practitioners will be asked to distribute Information letters to potential patient/participants that will also be used as an "informed Consent" letter in the study, should the patient/participant choose to participate in the study. Participants will learn about informed consent and confidentiality. The participants will be compensated for their participation in this research study. Each participant will receive a coupon, valued at \$20.00, redeemable at a national retail store. The participants may withdraw from the study at any point without penalty.

There will be three methods that potential patient/participants will be able to contact me. First my cell phone will be set up for patients to contact me directly at (216) 374-3444; secondly patients can leave direct contact numbers with their mental health providers, I will contact participating clinicians directly and then contact the patient/participants myself. I will respond to all patient/participants and meet with all participants, individually, at a mutually convenient facility to administer the paper and pencil measures. To ensure anonymity, the participant will

put all measures in a sealed envelope with an identifying code number, there will be no use of legal names. The envelopes will be kept in a locked box in my home.

The “Client Satisfaction Questionnaire (CSQ-8)” (Larsen, et al. 1979) is important to this study. This is a retrospective study and participants will be asked to recall their experiences with mental health practitioners as adolescents. Research supports that the CSQ has provided a single, global score representing general satisfaction. The CSQ is well-accepted for reliability testing with documented high internal consistency (Wilkin, Hallam, & Doggett, 1992). Research reported the 8-item version has produced a higher item-total correlations and inter-item correlations than the 18-item versions. Using a sample of 92 clients from a mental health day treatment program, alternate forms and reliability estimated .82 between the two parallel forms (CSQ-18A and CSQ-18B) finding no significant differences between mean scores on the two forms (Larsen, Nguyen, & Attkinson, 1981).

Greenfield (1983) reported internal consistency in a five-year follow up study (N=1, 267), with coefficient alphas of .83 and .88 for CSQ-3 and CSQ-4. In modified versions of the CSQ-8, when used as part of a larger questionnaire of client satisfaction in a university study. To explain validity of this instrument, several studies that compared the CSQ with other measures of client satisfaction and outcome have provided evidence that has supported the validity of this instrument (Wilkin, Hallam, & Doggett, 1992). Hill (2003) noted the “Client Satisfaction Questionnaire” is the most commonly used patient satisfaction questionnaire in the outcome research literature.

Due to the high regard in which the “CSQ-8” is held, I am requesting permission to use this instrument in this doctoral research study. Thank you for your consideration. There appear to be no identifiable risks associated with participating in this study. The results of this study will be made available to all mental health practitioners and participants after all data has been completed, collected, and analyzed. If you have any questions about this research study, including physician and patient participation, please contact me at (216) 896-9720.

Sincerely,

Miriam Becker, M.A.  
Ph.D. Candidate

## **APPENDIX G**

### **RESPONSE FROM DR. ATTKISSON**

On Jan 13, 2006, at 7:20 PM, Clifford Attkisson wrote:

January 13, 2006

Dear Mimi Becker,

I received the dissertation study plan that you sent to me on January 9, 2006 and have reviewed it vis a vis use of the CSQ-8 in English.

The CSQ-8 seems very appropriate for the study that you plan and you have my permission to use it in the way that is described in the version of the study plan that you sent to me. This permission is conditional on the following:

1. Contact Margaret Lambert-Chin (Margaret.Lambert-Chin@ucsf.edu) to arrange payment for the number of uses that you require.
2. No changes in the instrument are permitted; however you can provide a written statement to subjects that gives them the specific about the entity or set of services they are evaluating and over what time-frame.
3. Since you are a graduate student, I will authorize a discounted price per use which is equivalent to the price paid by our on-going, high volume users of the CSQ Scales.

Good luck in your work. I would be interested in having a copy of your final report and feedback on the performance of the CSQ in your sample.

Sincerely,

Clifford Attkisson, Ph.D.  
Professor of Medical Psychology  
UCSF

Clifford Attkisson  
csq scales@mac.com  
660 Amaranth Boulevard  
Mill Valley, California 94941-2605

## **APPENDIX H**

### **INSTRUCTION FOR ORDERING CSQ-8**

On Jan 17, 2006, at 11:29 AM, Lambert-Chin, Margaret wrote:

Dear Ms. Becker,

The discounted rate is 30 cents per use. Please send a check in the amount of \$18.00 made payable to:

REGENTS, UNIVERSITY OF CALIFORNIA

Mail to:

Clifford Attkisson, Ph.D.  
University of California, San Francisco  
500 Parnassus Avenue, Room MU-200 West  
San Francisco, CA 94143-0244

Upon receipt of your check, I will mail 60 copies of the CSQ-8 in English to the address you provide.

Thank you for your interesting the CSQ.

Margaret Lambert-Chin  
CSQ Coordinator  
University of California, San Francisco  
500 Parnassus Avenue, Room MU-200 West  
San Francisco, CA 94143-0244  
Email: [csq@saa.ucsf.edu](mailto:csq@saa.ucsf.edu)  
Website: <http://saawww.ucsf.edu/csq>

## **APPENDIX I**

### **CSQ-8 ORDER REQUEST**

January 17, 2006

Margaret Lambert-Chin  
CSQ Coordinator  
University of California  
500 Parnassus Avenue, Room MU-200 West  
San Francisco, CA 94143-0244

Dear Ms. Lambert-Chin:

Thank you so much for your prompt response. Also, please thank Dr. Attkisson for the student discount fee. I greatly appreciate it. Enclosed you will find a check in the amount of \$18.00 payable to the Regents, University of California, for the use of the CSQ-8, English version (60 CSQ-test instruments).

Once again, thank you.

Sincerely,

Mimi Becker

## APPENDIX J

### THE DEMOGRAPHIC QUESTIONNAIRE

Instructions:

Thank you for participating in this demographic survey. Please try and answer all of the questions honestly and to the best of your ability. If you find yourself uncomfortable with any of the questions, you may elect not to answer them.

Part I: Biographic information about the participant

- A. Participant # \_\_\_\_\_ Age \_\_\_\_\_
- B. Gender: Male \_\_\_\_\_ Female \_\_\_\_\_
- C. At what age were you first diagnosed with a bipolar disorder? \_\_\_\_\_

Please circle the appropriate response throughout this questionnaire.

- 1. What is your race/ethnic background?
  - A. African American
  - B. Hispanic
  - C. Asian American
  - D. Euro American
  - E. Native American
  - F. Other
- 2. Marital status:
  - A. Single
  - B. Married/committed relationship
  - C. Separated
  - D. Divorced
  - E. Widowed
- 3. Current work status:
  - A. Employed full-time
  - B. Employed part-time
  - C. Unemployed
- 4. Highest level of education completed:
  - A. Some high school
  - B. High school graduate
  - C. Some college
  - D. College graduate
  - E. Graduate school
- 5. What is your current occupation? \_\_\_\_\_

## Part II: Mental Health History

6. When were you first diagnosed, what episode did you have?
  - A. Manic Episode
  - B. Depressed Episode
  - C. Mixed-State Episode
7. How old were you when you were first seen by a mental health professional?  
Age: \_\_\_\_\_
8. During your adolescence, how severe were the symptoms of your bipolar disorder?
  - A. Mild
  - B. Moderate
  - C. Extreme
9. Have you ever been diagnosed with a Conduct Disorder?
  - A. Yes Age: \_\_\_\_\_
  - B. No
10. Have you ever been diagnosed with a Substance Use Disorder?
  - A. Yes Age: \_\_\_\_\_
  - B. No

Thank you for completing this demographic questionnaire.



## APPENDIX K

### THE ADOLESCENT QUESTIONNAIRE

Participant # \_\_\_\_\_

#### Instructions:

The following questions are asking you to remember your experiences as an adolescent. Specifically, this questionnaire is looking back on your adolescent behavior and asking you to respond to your past behavior. Please circle the answer that most closely applies to how you behaved during your adolescent years. For example, if you never did what the question is asking, circle the word "never," if you always did what the question is asking, circle the word "always."

#### CIRCLE YOUR ANSWER

1. Before you turned 18 years old, did you use alcoholic beverages to excess?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #1 and #2]

2. Before you turned 18 years old, did you abuse illegal substances?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #4]

3. Before you turned 18 years old, were you involved in the deliberate destruction of other peoples' property?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #4]

4. Before you turned 18 years old, was your behavior aggressive to the point of threatening physical harm to people or animals?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #4]

5. Before you turned 18 years old, were you ever:

A. Involved in promiscuous sexual behavior?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #3]

B. Were you ever pressured into sexual behavior?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #3]

6. Before you turned 18 years old, were you in trouble with the legal system?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #4]

7. Before you turned 18 years old, did you spend time in jail?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #4]

8. Before you turned 18 years old, did you spend time in a juvenile detention facility?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #4]

9. Before you turned 18 years old, did you carry a weapon or did you use a weapon that could cause physical harm (e.g. bat, brick, broken bottle, knife, or gun)?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #4]

10. As an adolescent how frequently were you involved in shop-lifting?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #4]

11. As an adolescent, how frequently did you run away from home?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #1]

12. How Frequently did your high school file “unruly” charges against you?
- |        |            |           |        |       |
|--------|------------|-----------|--------|-------|
| 5      | 4          | 3         | 2      | 1     |
| _____  | _____      | _____     | _____  | _____ |
| Always | Frequently | Sometimes | Rarely | Never |
- [Research Question #1]
13. How frequently did your middle school file “unruly” charges against you?
- |        |            |           |        |       |
|--------|------------|-----------|--------|-------|
| 5      | 4          | 3         | 2      | 1     |
| _____  | _____      | _____     | _____  | _____ |
| Always | Frequently | Sometimes | Rarely | Never |
- [Research Question #1]
14. As a child or adolescent, we you:
- A. Involved with Family & Children’s Services?
- |        |            |           |        |       |
|--------|------------|-----------|--------|-------|
| 5      | 4          | 3         | 2      | 1     |
| _____  | _____      | _____     | _____  | _____ |
| Always | Frequently | Sometimes | Rarely | Never |
- [Research Question #4]
- B. If your answer is “Yes,” were you ever placed in a foster home?
- |        |            |           |        |       |
|--------|------------|-----------|--------|-------|
| 5      | 4          | 3         | 2      | 1     |
| _____  | _____      | _____     | _____  | _____ |
| Always | Frequently | Sometimes | Rarely | Never |
- [Research Question #4]
15. How frequently did you receive detention when you were in high school?
- |        |            |           |        |       |
|--------|------------|-----------|--------|-------|
| 5      | 4          | 3         | 2      | 1     |
| _____  | _____      | _____     | _____  | _____ |
| Always | Frequently | Sometimes | Rarely | Never |
- [Research Question #4]
16. How frequently did you receive detention when you were in middle school?
- |        |            |           |        |       |
|--------|------------|-----------|--------|-------|
| 5      | 4          | 3         | 2      | 1     |
| _____  | _____      | _____     | _____  | _____ |
| Always | Frequently | Sometimes | Rarely | Never |
- [Research Question #5]
17. How frequently were you absent from high school?
- |        |            |           |        |       |
|--------|------------|-----------|--------|-------|
| 5      | 4          | 3         | 2      | 1     |
| _____  | _____      | _____     | _____  | _____ |
| Always | Frequently | Sometimes | Rarely | Never |
- [Research Question #5]
18. How frequently were you absent from middle school?
- |        |            |           |        |       |
|--------|------------|-----------|--------|-------|
| 5      | 4          | 3         | 2      | 1     |
| _____  | _____      | _____     | _____  | _____ |
| Always | Frequently | Sometimes | Rarely | Never |
- [Research Question #5]

19. How frequently did your high school teachers send you to the principal's office or guidance counselor's office?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #5]

20. How frequently did your middle school teachers send you to the principal's office or the guidance counselor's office?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #5]

21. How frequently were you suspended from high school due to "acting out" behavior?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #1]

22. How frequently were you suspended from middle school due to "acting out" behavior?

5	4	3	2	1
_____	_____	_____	_____	_____
Always	Frequently	Sometimes	Rarely	Never

[Research Question #1]

Thank you for participating in this study.