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Structural validity of the mood and behavior rating scale for youth – Parent Form (MBRSY-PF): A Parent informant questionnaire to assess bipolar disorder in children and adolescents

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Structural Validity of the Mood and Behavior Rating Scale for Youth – Parent Form (MBRSY-PF): A Parent Informant Questionnaire to Assess Bipolar Disorder in Children and Adolescents

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ABSTRACT

Empirically validated techniques to reliably assess for bipolar disorder in children and adolescents are crucial toward timely and effective treatment efforts. Rating scales and behavior checklists are often considered a valuable alternative to the semi-structured interview, as they can provide quantified information regarding symptom experience, and values can be compared to both age and gender norms as a supplement to clinical expertise (Kahana, Youngstrom, Findling, & Calabrese, 2003). Converse to semistructured interviews, rating scales are brief and time efficient, inexpensive, simple to administer, require much less training to deliver and interpret, and can be utilized for screening purpose by a wide variety of practitioners (Kahana et al.). For these reasons, high quality and psychometrically sound rating scale measures that address the specific assessment issues for pediatric bipolar disorder, and possess the advantages listed above, would have valuable clinical utility. However, while a number of promising such measures do exist and have been subjected to some psychometric study, definitively rigorous instruments meeting these qualifications are deficient within the literature overall (Kahana et al.). To address this missing aspect within the literature as a whole, an experimental version of the Mood and Behavior Rating Scale for Youth – Parent Form (MBRSY-PF) has been developed by Perry and Bard in 2005. The measure holds promise in addressing the sparseness in both number and rigor of measures currently detailed within the literature, though the psychometrics of the MBRSY-PF have not yet been studied formally. The purpose of the research study that follows will be to conduct a three-level investigation of the structural validity of the MBRSY-PF as a parent informant questionnaire to assess for bipolar disorder in children and adolescents.

CHAPTER ONE

Overview

General Overview and Background

Within the field of mental health, bipolar disorder has a long history of being considered among the most severe and life-altering of the psychological disorders to affect adult society. Though observations of bipolar-like behaviors have been documented in children and adolescents spanning many years prior, there has been general skepticism in psychiatry that the disorder exists within youth given the severity and seemingly mature nature of many of the core bipolar disorder symptoms (Lofthouse & Fristad, 2004). A surge in research interest over the past several decades has made strides toward understanding the many facets and complexities of bipolar disorder, and it is now universally recognized that bipolar disorder does legitimately impact the child and adolescent age groups (Wonziak et al., 2003). The focus has been shifted to the occurrence of pediatric bipolar disorder to such an extent that some now feel that it has achieved popularity status and a tendency to be over diagnosed at these ages (Lofthouse & Fristad). While contemporary thought acknowledges that bipolar disorder is possible at the younger ages, exploration of the condition at these age groups has indicated that it appears to manifest in an alternate form and with differing characteristics than is typical of the adult presentation (Papolos & Papolos, 1999).

Bipolar disorder is a member of the family of mood disorders. It is characterized by overall dysregulation of mood, and the discrete cycling between alternating manic and depressive mood episodes to the extent that daily functioning is substantially impaired (American Psychiatric Association, 2000). Adult mania refers to elevated, expansive, or irritable mood that can include grandiosity, decreased need for sleep, increased talkativeness, flight of ideas, racing thoughts, distractibility, excessive physical and goal-directed activity, as well as

pleasure-seeking (American Psychiatric Association). A major depressive episode in adulthood is characterized by a depressed mood and diminished interest in pleasurable or previously enjoyed activities, and can be accompanied by appetite or weight fluctuations, sleep disturbances, fatigue or reduced energy, feelings of worthlessness or guilt, decreased concentration or decisiveness, and recurrent thoughts of death or suicide (American Psychiatric Association). Bipolar disorders are often referred to as occurring along a spectrum, as various degrees and phenotypes of the disorder are considered possible. These include bipolar I disorder, bipolar II disorder, cyclothymia, and bipolar disorder not otherwise specified (BP-NOS) (American Psychiatric Association).

Though bipolar disorder has been found to occur in the population of children and adolescents, a large base of definitive research on the disorder in these age groups has not yet been substantiated overall. Furthermore, despite that bipolar disorder in youth has been understood to present uniquely from the adult form of the disorder, formal and differentiated Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (American Psychiatric Association, 2000) diagnostic criteria for pediatric bipolar disorder do not exist at this time (Papolos & Papolos, 1999). The best diagnostic guidelines available to clinicians, therefore, are adapted criteria based upon trends within the literature regarding bipolar disorder as it is specific to children and adolescents (Papolos & Papolos).

Bipolar disorder in childhood and been found to differ from typical adult bipolar in several key ways. First, the majority of bipolar cases in children tend to present more as a "broad" or more "soft" form of the disorder (similar to bipolar II disorder, cyclothymia, or BP-NOS), such that the classic bipolar symptoms of mania and depression are more loosely interpreted and appear to less distinctly resemble those experienced by adults (Pavuluri, Birmaher, & Naylor, 2005). Furthermore, while children do appear able to experience somewhat

classic mania and depression, such symptoms often present as what is better described by the term "irritable mood" (Pavuluri et al., 2005). Irritability has been observed to such an extent in children and adolescents with the disorder, that it is now considered quite central to the unique pediatric bipolar disorder symptomatology (Pavuluri et al.). Bipolar disorder as it affects children is also characterized by a more chronic course, which often involves fewer symptom reduced periods and more rapid cycling between manic and depressive mood episodes (Bardick & Bernes, 2005). Finally, bipolar disorder in youth is marked by extremely high rates of comorbidity with other psychological disorders and medical conditions; this is especially the case with regard to the co-occurrence of bipolar disorder with ADHD (Kowatch & DelBello, 2006).

As mentioned previously, bipolar disorder is considered a serious condition indeed, and one that has certainly made society take notice and respond to its impact upon youth. Bipolar can have a devastating effect upon so many aspects of the lives that it touches, such as adverse prognosis upon family life, peer interactions, academic success, romantic relationships, occupational endeavors, health, safety, and life satisfaction (Papolos & Papolos, 1999). Negative outcomes can also include, but are not in any way limited to, an increased risk for legal difficulties, hospitalization, unplanned pregnancies, substance abuse, risky behaviors, violence, injury, and suicide (Lofthouse & Fristad, 2004; Papolos & Papolos,). Therefore, bipolar disorder is regarded as an extremely pervasive and life-long disorder.

Given the potential for the experience of negative consequences as a result of bipolar disorder, the development and application of reliable and targeted treatment options are an obvious priority. Pharmacological treatment is currently the first line toward bipolar disorder symptom management in children and adolescents, and can be supplemented with psychosocial therapies when mood stabilization is achieved (Pavuluri et al., 2005). However, currently no

medications are formally approved by the Food and Drug Administration (FDA) for use with children, although such unapproved and somewhat under researched medications are routinely prescribed (Pavuluri et al.). In addition, unfavorable drug reactions or delayed positive treatment intervention can result in the case of misdiagnosis or under diagnosis of bipolar disorder in the younger age groups (Pavuluri et al.).

In order to ensure the greatest probability that successful and timely bipolar treatment can be delivered to affected children and adolescents, accurate identification and diagnosis of bipolar disorder at these age groups is paramount. However, due to inconclusive prevalence rates, trends toward inappropriate diagnosis, high rates of comorbidity, the alternate presentation of the disorder in children, and undifferentiated diagnostic criteria for use at the younger ages, it is understood that the accurate assessment and diagnosis of bipolar disorder in children and adolescents is a challenging yet necessitated pursuit (Hunt et al., 2002; Kowatch & DelBello, 2006; Papolos & Papolos, 1999; Pavuluri et al., 2005). Therefore, empirically validated techniques to reliably assess for bipolar disorder in young people are crucial.

A comprehensive psychiatric evaluation conducted by an expert clinician according to DSM-IV-TR criteria has long been considered the gold-standard in assessing for and diagnosing bipolar disorder (Wonziak et al., 2003). However, errors in clinical judgment can occur as bipolar disorder symptomatology in children and adolescents can sometimes be elusive to observe during an in-person exam (Wonziak et al.). Therefore, the use of informant report has frequently been utilized in gathering information for a bipolar disorder assessment in the child and adolescent populations, and parent informant reports have been found quite superior to teacher, self, or any other informant contribution (Youngstrom et al., 2004).

Semistructured interviews are one type of methodology that have been utilized to elicit parent informant report in a directed way, and have been well-validated and tailored toward

DSM diagnostic criteria for bipolar disorder (Geller, Zimmerman & Williams et al., 2001). However, such measures must be administered by a qualified expert clinician, require extensive training to administer reliably, are incredibly time consuming, expensive, and impractical and cumbersome for use with a broad segment of the population (Geller et al.).

Therefore, rating scales and behavior checklists are often considered a valuable alternative to the semi-structured interview, as they can provide quantified information regarding symptom experience, and values can be compared to both age and gender norms as a supplement to clinical expertise (Kahana, Youngstrom, Findling, & Calabrese, 2003). Converse to semistructured interviews, rating scales are brief and time efficient, inexpensive, simple to administer, require much less training to deliver and interpret, and can be utilized for screening purpose by a wide variety of practitioners (Kahana et al.). For these reasons, high quality and psychometrically sound rating scale measures that address the specific assessment issues for pediatric bipolar disorder, and possess the advantages listed above, would have valuable clinical utility. However, while a number of promising such measures do exist and have been subjected to some psychometric study, definitively rigorous instruments meeting these qualifications are deficient within the literature overall (Kahana et al.).

To address this missing aspect within the literature as a whole, an experimental version of the Mood and Behavior Rating Scale for Youth – Parent Form (MBRSY-PF) has been developed by Perry and Bard in 2005. The measure holds promise in addressing the sparseness in both number and rigor of measures currently detailed within the literature, though the psychometrics of the MBRSY-PF have not yet been studied formally. The purpose of the research study that follows will be to conduct a three-level investigation of the structural validity of the MBRSY-PF as a parent informant questionnaire to assess for bipolar disorder in children and adolescents.

Three levels of statistical analysis were conducted for the present study, with level one being the most specific and fine-tuned, and levels two and three becoming increasingly general and broader in scope. The first level of analysis explored the internal consistency of the subscales that comprise the domain scales of the MBRSY-PF by investigating internal consistency at both the subscale and individual item levels. For the second level of analysis, the latent structures of the subscales for each domain scale of the MBRSY-PF were investigated through exploratory factor analysis. At the third and final level of analysis, the factor structure of the MBRSY-PF was inspected at the domain scale level by conducting principal component factor analysis.

Definitions of Terms

Bipolar Disorder: A psychological disorder included within the family of mood disorders that is characterized by marked and extreme affect dysregulation and the experience of discrete cycling between the core features of manic and depressive mood episodes.

Mania: A core symptom of bipolar disorder that involves abnormally and persistently elevated, expansive, or irritable mood typically characterized by excessive euphoria, grandiosity, decreased need for sleep, increased talkativeness or pressure to keep talking, racing thoughts or flight of ideas, distractibility, increase in goal-directed activity or psychomotor agitation, and excessive involvement in pleasurable activity.

Depression: A second core symptom of bipolar disorder that involves depressed mood and diminished interest or pleasure in nearly all activities, significant fluctuations in appetite or weight, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or reduced energy, feelings of worthlessness or guilt, decreased concentration or decisiveness, and recurrent thoughts of death or suicide.

Informant Report: A method of social-emotional assessment within the field of mental health

that does not involve direct behavioral observation of the targeted client by the assessing clinician, but rather utilizes information provided by the client themselves or by another individual in close relationship to the client who has ample opportunity to observe client behavior.

Semistructured Interview: A variety of psychological assessment instrument designed to elicit informant report and apply expert clinical judgment within a diagnostic interview process by leading an informant through a series of arbitrary content area questioning targeted toward the diagnostic criteria of various psychological disorders.

Behavior Rating Scale: A variety of psychological assessment instrument designed to elicit informant report from a series of often forced-choice or Likert-type items that require a quantitative or qualitative rating or endorsement by the informant and are often administered in a paper and pencil format.

Construct Validity: A psychometric property that refers to whether or not a measure or component of a measure indeed assesses the social "construct" or concept that it purports to measure. More specifically, construct validity is determined by assessing whether attributes of a measure can be shown to statistically possess the same underlying factor through the calculation of a series of correlations.

Internal Consistency: A statistical concept that assesses whether items contained within a measure or component of a measure that purport to measure a similar attribute indeed do produce similar scores in measuring that attribute. Internal consistency is based upon correlation, and is typically calculated using the Cronbach's alpha statistic which makes pairwise correlations between items.

Principal Components Factor Analysis: A statistical technique for exploratory analysis utilized

to reduce a multi-dimensional data set or set of several variables into fewer dimensions or data set combinations with underlying similarities called factors.

Delimitations

The body of existing literature and options for further research is vast as it pertains to bipolar disorder in children and adolescents, and therefore much of that which is available to relay is beyond the scope of the present study and was consequently sculpted to reflect the purpose of the research at hand. The present study focuses upon the alternate presentation of bipolar disorder in children and adolescents, and the unique diagnostic and assessment issues that accompany this understanding. Although the purpose of the present study was to establish a gap within the literature regarding the availability of high quality and psychometrically sound informant rating scales to assess for bipolar disorder in children and adolescents, a complete listing of available measures and corresponding psychometric research was not provided within the current report. Rather, only a summary of commonly used and promising instruments along with brief research findings was included within the present review.

A further aim of the present literature review was to provide a brief overview of the symptom profile and diagnostic criteria for bipolar disorder in adults, and a summary of recent literature regarding the discrepancies and unique features between bipolar disorder presentation in the adult versus youth population. The review of bipolar disorder symptomatology was intentionally broad and sweeping, and does not detail all of the intricacies in symptom presentation that could be described. An exhaustive listing of adverse outcomes and prognosis was also not included within the present study, and only a brief sampling was highlighted in order to establish the severity and significance of the disorder to society today. Furthermore, though bipolar disorder is considered a genetically based condition, an in-depth review of recent heritability and neurological findings was not provided as it relates to children and adolescents,

and only a succinct summary was included on the topic. In a related way, a detailed review of the literature on pharmacological and psychosocial treatment options was intentionally omitted, and rather only a general explanation was provided to contribute a well-rounded description of various aspects of the disorder at the younger age groups.

Finally, it is acknowledged that the archival sample of participants utilized for the present study is not only small but can also be considered a sample of convenience overall. The sample utilized is composed of only a single data set of parent participants, and data was collected from these participants over a short period of time and at one exclusive clinical locale. Furthermore, the sample cannot be considered randomly selected, as it does not consist of parents not seeking a psychiatric referral for services, and parent participants were hand-chosen based upon willingness to participate and the specific primary psychiatric diagnoses of their children. Therefore, it is not claimed that the findings of the present study are able to generalize beyond these parameters and the purpose for which the study was intended.

CHAPTER TWO

Literature Review

Bipolar Disorder Overview and Diagnostic Criteria

Bipolar disorder is a member of the family of mood disorders, and is characterized by marked and extreme affect dysregulation (Post, Leverich, Xing, & Weiss, 2001). More specifically, individuals with bipolar disorder cycle between experiencing the core features of both manic and depressive mood episodes.

The specific symptom presentation and criteria for diagnosing bipolar disorder in adults are detailed in the text revision of the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV-TR*) (American Psychiatric Association, 2000). Though there is mention of children in the *DSM* description of bipolar disorder, separate diagnostic criteria for the youth population do not exist (Papolos & Papolos, 1999). Consequently, developmental differences inherent between the two age groups are not specifically accounted for in the diagnostic criteria, and children are left to be diagnosed according to the adult bipolar disorder criteria by default (Papolos & Papolos). Therefore, the following description of bipolar disorder symptomatology and diagnostic criteria reflect those intended for the adult population.

The *DSM-IV-TR* considers a manic episode to be, "a distinct period of abnormally and persistently elevated, expansive, or irritable mood, lasting at least one week (or any duration if hospitalization is necessary) (American Psychiatric Association, 2000, p. 357). Elevated mood refers to that which is excessively euphoric, cheerful, and high, while expansive mood is described as having unending enthusiasm and spontaneity for endeavors (American Psychiatric Association).

Classic adult mania is characterized by inflated self-esteem or grandiosity, decreased need for sleep, increased talkativeness or pressure to keep talking, racing thoughts or flight of

ideas, distractibility, increase in goal-directed activity or psychomotor agitation, and excessive involvement in pleasurable activity with high potential for painful consequences (American Psychiatric Association, 2000). To consider an episode formally manic, an individual must experience at least three of the aforementioned symptoms (four if the mood disturbance is irritable) for the one-week minimal duration (American Psychiatric Association).

An individual within a manic phase of bipolar disorder may display extreme self-confidence or grandiose delusions of ability, despite not possessing above average talent, experience, or knowledge (American Psychiatric Association, 2000). A person within mania may sleep very little without tiring, and may embark on many projects and activities (American Psychiatric Association). Such projects often pertain to occupation, socialization, creativity, or sexual pursuits, and can be accompanied by a great deal of physical movement or agitation (American Psychiatric Association). The person's thoughts and attention may shift quickly from one subject to another, and they may speak loudly, quickly, dramatically, urgently, and without stopping about multiple topics (American Psychiatric Association).

Within the *DSM-IV-TR* criteria, present symptoms must also impair occupational or social functioning to a significant degree, necessitate hospitalization to prevent harm to self or others, or involve psychotic features (American Psychiatric Association, 2000). Furthermore, the *DSM-IV-TR* specifies that manic symptoms may not be the direct physiological effect of substance abuse, medication, toxin exposure, or a general medical condition (American Psychiatric Association).

The *DSM-IV-TR* also details the phenomenon of hypomania, which is similar to a manic episode in that it involves abnormally and persistently elevated, expansive, or irritable mood and requires presence of three of the symptoms that have been mentioned above (American Psychiatric Association, 2000). However, a hypomanic episode need only last four days, and it

produces obvious change from usual behavior rather than significant impairment (American Psychiatric Association). A mixed episode is also outlined, and is considered when an individual meets the criteria for both a manic and major depressive episode nearly every day for the minimal duration of one week (American Psychiatric Association). When experiencing a mixed episode, a person endures rapidly shifting mood states which can involve, "agitation, insomnia, appetite dysregulation, psychotic features, and suicidal thinking" (American Psychiatric Association, p. 362).

A major depressive episode involves depressed mood (sadness, emptiness, or tearfulness), diminished interest or pleasure in nearly all activities, significant fluctuations in appetite or weight, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or reduced energy, feelings of worthlessness or guilt, decreased concentration or decisiveness, and recurrent thoughts of death or suicide (American Psychiatric Association, 2000). The major depressive episode must involve at least five of the aforementioned symptoms present within the same two-week time period, and either a depressed mood or the loss of interest or pleasure is required as one of the five (American Psychiatric Association). Furthermore, the *DSM-IV-TR* specifies that the mood state must significantly impair, represent a change from previous functioning, and not be explained by substance abuse, a general medical condition, or bereavement (American Psychiatric Association). Special note is made with regard to children and adolescents in the major depressive episode section of the *DSM-IV-TR*. Pertaining to depressed mood, it is noted that such a phenomenon in children and adolescents may present as irritable or cranky mood rather than as sadness or dejection (American Psychiatric Association).

The population of individuals diagnosed with bipolar disorder is actually a rather heterogeneous group, which suggests that bipolar disorder may be conceptualized as overlapping subtypes of the condition with similar manifestations (Lofthouse & Fristad, 2004). Therefore,

the term *bipolar spectrum disorder* is sometimes used instead to refer to various subtypes along this continuum, with the words *juvenile-onset, early-onset*, or *pediatric* being added to specify the disorders in children and adolescents (Lofthouse & Fristad).

For a diagnosis of bipolar disorder to be applied, an individual must demonstrate history of at least one manic episode, one hypomanic episode and one major depressive episode, or an episode in which mania and depression are mixed (American Psychiatric Association, 2000). A single manic episode will result in a Bipolar I diagnosis, and may or may not involve a major depressive episode (American Psychiatric Association). Bipolar I disorder is often considered the most severe of the bipolar spectrum disorders, as associated problems include "school truancy, school failure, occupational failure, divorce, or episodic antisocial behavior" (American Psychiatric Association, p. 384). Furthermore, individuals with bipolar I disorder typically have more both yearly and lifetime episodes, and completed suicide occurs in 10% to 15% of such individuals (American Psychiatric Association).

Bipolar II disorder requires no manic episodes, but at least one hypomanic and major depressive episode each are required (American Psychiatric Association, 2000). Cyclothymic disorder involves at least one hypomanic episode and minor depressive episode each, though no manic or major depressive episodes are necessary (American Psychiatric Association). With cyclothymic disorder, the hypomanic symptoms never reach full criteria for a formally manic episode, and depressive symptoms also do not meet criteria for a major depressive episode (American Psychiatric Association). Finally, bipolar disorder not-otherwise-specified (BP-NOS) is somewhat of a catch-all diagnosis, in which symptoms are vague, or lack in number or duration to receive any of the specific aforementioned labels for bipolar spectrum disorders (American Psychiatric Association).

Bipolar Disorder in Children

As mentioned previously, the formal bipolar diagnostic criteria have not been customized to reflect child development or the disorder as it typically presents in children and adolescents (Papolos & Papolos, 1999). This seeming lack of consideration may be the case because, in years prior, there was general expert skepticism or disbelief that the condition could even exist in youth (Lofthouse & Fristad, 2004). A surge in research over the past decade has challenged this perception and increased understanding, such that a childhood manifestation of bipolar disorder is now considered a legitimate entity (Wonziak et al., 2003).

Bipolar-like symptoms were recognized in children and adolescents as early as the mid-19th and early 20th centuries, however such presentation tended to only loosely resemble the more classic manifestation typically observed in adults with the disorder (McIntosh & Trotter, 2006). Research has since advanced this notion. The psychiatric field now acknowledges that child and adolescent bipolar disorder differs in several key ways from the adult form of the disorder, and that it typically presents in an alternate pattern (Papolos & Papolos, 1999). However, the exact clinical presentation of bipolar disorder in childhood and early adolescence continues to be debated overall (Pavuluri et al., 2005).

In 2001, the National Institute of Mental Health Research Roundtable on prepubertal bipolar disorder detailed an agreement that the disorder in these age groups tends to present in either a "narrow" or "broad" phenotype (Pavuluri et al., 2005). The "narrow" or "hard" presentation of bipolar disorder describes children that have periods of recurrent major depression and mania (or hypomania) similar to that classically described by the label of bipolar I disorder (Pavuluri et al.). Such children typically endure multiple episodes of mania and depression, and often experience rapid cycling of symptoms, which refers to frequent switching from one mood episode to the other (Pavuluri et al.). However, the "narrow" phenotype is still

considered quite rare in children, as most fail to meet the seven and four day duration criteria required for a mania or hypomania (Lofthouse & Fristad, 2004; Pavuluri et al.). Therefore, a great proportion of children with bipolar symptoms are formally diagnosed with bipolar disorder not otherwise specified (BP NOS) (Pavuluri et al.).

The "broad" or "soft" manifestations of bipolar disorder constitute the majority of referrals to clinicians, and involve symptoms that are typically labeled as bipolar II, cyclothymia, and BP-NOS (Lofthouse & Fristad, 2004; Pavuluri et al., 2005). Biederman et al. (1996) explained that the "broad" phenotype bipolar disorder is often recognized by "irritability, 'affective storms,' mood lability, severe temper outbursts, symptoms of depression, anxiety, hyperactivity, poor concentration, and impulsivity with or without clear episodicity" (as cited in Pavuluri et al., p. 846). In an attempt to unify terminology for future research, treatment, and prognosis purposes, phenotyping frameworks have also been developed by others as the debate over symptom presentation continues (Pavuluri et al.).

To elaborate, topography is one agreed upon point of difference between the adult and child manifestations of bipolar disorder. As mentioned previously, irritability rather than sadness during a depressive episode has been accounted for within the *DSM-IV-TR* as an additional presentation for children and adolescents (American Psychiatric Association, 2000). Furthermore, irritable mood during manic episodes also tends to be more representative of the child presentation of bipolar disorder than is the elated mood, grandiosity, and euphoria characteristically observed in adults (Papolos & Papolos, 1999; Pavuluri et al., 2005). Therefore, irritability is now being considered quite central to the unique symptom presentation and diagnostic process of bipolar disorder in children and adolescents (Pavuluri et al.). Children with irritable mood during mania may have a volatile or extreme quality to their irritability, and meltdowns lasting hours can occur from seemingly trivial events (Kowatch et al., 2005).

Belligerent or oppositional behavior, as well as intense outbursts of anger, hostility, and aggression from children can also accompany irritability within manic phases (Kowatch & DelBello, 2006).

However, mania in children can include extreme happiness, silliness or giddiness with no apparent cause (Kowatch & DelBello, 2006). Episodes of mania can also involve racing thoughts and a flight of ideas, which come and go quickly and alternate topics haphazardly (Kowatch & DelBello). Children with racing thoughts during mania may show an inability to remain abreast of daily activities, and may express that their "brain is going 100 miles per hour" or that "there is an Energizer Bunny up there" (Kowatch et al., 2005, p. 216). Speech during mania can also be impacted, as children may talk loudly, blurt uncontrollably, assume a "know it all" tone, speak at length, or converse so briskly or randomly that they cannot be understood (Kowatch & DelBello; Kowatch et al.).

Grandiose ideation can also occur, such that children with bipolar disorder develop an inflated sense of self and ability (Kowatch & DelBello, 2006). For example, individuals may feel that they have superhero powers or can teach their class more skillfully than their teacher (Kowatch & DelBello). In a related way, children along the bipolar spectrum can also experience psychoses, including bizarre hallucinations or delusions that are beyond the scope of typical childhood imagination (Bardick & Bernes, 2005). In addition, children with bipolar disorder can exhibit inflexibility in day to day living, and may also have difficulty with parental separation (Papolos & Papolos, 1999). Unusual sensitivity to temperature or other environmental stimuli can be further characteristic, as may extraordinary cravings for sweets and carbohydrates (Papolos & Papolos).

Children presenting with bipolar disorder may have disturbed sleep and are often quite precocious. They may behave as if driven by a motor, and can appear restless and distractible as

well (Kowatch & DelBello, 2006). Individuals can also display disorganized and urgent surges of energy and purposeful activity, such as building, drawing, or writing, though these spurts are often short-lived (Kowatch & DelBello). Children within mania also typically exhibit a decreased need for sleep, can generally function despite sleep deprivation, and appear tireless despite a fury of daily activity (Kowatch & DelBello). Such a child may wake after only three to four hours of sleep and wander about the home in search of entertainment (Kowatch & DelBello). Though sleep for children with bipolar disorder is often fleeting, it can also be characterized by night terrors and bed wetting or soiling (Kowatch & DelBello).

Children affected by mania may also take risks, tantrum, fight with others, and appear hypersexualized as components of overall poor judgment and emotional control (Kowatch & DelBello, 2006). Hypersexuality for children during a manic phase of bipolar disorder may resemble pleasure-seeking, and often assumes an adult, flirtatious, or erotic quality that differentiates it from normal sexual behavior or anxious sexualized behavior that may follow sexual abuse (Kowatch et al., 2005). Adolescents experiencing hypersexuality may present as promiscuous, often pursuing sexual activity on multiple occasions per day (Kowatch et al.).

When children with bipolar disorder experience depressive episodes, the symptoms may more closely resemble those of adults than do the manic symptoms (Papolos & Papolos, 1999). Major depressive episodes in children are typically characterized by frequent crying, decreased interest in activities, reduced pleasure and enjoyment, regression in self-care and appearance, fluctuating weight, low energy or fatigue, suicidal thoughts, and social withdrawal (Papolos & Papolos).

In adults, the course of bipolar disorder is marked by the acute onset of symptoms and the discrete cycling between sometimes lengthy manic and depressive episodes (Post et al., 2001). Moreover, periods of relatively healthy functioning (euthymia) are also possible between

episodes (Post et al.). In contrast, the course of bipolar in children is considered more chronic and continuous in nature, and such symptom reduced periods are typically not as frequently observed (Papolos & Papolos, 1999). Bipolar disorder in childhood is also characterized by more frequent fluctuation, as rapid cycling patterns and mixed states are more typical within the symptom profile (Bardick & Bernes, 2005).

Given that symptom cycling is considered an important point of difference between the child and adult presentations of bipolar disorder, various definitions of specific cycling varieties have been detailed within the literature. A rapid cycling pattern refers to the occurrence of at least four mood episodes within a one year period (Bardick & Bernes, 2005). The term ultra-rapid cycling describes mania or depression that may span several days to weeks, and involves the experience of between 5 and 364 mood cycles within a given year (Bardick & Bernes; Pavuluri et al., 2005). Ultradian cycling refers to extremely frequent mood fluctuation, and involves numerous mood shifts or "minicycles" within a 24-hour time period (Bardick & Bernes). Individuals experiencing ultradian cycling encounter greater than 365 cycles within a one year period (Pavuluri et al.).

Despite ongoing debate about the exact constitution of pediatric bipolar disorder, there are several key features that are rather universally agreed upon as being distinct for the child and early adolescent population affected by the disorder (Pavuluri et al., 2005). Studies by Birmaher (2002), Findling et al. (2001), Geller et al. (1998), McClellan et al. (1999), and Wonziak et al. (1995) have in conjunction summarized such key features to be "chronicity with long episodes, predominantly mixed episodes (20%-84%) and/or rapid cycling (46%-87%), prominent irritability (77%-98%), and a high rate of comorbid ADHD (75%-98%) and anxiety disorders (5%-50%) (as cited in Pavuluri et al., p. 849).

Bipolar Disorder Etiology

With regard to the etiology of bipolar disorder, heritability of the adult form of the disorder has been established through twin, adoption, and molecular genetics research (Pavuluri et al., 2005). Though there is evidence to suggest that the same is also the case for pediatric bipolar disorder, research specifically targeting heritability within the child population is deficient overall (Pavuluri et al.).

"Top down" familial studies pertain to those that investigate the offspring of parents diagnosed with bipolar disorder (Pavuluri et al., 2005). Two such studies conducted by Chang et al. (2000) and Duffy et al. (1998) indicated between a 14% and 50% incidence of bipolar spectrum disorders in offspring of parents with bipolar disorder (as cited in Pavuluri et al.). Furthermore, earlier age of bipolar disorder onset has been associated with greater familial loading of the disorder, as studies by Neuman et al. (1997), Rice et al. (1987), and Strober et al. (1988) have reported greater risk when this link has been made (as cited in Pavuluri et al.). In addition, genetics studies conducted within the past decade have suggested familial transmission of the early-onset or pediatric bipolar disorder, though no reliable genetic risk factors have been specifically established to date (Pavuluri et al.). The concept of genetic anticipation with regard to bipolar disorder is also frequently discussed, and involves a more severe course and earlier age of onset in succeeding generations impacted be the disorder (Post et al., 2001). Genetic influence has been thought to be particularly strong with regard to bipolar I disorder, as first-degree biological relatives of individuals with bipolar I disorder have increased rates of bipolar I (4% to 24%), bipolar II (1% to 5%), and major depressive disorder (4% to 24%) (American Psychiatric Association, 2000).

Bipolar Disorder Prognosis

It has been said of bipolar disorder in children and adolescents that the, "illness morbidity and its costs to the individual on their social, educational, or occupational roles can be substantial" (Post et al., 2001, p. 591). Consequences of bipolar disorder upon the child or adolescent can indeed be great, as the extreme symptoms can adversely impact family life, peer interactions, academic success, developmental course, work endeavors, romantic relationships, heath, personal safety, and life satisfaction, among others (Papolos & Papolos, 1999).

Geller et al. (2002) illustrated that the majority of children with bipolar disorder have deficient social skills, have no friends, are teased by peers, have conflictual relationships with peers and parents, and have minimal problem solving skills overall (as cited in Pavuluri et al., 2005). Without proper treatment, bipolar disorder may assume a more severe and less responsive course, and, "can lead to legal difficulties, multiple hospitalizations, and increased rates of substance abuse and suicide" (Lofthouse & Fristad, 2004, p.73). Furthermore, risk-taking behaviors are more likely especially within the adolescent population, and can also result in dangerous driving habits and unwanted teenage pregnancies, among other adverse outcomes (Papolos & Papolos, 1999). Earlier onset of bipolar disorder within the child and adolescent years has also been related to, "greater rates of anxiety and substance abuse disorders, more recurrences, shorter periods of euthymia (symptom reduced periods), and higher incidence of suicide attempts and violence" (Pavuluri et al., p. 860).

Recovery from bipolar disorder is operationalized as eight consecutive weeks without meeting diagnostic criteria (Pavuluri et al., 2005). Retrospective and naturalistic studies of children and adolescents conducted by Birmaher et al., (2004), Carlson et al., (2000; 2002), Geller et al., (2004), Jairan et al., (2004), Lewinsohn et al. (1995), and Strober et al. (1995) have collaboratively found that 40% to 100% of children and adolescents with bipolar disorder will

meet the definition of "recovery" within a period of one to two years, though 60% to 70% of them will have a recurrence within 10 to 12 months (as cited in Pavuluri et al.). The same studies have also reported that a poorer prognosis can be expected when the experience of bipolar disorder is compounded by the risk factors of low socioeconomic status, rapid cycling, mixed episodes, comorbid disorders, and family conflict (as cited in Pavuluri et al.). Such evidence speaks to both the pervasive and life-long nature of the bipolar disorder phenomenon. Furthermore, Dalton, Cate-Carter, Mundo, Parikh, & Kennedy (2003) found that up to 25 percent of children and adults with bipolar disorder attempt suicide (as cited in Shapiro, 2005).

Bipolar Disorder Treatment

Pharmacotherapy has long been considered the staple treatment regimen for bipolar disorder symptomatology in adults, though studies pertaining to the effectiveness and safety of psychotropic medications for use in treating child and adolescent bipolar disorder remain limited at this time (Pavuluri et al., 2005). Despite the surge in both interest and research of bipolar disorder within the pediatric population, no psychotropic medications have yet been formally approved by the United States Food and Drug Administration (FDA) for use with this age group of youth (Pavuluri et al.). However, psychotropic medications are routinely utilized in the treatment of child and adolescent bipolar disorder.

There is one exception with regard to the pharmacological treatment of adolescents with bipolar disorder, as lithium carbonate has achieved approval by the FDA for use with adolescents exceeding 13 years of age only (Pavuluri et al., 2005). Lithium, an alkali metal, has been the long-standing medication of choice for the treatment and prevention of manic and depressive bipolar disorder symptoms in adults, and has been well-established as a mood stabilizer with substantial literature backing (James & Javaloyes, 2001). James and Javaloyes have reviewed a number of studies pertaining to the use of lithium with youth, and though it can be prescribed to

children, the most positive responses to lithium have been documented in cases of adolescent-onset bipolar disorder.

Anticonvulsant medications, such as valproate and carbamazepine, are also sometimes prescribed to children and adolescents for the treatment of manic symptomatology, and continue to acquire research support for treatment of both youth and adults (James & Javaloyes, 2001). Benzodiazapines, neuroleptics, and atypical antipsychotics are also potential mood stabilizing prescriptions for youth with bipolar disorder, though supporting evidence for their use with children and adolescents continues to lack rigorous research support (James & Javaloyes). Pavuluri et al. (2005) have summarized a variety of previous findings with regard to pharmacological treatment of bipolar disorder in children and adolescents, and have generalized that the combination of second-generation antipsychotic medication (SGAs) and mood stabilizers appears to be most effective in the acute treatment as well as long term stabilization of the disorder within this population.

As will be discussed further in subsequent sections of the present review, the pharmacological treatment of bipolar disorder in conjunction with its comorbid conditions, particularly attention deficit hyperactivity disorder (ADHD), is another point of interest (Pavuluri et al., 2005). While stimulant medication remains the most commonly prescribed medication for the treatment of ADHD, Pavuluri et al. have summarized that some studies have indicated an exacerbation of manic bipolar disorder symptoms when stimulant medication is utilized before overall mood stabilization has been achieved. However, this phenomenon has been variably observed, as other recent studies summarized by Pavuluri et al. have not documented such an occurrence. Combination mood stabilizer and stimulant medication therapy was found to have potential promise for treating pediatric bipolar disorder and comorbid ADHD in a study conducted by Scheffer et al. in 2005 (as cited in Pavuluri et al.). However, it has been

recommended as a treatment guideline to first treat and stabilize the symptoms of bipolar disorder before reviewing treatment options for comorbid conditions (Kowatch et al., 2005). In order for potential drug and symptom side effects such as this to be accounted for and prevented in the pharmacotherapy of bipolar disorder, accurate, reliable, and differential diagnosis of bipolar disorder and commonly comorbid conditions is indispensable.

Once stabilization of bipolar disorder symptoms has been achieved and children are able to become receptive to the process, the role of psychotherapy within the treatment regiment has been considered essential for both the individual and familial unit (Pavuluri et al., 2005). Child- and family-centered cognitive behavioral therapy has been considered appropriate and useful for individuals with pediatric bipolar disorder, as is psychoeducation about the disorder and its management, behavior management training for parents, and school consultation (Kowatch et al., 2005; Pavuluri et al.).

Bipolar Disorder Diagnostic Issues

Information regarding the prevalence and incidence rates for child and adolescent bipolar disorder is variable and unsubstantial overall, as controversy and general lack of consensus exists regarding how to specifically characterize the disorder (Pavuluri et al., 2005). Furthermore, large-scale epidemiology studies are lacking overall, which makes prevalence rates even more difficult to determine (Hunt et al., 2005). Lewinsohn et al. (1995, 2000, 2002) have conducted one of the only longitudinal epidemiology studies in existence, and have found lifetime bipolar disorder prevalence rates for 14- to 18-year-old adolescents to be similar to the adult rate at 1% to 2% (as cited in Hunt et al.; Youngstrom, Findling, Youngstrom, & Calabrese, 2005). In a retrospective interview study conducted by Perlis et al. in 2004, 30% of an adult sample with bipolar disorder reported that they experienced a very early onset or the disorder (prior to 13

years), while 40% reported onset that is considered early (13 to 18 years) (as cited in Pavuluri et al., 2005).

Given that the prevalence among youth has grown and is now considered near proportionate to the adult form of the disorder, Lofthouse and Fristad (2004) describe a "pendulum effect" with regard to bipolar disorder in children and adolescents. The effect entails a shift in popular opinion from skepticism that bipolar disorder could exist in youth, to its current status as a disorder with some celebrity and tendency to be over diagnosed (Lofthouse & Fristad). In addition to potential over diagnosis, many children struggle for years with no explanation or a misdiagnosis before an accurate label is applied, and this can considerably delay the timeliness of treatment efforts (Youngstrom, Findling, Calabrese, & Gracious, et al., 2004).

Accurate identification is further complicated by the notion that other medical conditions or psychological disorders quite frequently co-occur or have symptoms that overlap with bipolar disorder. The most common both mimic and comorbid condition for bipolar disorder in prepubertal children is attention-deficit hyperactivity disorder (ADHD), with an estimated 60% to 90% of children with bipolar disorder also meeting the criteria for ADHD (Kowatch & DelBello, 2006). As may be logically expected, higher rates of comorbid ADHD are observed within the childhood population with bipolar disorder than in the adolescent group with the condition (Pavuluri et al., 2005). The symptoms of ADHD and bipolar disorder can be challenging to differentiate, as impulsivity, motor hyperactivity, irritability, over talkativeness, and distractibility are common to both disorders (James & Javaloyes, 2001; McIntosh & Trotter, 2006). However, fine distinctions can be made between the disorders, as elated mood, grandiosity, decreased need for sleep, hypersexuality, racing thoughts, and depressive episodes are more unique to bipolar disorder (Papolos & Papolos, 1999).

In approximately 20% to 40% percent of cases, behavioral disturbances characteristic of conduct disorder (CD) and oppositional defiant disorder (ODD) are also comorbid with bipolar disorder in children, and may include raging, hypersexuality, antisocial behaviors, annoying others, poor judgment, lying, manipulation, and refusal to comply (Bardick & Bernes, 2005; Kowatch & DelBello, 2006; McIntosh & Trotter, 2006). Given the potential for psychotic features and labile mood in bipolar disorder, it may also be difficult to tease the disorder apart from schizophrenia and borderline personality disorder (Papolos & Papolos, 1999). Unipolar depression represents an additional comorbid condition, and anxiety disorders, such as obsessive-compulsive disorder (OCD), can also significantly overlap in 20% to 40% of cases (Kowatch & DelBello). Comorbid learning disabilities also tend to be present in 30% to 40% of childhood and adolescent bipolar cases (Kowatch & DelBello). Eating disorders, Tourette's syndrome, and early substance abuse may also coexist for a child or adolescent with bipolar disorder (Papolos & Papolos). Higher rates of early substance abuse are observed within the adolescent population with bipolar disorder, as Wilens (2004) found these rates to be approximately nine times higher in this age group than in younger children (as cited in Pavuluri et al., 2005). Furthermore, a variety of hormonal disorders, infectious diseases, neurological conditions, genetic disorders, and other medical conditions can imitate bipolar disorder in children and adolescents (Papolos & Papolos).

Given the seriousness of potential consequences of bipolar disorder upon so many life aspects of a child or adolescent, the validation of viable treatment options for this age group is paramount. Furthermore, by understanding the importance of appropriate treatment application in mediating the possibly devastating impact of bipolar disorder upon this population, the crucial nature of timely, differential, and accurate assessment and diagnosis of pediatric bipolar disorder is also easily highlighted. In consideration of the lack of delineated diagnostic criteria for the

age group, the developmentally different presentation of bipolar disorder at these ages, the potentially adverse effects of the disorder without appropriate treatment, the trend toward misdiagnosis or over diagnosis, and the high incidence of comorbid conditions, it is understood that the accurate identification of children and adolescents with bipolar disorder is a challenging endeavor. Nevertheless, empirically-validated techniques to assess for bipolar disorder in children and adolescents are essential.

Bipolar Disorder Assessment

For youth presenting with symptoms that could be indicative of bipolar disorder, it is considered appropriate practice for a comprehensive psychiatric evaluation to be conducted in conjunction with any pediatric or neurological assessments and social history that may be warranted. Consequently, diagnosis of psychiatric disorders (such as bipolar disorder) by an expert clinician according to *DSM-IV-TR* criteria has been the gold standard within child and adolescent psychiatry (Wonziak et al., 2003). However, it is recognized that the *DSM-IV-TR* does not operationalize criteria specifically for use with the child and adolescent population, and it is possible that errors in clinical judgment could occur (Wonziak et al.). Furthermore, direct mental status exams may not consistently reveal telling information regarding a child or adolescent's current functioning, as bipolar disorder symptoms tend to present differently in context and may not manifest during a face-to-face exam (Wonziak et al.). For these reasons, informant sources have been commonly utilized in the diagnostic pursuit for children and adolescents with bipolar disorder.

Though the use of informants is not uncommon for assessing numerous aspects of child and adolescent functioning, the most appropriate informant or combination of informants to assess bipolar disorder in this population continues to be explored. One advantage in the field of child psychiatry is that children and adolescents are minors, and are likely referred by a parent

who is able to serve as a built-in informant to the process (Wonziak et al., 2003). Relatively accurate performance of the parent informant report has gained general acceptance. Furthermore, parents are typically regarded as the superior informant given the considerable amount of time parents are able to spend directly observing child behavior (Kahana, Youngstrom, Findling, & Calabrese, 2003; Youngstrom et al., 2005).

Youngstrom et al. (2004) compared the diagnostic accuracy of six screening instruments for bipolar disorder in children ages 5 to 17, and found that parent report provides powerful information for recognition of the disorder. Furthermore, parents may be particularly accurate in reporting externalizing symptoms, including mania, given that such symptoms often involve quite outward behavior in the home environment (Youngstrom et al., 2005). Youngstrom, Gracious, Danielson, Findling, and Calabrese (2003b) found that the seemingly more external and concerning features of bipolar disorder, such as behavior problems, irritability, aggression, disheveled appearance, and sexual interest were indeed reported more frequently by parents. Parents may not be as aware of the more internalizing symptoms characteristic of bipolar disorder, though Kahana et al. (2003) found that they are adept at identifying these as well.

Given the extensive opportunity for teachers to directly observe a range of child behavior, the input of such individuals may also be sought after toward a diagnosis of bipolar disorder. In general, teacher reports tend more to identify externalizing behaviors, and have been found not to have acceptable correspondence with reports from additional informants (Youngstrom et al., 2003b). Kahana et al. (2003) found that neither the teacher report form (TRF) or youth self report (YSF) of the Achenbach (1991) Child Behavior Checklist (CBCL) provided any unique information regarding bipolar disorder symptomatology above and beyond that provided by the parent report of the measure. Such a finding further supports the validity and value in assessing for bipolar disorder presentation in youths (Kahana et al.). It may be that it is more difficult for

teachers to report behaviors of individuals accurately if they are not evident within group work, do not involve attention, and do not interrupt classroom activities (Youngstrom, Findling, & Calabrese, 2003a).

The usefulness of youth self-report, especially with regard to the adolescent age group, is also questionable. This is not to say that children and adolescents are not to be involved in the evaluation process, though diagnoses for these age groups are improbable without parent input (Kahana et al., 2003). Especially as compared to the informative power to the parent report, Findling et al. (2002) found that youth self-report may be less functional in discriminating bipolar disorder from other psychiatric conditions. However, Tillman, Geller, and Craney et al. (2004) did find that, though agreement with parent report of manic symptoms was low overall, 7- to 14-year-old youth self report was valuable to differentiate mania from ADHD. Based upon this study, it appears that youth are able to better discriminate some of the internal experiences of mania, such as racing thoughts and a decreased need for sleep, of which parents may not be directly aware (Tillman et al.). Furthermore, youth self-reports often do not provide any unique contributions above and beyond that provided by parents or teachers (Kahana et al.; Youngstrom et al., 2004). The cognitive and developmental limitations of younger children may impact the reliability of their self-report, and manic symptoms also involve a lack of insight and acceptance into one's own behavior and functioning (Youngstrom et al., 2005).

In order to capitalize upon the advantages of eliciting informant report in the assessment of bipolar disorder in children and adolescents, semistructured interviews are one type of instrument available to clinicians as a supplementary diagnostic tool. Semistructured interviews are designed to aid the clinician in guiding an informant through a diagnostic interview process by asking items with leading content that target various psychological disorders. Within a semistructured interview there are no specific questions that are standardized, but rather there are

content areas to cover in which the clinician uses best judgment on how to proceed with each individual case (Geller et al., 2001). Semistructured interviews are intended to be administered by clinicians with psychiatry-related graduate degrees, postgraduate clinical experience, as well as specialized training in using the interviews reliably (Geller et al., 2001; Youngstrom, Findling, Youngstrom, & Calabrese, 2005). A number of well-validated semistructured interviews are available for use by clinicians, and have been tailored to follow *DSM-IV* criteria, and reflect aspects of what is known about bipolar disorders in children and adolescents (Kahana et al., 2003). However, such instruments require extensive training for proficiency, can become time consuming and cumbersome, are typically quite expensive, and are generally impractical for use with a broad segment of the population (Kahana et al.).

The majority of bipolar disorder research regarding children and adolescents utilizes one of the two current versions of The Schedule for Affective Disorders and Schizophrenia for School-Age Children (KSADS), which was originally developed by Puig-Antich in 1986 (Youngstrom, Findling, Youngstrom, & Calabrese, 2005). The Washington University in St. Louis Kiddie Schedule for Affective Disorders and Schizophrenia (WASH-U-KSADS) version was developed by Geller, Zimmerman, Williams, and Frazier in 1996, and is currently utilized in the majority of federally funded grants for pediatric bipolar studies (Tillman et al., 2004). The WASH-U-KSADS contains expanded items assessing for current and lifetime episodes of mental disorders, onsets and offsets of symptoms for several syndromes, prepubertal mania, rapid cycling, ADHD, and other DSM-IV diagnoses which make the measure unique and specific (Geller, Zimmerman, & Williams et al., 2001). Geller et al. also established acceptable reliability and 6-month stability of the WASH-U-KSADS. The Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime Version (KSADS-PL) was developed by Kaufman et al. in 1997 to expand assessment to both current and past symptom

episodes (Youngstrom, Findling, Youngstrom, & Calabrese, 2005). Both the WASH-U-KSADS and the KSADS-PL are considered to have psychometric rigor overall, though they take nearly a full day and a half day to administer, respectively (Kaufman et al., 1997; Youngstrom, Findling, Youngstrom, & Calabrese, 2005).

Rating scales and behavior checklists offer promise as an alternative or supplementary assessment to clinical judgment and semistructured interview, and remain among the most popularly utilized categories of assessment instruments overall (Kahana et al., 2003). Behavior rating scales and behavior checklists are considered dimensional versus categorical, meaning that the degree and severity of symptom experience is qualified by the rater (Kahana et al.). An advantage to this is that comparisons are possible to both age and gender norms in such a way that can be complimentary to more clinical methods when applying diagnoses (Kahana et al.).

In addition, rating scales and behavior checklists are simpler to administer and require minimal training to administer and interpret (Kahana et al., 2003). Moreover, such measures are typically brief and time efficient, and remain inexpensive to utilize overall (Kahana et al.). Furthermore, rating scales and behavior checklists can be used effectively for screening purposes by a variety of practitioners, and can therefore help to reach out and extend bipolar assessment to a greater proportion of the population at large (Kahana et al.). Youngstrom and Youngstrom (2005) suggest that considering only three pieces of information can provide a substantial prediction regarding the risk of a bipolar disorder diagnosis for a particular individual. By analyzing the base rate of occurrence for bipolar disorder within a given clinical setting, the individual's family history of bipolar disorder, and the scores on a parent rating scale, a rule-out could be determined in which no further assessment may be necessary (Youngstrom & Youngstrom). Therefore, psychometrically sound measures with these aforementioned strong

suits and design qualities specific to assess bipolar symptomatology in children and adolescents would have valuable clinical utility, though are lacking in the research overall (Kahana et al.).

One of the most widely used behavior rating scales across research and clinical settings is the Child Behavior Checklist (CBCL) developed by Achenbach (1991) (Youngstrom et al., 2004). The CBCL provides a parent report form, a teacher report form, and a youth self report, and is commonly used to screen for a variety of child behavior problems (Youngstrom et al.). The CBCL does not assess for mania or bipolar symptoms per se, though a number of studies have uncovered distinct elevations on CBCL scales that differ from those of children with ADHD and those without bipolar disorder (Youngstrom et al., 2005). For example, Biederman et al. (1995) detailed a CBCL profile of elevation on the Attention Problems, Aggressive Behavior, and Anxious/Depressed syndrome scales that appears distinct for children bipolar disorder, and has been replicated by a number of researchers (as cited in Faraone, Althoff, Hudziak, Monuteaux, & Beiderman, 2005; Kahana et al., 2003).

However, the measure has been criticized in the literature for a number of shortcomings regarding use to specifically address bipolar disorder in children and adolescents. First, it has not been made clear how such profiles can be utilized clinically. Issues of both sensitivity and specificity of assessment have not been resolved to balance false negative and false positive results for bipolar disorder, as the establishment of definitive cut scores or symptom thresholds continue to be impacted by sampling differences and measurement error in research (Kahana et al., 2003). Furthermore, the CBCL does not have a scale specifically tailored to mania and does not incorporate core *DSM-IV* criteria for manic symptoms, such that other rating scales tend to hone in better upon the core features of the disorder (Youngstrom et al., 2004; Youngstrom et al., 2005). Therefore, it may be that the CBCL's usefulness lies more in its well-established ability

to uncover overall problem severity and functional impairment than in its usefulness to provide specific diagnostic evidence for bipolar disorder in children and adolescents (Kahana et al.).

The General Behavior Inventory (GBI) (Depue, 1987) is a 73-item self-report questionnaire that has demonstrated adequate discriminative validity and excellent reliability in assessing for mood disorders in adults (Findling et al., 2002). The GBI assesses for the experience of depressive, hypomanic, manic, and mixed bipolar disorder mood states, with higher scores indicating more severe pathology (Findling et al.). Findling et al. conducted a study to determine if the GBI could demonstrate similar clinical utility for the child and adolescent population of at least 10 years of age and older. Results suggest that the GBI may be useful for this aim, though it may be more powerful for ruling out bipolar disorder in this population than for screening purposes (Findling et al.). Furthermore, the GBI has been modified to include a parent version of the inventory, the P-GBI (Youngstrom et al., 2001), to assess similar symptoms in 5- to 17-year-olds, and has shown some promise as a potential screening instrument in preliminary analyses (as cited in Youngstrom et al., 2004).

Several rating scales that more specifically address bipolar symptoms, especially mania, in children in adolescents have also been developed. One such measure is the parent version of the Young Mania Rating Scale (P-YMRS) developed by Gracious et al. (2002). The P-YMRS was adapted from the Young Mania Rating Scale (YMRS), which was developed by Young et al. (1978) and has research support for use with the adult population (Youngstrom et al., 2003b). The P-YMRS is an 11-item questionnaire upon which parents rate the severity of manic symptoms in their child, with higher ratings indicating instances of more severe pathology (Youngstrom et al., 2003b). In an analysis of the psychometric properties of the P-YMRS conducted by Gracious et al. (2002), the P-YMRS was found to discriminate well between youths with bipolar I diagnoses and other Axis I diagnoses, ADHD, and unipolar mood

disorders. Therefore, the advantages of the P-YMRS include that it is quite brief, and may be helpful in making clinically challenging diagnostic distinctions (Gracious, Youngstrom, Findling, & Calabrese, 2002). However, despite the greater specificity and focus upon manic symptoms, classification rates were found comparable with those of the CBCL (Gracious et al., 2002). Because high scores on the P-YMRS are more specific to those with bipolar disorder, however, Youngstrom et al. (2004) found that the P-YMRS yielded fewer false positive diagnoses than the CBCL.

Several very recently developed parent informant rating scales for pediatric bipolar disorder are also being investigated further in the literature. The Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children Mania Rating Scale for Children and Adolescents (KSADS-MRS) was developed by Axelson et al. (2003) from the Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present Episode (KSADS-P). The KSADS-MRS is a brief 13-item parent informant rating scale which includes items said to assess age-specific mania symptoms as well as rapid cycling and psychosis, and can also be administered to the child clients as well (Axelson et al.; Hunt et al., 2005). Preliminary studies conducted by Axelson et al. indicates the promise of the measure for assessing manic symptoms in youth, as internal consistency, criterion, content, and convergent validity, and inter-rater reliability were all found to be quite appropriate. However, the measure has not yet been subject to a substantial amount of psychometric research overall, and both it and the P-YMRS focus exclusively upon mania related symptomatology (Axelson et al.; Papolos, Hennen, Cockerham, Thode, & Youngstrom, 2006).

Another newly developed yet promising measure is the Child Bipolar Questionnaire (CBQ), which is a 65-item parent questionnaire that can be self-administered by parents and can be completed in approximately 10 minutes (Papolos et al., 2006). The measure was intended as

a rapid and economical screener not only to align with DSM-IV diagnostic criteria, but also to consider alternate phenotype presentation of the disorder in youth as well as comorbid conditions (Papolos et al.). Research on the measure is again limited and preliminary in nature, though results suggest promise overall, as the study yielded acceptable reliability and validity information (Papolos, et al.).

A variety of methodology are available for assessing bipolar disorder in children and adolescents, and range from clinical judgment to semistructured interview to informant behavior rating scales and questionnaires. Many such instruments have been developed to account for what has been established in the literature regarding the uniqueness of the phenomenon as it pertains to youth population, in addition to the diagnostic and assessment issues that render accurate identification of the disorder so challenging. Nonetheless, efforts to advance the knowledge base and improve the accuracy of diagnosis in a practical way have overall been hampered by the shortcomings of these measures on the whole. The invaluable status of parent informant report, coupled with the advantages of rating scales and behavior checklists to provide simpler, economical, and time efficient screening information helps to demonstrate both clear and urgent need for a comprehensive parent-report rating scale with more favorable qualities than those that continue to lack within the research at the present time.

An experimental version of the Mood and Behavior Rating Scale for Youth – Parent Form (MBRSY-PF) has been developed by Perry and Bard in 2005. The measure holds promise in addressing the sparseness in both number and rigor of measures currently detailed within the literature, though it has not yet been subjected to psychometric study. The research study that follows will involve a three-level investigation of the structural validity of the MBRSY-PF as a parent informant questionnaire to assess for bipolar disorder in children and adolescents.

CHAPTER THREE

Method

Participants

The present study utilized archival data collected over a two-year period from a clinical pool of 452 youth referred for a psychiatric evaluation at a Medicaid funded wraparound mental health agency in western Pennsylvania. The aforementioned center provides overarching services in the home, school, and community for Medicaid eligible children and their families, which includes behavior consultation, therapeutic staff support services, mobile therapy, psychotherapy, and psychiatric services.

The participants included a total of 116 parent informants of school age children and adolescents between the ages of 6 and 18 who had a primary diagnosis of a mental health disorder. All parents of children within the clinical pool who had been diagnosed with any type of bipolar disorder were included in the original clinical sample. A random selection of parents of children with only a diagnosis of Attention Deficit-Hyperactivity Disorder (ADHD) were also included in the clinical sample, as well as a random selection of parents of children diagnosed with other mental health disorders. Of the 116 total participants in the original clinical sample, 97 completed the questionnaire and comprise the archival sample for the present data analysis.

Of the original 116 total participants within the clinical sample, 28% were parents to children with a primary diagnosis of bipolar disorder, 37% to children diagnosed with ADHD, 12% to children diagnosed with adjustment disorders, 10% to children diagnosed with conduct/oppositional disorders, 5% to children diagnosed with anxiety disorders, 4% to children diagnosed with depression disorders, and 4% to children diagnosed with a disorder other than those listed. Among the children whose parents participated, 77% were prescribed psychotropic medications, 14% were in an inpatient psychiatric placement, 54% received special education

services, 5% were in an alternative school placement, 6% have been arrested/tried in juvenile court, 32% were referred to Child Protective Services, and 13% were in a foster home placement.

Children of parent participants were 58% male and 42% female, with 4% between the ages of 3 and 5, 32% between the ages of 6 and 11, and 64% between the ages of 15 and 18. Of the children whose parents participated, 73% were European-American, 15% were African-American, 10% were Biracial, and 2% were considered "other." A total of 72% of children whose parents participated resided within suburban western Pennsylvania, while 22% resided in rural areas, and 6% resided in urban areas. With regard to the socioeconomic status of the children included within the study, 35% had a father who was unemployed, 53% had a mother who was unemployed, 69% received free lunch in the educational setting, and 31% paid for lunches.

Materials

Mood and Behavior Rating Scale for Youth - Parent Form (MBRSY-PF). The current experimental edition of the MBRSY-PF (Perry & Bard, 2005) is a 144 item parent report questionnaire that assesses for bipolar disorder in children and adolescents, and is pending further psychometric research. The MBRSY-PF was developed based upon a review of the *Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition* (DSM-IV) criteria for bipolar disorder diagnosis, in addition to analysis of recent literature regarding bipolar disorder characteristics in the child and adolescent population. Based upon such a review, domain scales were constructed to assess depression (26 items), mania (47 items), psychotic thoughts (8 items), anxiety (9 items), ADHD (17 items), and conduct/oppositional disorders (16 items). Within and in addition to the domain scales, subscales and extra composites were included to address the behavior and emotions, speech and thinking, physical and medical background, mood changes, developmental and family history, impairments and distress, and bipolar rule-outs that may be

associated with the broad domain scale areas. Individual items of the MBRSY-PF provide descriptions of moods, behaviors, and other symptoms that youth may experience, and responses are provided by parents based upon a four point, Likert-type scale that ranges from (0) not true or no problem, to (3) very true or severe problem. Utilizing The Fry Readability Graph for Estimating Reading Level, the items of the MBRSY-PF are estimated to be at approximately a ninth grade reading level (Fry, 1977). In addition, the completion time of the MBRSY-PF is estimated to be approximately 15 to 20 minutes. The complete MBRSY-PF and MBRSY-PF Scoring and Profile Form can be viewed in Appendices 1 and 2, respectively.

Procedures

Children and adolescents were referred for evaluation at the Medicaid funded wraparound mental health agency by either their parents, their school, or the court system. Both parents and children were interviewed upon intake, and a DSM-IV clinical diagnosis was applied for children as per the outcome of the evaluation. As a component of the aforementioned evaluation, parent participants completed the MBRSY-PF in consideration of their child or adolescent. As mentioned previously, all parents of children within the clinical pool who had been diagnosed with any type of bipolar disorder were included in the clinical sample. A random selection of both parents of children with only a diagnosis ADHD, and parents of children diagnosed with other mental health disorders were also included in the clinical sample.

Data Analyses

The present study explored the reliability and structural validity psychometric properties of the MBRSY-PF. Three research questions were specifically addressed in this study: (a) What is the internal consistency of the scales of the MBRSY-PF? (b) What are the latent structures of the subscales for each domain scale of the MBRSY-PF? (c) What is the factor structure of the

MBRSY-PF at the domain scale level? To address the aforementioned research questions, internal consistency coefficients were calculated and exploratory factor analyses were conducted.

CHAPTER FOUR

Results

For the present study, three levels of data analysis were conducted to investigate the structural validity of the MBRSY-PF. A bottom-up approach to data analysis was adopted, in which the first level of analysis represents the most narrow exploration of the measure's structural validity, while levels two and three explore increasingly more broad aspects. The first level data analysis is the most specific, and explores the internal consistency of the MBRSY-PF subscales by focusing upon analysis at the individual item level. Level two of the analysis is more general, as it investigates the latent structures of the subscales that comprise each domain scale of the MBRSY-PF through exploratory factor analysis. The third level of analysis represents the most general analysis conducted, and explores the overall factor structure of the MBRSY-PF at the domain scale level.

Level One Analysis (Items)

For the first level of analysis, alpha coefficients were calculated for each item to determine the overall internal consistency of the subscales that comprise the domain scales of the MBRSY-PF. Alpha coefficients were also computed for each individual item in order to show alpha changes should that item be deleted from the subscale.

Shown in Table 1 are the overall and item level internal consistency coefficients for the five subscales within the Depression domain. For the 6-item Depression Behavior and Emotions subscale, an overall alpha coefficient of .74 was obtained. Alpha coefficients for individual items within the subscale were determined to be of generally moderate strength, and ranged from .41 to .71. With regard to the 7-item Depression Speech and Thinking subscale, an overall alpha coefficient of .75 was obtained. Alpha coefficients at the item level can be considered moderately strong, and ranged from .36 to .83.

Further inspection of Table 1 reveals that an overall alpha coefficient of .74 was obtained for the 7-item Depression Physical and Medical subscale. Moderately strong individual item alpha coefficients were obtained within the range from .46 to .73, and a reduction in the overall subscale alpha coefficient would be observed should any items be deleted. The 3-item subscale of Depression Mood Changes yielded an overall alpha coefficient of .78. Moderately strong individual item alpha coefficients were calculated for the subscale, and ranged from .64 to .75. For the 5-item subscale of Depression Developmental and Family History, an overall alpha coefficient of .72 was calculated. Alpha coefficients at the individual item level were determined to be of generally moderate strength, and ranged from .40 to .71.

Table 2 illustrates the overall and item level internal consistency coefficients for the five subscales within the Mania domain. With regard to the 25-item Mania Behavior and Emotions subscale, an overall alpha coefficient of .71 was obtained. Considerable variability was demonstrated across items within the subscale, as individual item alpha coefficients ranged from no reliability (α= -.04) to high reliability (α=.72). The subscale items numbered 19, 29, 47, and 48 evidenced no reliability, with an alpha coefficient of -.04 for the first three items mentioned, and .04 for the fourth. Low strength alpha coefficients of .13 and .27 were obtained for two additional items within the subscale, respectively. Further analysis indicated that deletion of the aforementioned items would not reduce the .71 overall alpha coefficient, however.

For the 11-item Mania Speech and Thinking subscale, an overall alpha coefficient of .73 was obtained. Individual item alpha coefficients are of generally moderate strength, and ranged from .29 to .72. Deletion of two items with alpha coefficients of .36 and .29 would not jeopardize the overall alpha coefficient at .73. An overall alpha coefficient of .72 was calculated for the 9-item Mania Physical and Medical subscale. Alpha coefficients were of moderate

strength at the individual item level, and ranged from .29 to .73. Deletion of two items, each with an alpha coefficient of .29, would not alter the overall subscale alpha coefficient of .72.

The 7-item Mania Mood Changes subscale yielded an overall alpha coefficient of .76. Individual item alpha coefficients were moderate to high, and ranged from .51 to .81. With regard to the 4-item Mania Developmental and Family History subscale, an overall alpha coefficient of .68 was obtained. Moderate alpha coefficients within the range from .50 to .59 were yielded, and the overall subscale alpha coefficient of .68 would not be altered should any items be removed.

Depicted in Table 3 are the overall and item level internal consistency coefficients for the two subscales within the Psychotic Thoughts domain. For the Psychotic Thoughts Speech and Thinking subscale, an overall alpha coefficient of .76 was obtained. Alpha coefficients at the individual item level were moderate to high in strength, and ranged from .62 to .77. The 2-item Psychotic Thoughts Physical and Medical subscale yielded an overall alpha coefficient of .83. Analysis at the individual item level indicated alpha coefficients of high strength that ranged from .77 to .82. One item, number 23, demonstrated high reliability at .77, though the overall alpha coefficient of .83 could be improved to .86 if this item were deleted.

Table 4 illustrates the overall and item level internal consistency coefficients for the two subscales within the Anxiety domain. With regard to the 8-item Anxiety Behavior and Emotion subscale, an overall alpha coefficient of .74 was calculated. Individual subscale item alpha coefficients were generally moderate in strength, and ranged from .38 to .75. An internal consistency alpha coefficient of .74 was yielded for the 3-item Anxiety Physical and Medical subscale. Alpha coefficients at the individual item level were moderate to high in strength, and ranged from .45 to .74. Item number 5 yielded an alpha of .45, and should the item be deleted, the overall internal consistency would be improved from .74 to .79.

Table 5 depicts the overall and individual item level internal consistency coefficients for the four subscales within the Attention-Deficit Hyperactivity Disorder domain. For the 6-item ADHD Behavior subscale, an overall internal consistency alpha coefficient of .77 was obtained. Alpha coefficients at the individual item level were moderate to high in strength, and ranged from .54 to .77. With regard to the 5-item ADHD Speech and Thinking subscale, and overall internal consistency alpha coefficient of .77 was computed. Individual item level analysis indicated alpha coefficients of moderate to high strength and ranged from .55 to .79. An overall internal consistency alpha coefficient of .74 was obtained for the 2-item ADHD Physical and Medical subscale. Alpha coefficients at the individual item level were moderate to high in strength, and ranged from .57 to .59. The 4-item ADHD Developmental and Family History subscale yielded an overall internal consistency alpha coefficient of .72. Analysis at the individual item level indicated moderate reliability in general, with alpha coefficients ranging from .48 to .70.

Shown in Table 6 are the overall and individual item level internal consistency coefficients for the two subscales within the Conduct/Oppositional Disorder (CD/ODD) domain. For the 13-item CD/ODD Behavior and Emotions subscale, an overall internal consistency alpha coefficient of .74 was obtained. Individual item alpha coefficients ranged from .42 to .76, and were moderate to high in strength. Further, should any of the items be deleted from the subscale, the overall internal consistency of .74 would be reduced. The 4-item CD/ODD Speech and Thinking subscale yielded an overall internal consistency alpha coefficient of .78. Analysis at the individual item level indicated moderate to high strength, and alpha coefficients that ranged from .65 to .77. A reduction in the overall internal consistency of the subscale would result should any of the items within the subscale were removed.

Level Two Analysis (Subscales)

Tables 7 through 12 depict the second level of data analysis, in which a series of exploratory factor analyses were conducted for the subscales that comprise each domain scale of the MBRSY-PF in order to determine the latent factor structures of these scales. Each analysis utilized principal component factor analyses with varimax rotation when a rotated solution was possible. Factor extraction was based upon Eigenvalues ≥ 1.0.

Table 7 illustrates the principal component factor analysis with varimax rotation for the five subscales that comprise the Depression domain. For the Depression domain subscales, two factors emerged as meeting criteria, with the four subscales of Depression Behavior and Emotions, Depression Speech and Thinking, Depression Physical and Medical, and Depression Mood Changes loading on one factor, and the subscale of Depression Developmental and Family History loading on a second factor. For factor 1, an Eigenvalue of 2.78 was obtained, and accounted for 55.68% of the variance. Factor loadings were large and ranged from .80 to .88. An Eigenvalue of 1.02 resulted for factor 2, and accounted for 20.55% of the variance. The factor loading for the Depression Developmental and Family History subscale, which comprised factor 2, can be considered high at .99.

Table 8 depicts the principal component factor analysis with varimax rotation for the five subscales that comprise the Mania domain. With regard to the Mania domain subscales, two factors also emerged as meeting criteria, with the four subscales of Mania Behavior and Emotions, Mania Speech and Thinking, Mania Physical and Medical, and Mania Mood Changes loading on one factor, and the subscale of Mania Developmental and Family History loading on a second factor. Factor 1 yielded an Eigenvalue of 2.63 and accounted for 52.65 % of the variance. Factor loadings for factor 1 can be considered high, and ranged from .75 to .88. An Eigenvalue of 1.00 was obtained for factor 2, and accounted for 20.12 % of the variance. The

Mania Developmental and Family History subscale which comprises the second factor yielded a factor loading of .99 which is considered high in strength.

Shown in Table 9 is the principal component factor analysis for the two subscales that comprise the Psychotic Thoughts domain. Through factor extraction, a single factor emerged as meeting criteria, and contains both the Psychotic Thoughts Speech and Thinking and Psychotic Thoughts Physical and Medical subscales. Because only one component factor was extracted during the analysis, varimax rotation could not be applied. The emergent factor yielded an Eigenvalue of 1.49 and accounted for 74.90 % of the variance. Factor loadings for the factor can be considered high and are both equal to .86.

Table 10 illustrated the principal component factor analysis for the two subscales that comprise the Anxiety domain. Factor extraction yielded a single factor as meeting criteria, and contains both the Anxiety Behavior and Emotions and the Anxiety Physical and Medical subscales. Because only one component was extracted during the analysis, varimax rotation could not be applied. An Eigenvalue of 1.35 was obtained for the single factor, and accounted for 67.81 % of the variance. Factor loadings for the emergent factor are considered high, and are both equal to .82.

Table 11 illustrates the principal component factor analysis for the four subscales that comprise the ADHD domain. Through factor extraction, a single factor emerged as meeting criteria, and contains the ADHD Behavior and Emotions, ADHD Speech and Thinking, ADHD Physical and Medical, and ADHD Developmental and Family History subscales. Given that only one factor emerged as the result of analysis, varimax rotation could not be applied. The factor yielded an Eigenvalue of 2.06 and accounted for 51.49 % of the variance. Factor loadings can be considered moderate to high in strength and ranged from .42 to .87.

Shown in Table 12 is the principal component factor analysis for the two subscales that comprise the CD/ODD domain. A single factor emerged as meeting criteria through factor extraction, and contains both the CD/ODD Behavior and Emotions, and CD/ODD Speech and Thinking subscales. Because the scale yielded only a single factor, varimax rotation could not be applied. The emergent factor yielded an Eigenvalue of 1.56 and accounted for 77.81 % of the variance. Factor loadings for the subscales can be considered high, and are both equal to .88.

Level Three Analysis (Domains)

For the third level of analysis, the factor structure of the MBRSY-PF was considered at the domain scale level. Table 13 depicts the factor structure of the MBRSY-PF based upon domain scale totals, and utilized principal component factor analysis and was based upon Eigenvalues ≥ 1.0. A single unifying factor emerged as meeting factor extraction criteria, and contains the Depression, Mania, Psychotic Thoughts, Anxiety, ADHD, and CD/ODD domain scales. The factor yielded an Eigenvalue of 3.28 and accounted for 54.70 % of the variance. Factor loadings for the factor can be considered moderate to high, and ranged from .40 to .90.

Extension of Level Three Analysis

Within the both the Depression and Mania domains in the second level of analysis, a second factor containing the Developmental and Family History subscale emerged as separate from the other subscales within each domain. Therefore, and extension of the third level of analysis was conducted. The factor structure of the MBRSY-PF was revised based upon the domain scale totals with the Developmental and Family History subscale removed from both the Depression and Mania domain scales

As depicted in Table 14, principal component factor analysis was again conducted, and factor extraction was based upon Eigenvalues ≥ 1.0. A single and a general factor was again extracted, and contains each of the Depression, Mania, Psychotic Thoughts, Anxiety, ADHD,

and CD/ODD domain scales. An Eigenvalue of 3.87 was obtained for the factor, and an improvement from 54.70 to 64.46 was noted with regard to the % of the variance accounted for. Factor loadings ranged from .68 to .96. With the addition of this extension of the analysis, the factor loading of the Depression domain improved from .40 to .80, the Mania domain factor loading from .90 to .96, the Anxiety domain factor loading from .67 to .82. The ADHD domain factor loading reduced from .78 to .74, and the CD/ODD factor loading decreased from .71 to .68. The factor loading for the Psychotic Thoughts domain remained constant at .79.

CHAPTER FIVE

Discussion

Given the undeniable significance of bipolar disorder in the field of child and adolescent mental health, strives toward timely application of research validated treatment options are an obvious priority in defending against the potential detriment to affected young people. Consequently, comprehensive and empirically-validated assessment instruments to be utilized by clinicians as tools in diagnosing the disorder are necessitated. Classically relied upon assessment and diagnostic methods for bipolar disorder in children and adolescents have included both clinical judgment and the semistructured interview. However, such procedures have been traditionally quite cumbersome to execute and impractical for use on a number of levels. Therefore, the value of informant rating scales and behavior checklists, particularly for efficient and inexpensive screening purposes, has been increasingly realized. However, though a handful of such instruments do exist for use with the child and adolescent population, high quality and psychometrically rigorous tools are lacking overall.

One such instrument with promise to address this need is an experimental version of the Mood and Behavior Rating Scale for Youth – Parent Form (MBRSY-PF) developed by Perry and Bard (2005). The measure had not, before this time, been subjected to psychometric study. The purpose of the present study was to determine if, from a three-level structural validity analysis, the MBRSY-PF can be considered an adequate parent questionnaire form to assess for bipolar disorder in children and adolescents.

Within the first level of analysis, the internal consistency of the MBRSY-PF domain subscales was explored through analysis at the individual item level. Moderate to strong both overall and individual item internal consistencies were obtained across subscales on the whole, suggesting appropriate inclusion of the great majority of items contained within the MBRSY-PF

subscales. However, a number of items within varying subscales were found to demonstrate little to no reliability. This was found to be especially the case with regard to the Mania Behavior and Emotions subscale. A series of individual items demonstrating extremely weak internal consistency were revealed within the subscale. Deletion of such items, though would not enhance the subscale's reliability, would certainly increase its economy.

Of the four items indicated as having no reliability within the Mania Behavior and Emotions subscale, three of them involved content pertaining to the sexual behaviors of children and adolescents, and one addressed the use of drugs and alcohol. More specifically, the items in question appeared to inquire about a phenomenon known as hypersexuality, which has been cited within the literature as a feature of the manic phase of bipolar disorder in children and adolescents (Kowatch et al., 2005). Hypersexuality refers to behaviors that are considered overly sexualized or promiscuous, are inconsistent with the normal sexual behavior expected for a child's developmental age, or are otherwise considered inappropriate in terms of frequency, intensity, or social setting.

Several hypotheses may be possible to explain why hypersexuality related items were endorsed differently from the other Mania Behavior and Emotions subscale items. One possible explanation is that parents perceive the sexual content of such items to be taboo or sensitive in nature, as well as highly personal or potentially shameful. They may feel too uncomfortable to respond to such items in an open and frank manner. Items within the Mania domain subscales that address manic features other than hypersexuality, on the other hand, may be viewed by parents as more socially acceptable, and therefore may elicit increased willingness to disclose honestly. This plausible explanation, however, needs to be empirically verified, possibly by correlating the items with a social desirability scale. If the hypersexuality related items

significantly differ from the others in terms of social desirability, then it would appear that social desirability is mediating parent responses.

Another consideration with regard to the items pertaining to sexual behavior may be the age range for which the MBRSY-PF was intended. The MBRSY-PF was developed for use with a wide age range of children and adolescents, as it is considered an appropriate assessment for parents of children ages 6 to 18 years. It is possible that the presence of the feature of hypersexuality during the manic phase of bipolar disorder may be less typically observed for younger children within this age range who experience manic symptoms. Conversely, it also may be that hypersexuality could be less characteristic of adolescents with bipolar disorder, or that such behavior becomes blurred with normal sexual development for this age group. Issues of perception may also occur with this aspect, as parents of younger children may not perceive items addressing sexual content or substance use as being relevant or applicable for their child's developmental age. Should this be the case, parents may be less likely to endorse these items. The current edition of the MBRSY-PF does not provide parent ratings of differentiated content for parents of children versus adolescents, though such a development may be a valuable consideration for future research.

In addition to the above items for which deletion has been indicated based upon very poor reliability, there are a number of items within various subscales that have moderate reliability but may be removed without detriment to the overall internal consistencies of the subscales. Therefore, such items can be considered extraneous and deletion is suggested for the sake of efficiency and brevity of the measure overall.

In addition, several subscales of the MBRSY-PF contain only two or three items in total. For several subscales, including the Psychotic Thoughts Physical and Medical subscale, deletion of extraneous items would reduce the subscale to one or very few items remaining within the

subscale. Therefore, ideas for future research with the MBRSY-PF may include the writing of new and even more reliable items to replace those that may be deleted, or perhaps eliminating possibly unnecessary subscales altogether.

For the second level of data analysis, the latent structures of the subscales comprising the domain scales of the MBRSY-PF were explored through factor analysis. With the exception of the Depression and Mania domains scales, all subscales within the Psychotic Thoughts, Anxiety, ADHD, and CD/ODD subscales were found to load on a single factor. Therefore, evidence has been provided that the appropriate groupings of subscales were established within domains overall, and that the labels applied to the domain scales are likely to reflect what features of bipolar disorder are truly being assessed by these domains.

Within both the Depression and Mania domain scales, however, a second factor emerged that isolated the Developmental and Family History subscales from all other subscales within these domains. In the extension to the third level of analysis, factor analysis was conducted with the Developmental and Family History subscales within the Depression and Mania domains removed. Though the revised analysis continued to yield a single overall factor at the domain level, factor loadings for four of six domains were improved in strength. This extension further revealed that the emergent factor itself was also improved to account for a greater proportion of the variance when the Developmental and Family History subscales were not included. As depression and mania remain the two major features of bipolar disorder as detailed within the literature, it is recommended that the Developmental and Family History subscales be removed from the Depression and Mania domains in subsequent editions of the MBRSY-PF.

This finding may also have implications upon how the developmental and family history of children and adolescents should be collected in conjunction with the MBRSY-PF in the in future. As summarized by Pavuluri et al. (2005), bipolar disorder is considered heritable, and

genetic transmission, genetic anticipation, and familial loading of the disorder have been indicated. Therefore, the gathering of developmental and family history, particularly as it pertains to bipolar disorder, should be considered a crucial aspect of a comprehensive evaluation for the condition.

It may be, however, that a child's developmental and family history is not as tied to the experience of mania and depression in children with bipolar disorder as other marked aspects of those symptoms, such as behavior and emotions, speech and thinking, mood changes, and physical and medical features. To consider it differently, it may also be that a parent report questionnaire format is not the most effective method in which to collect a child's developmental and family history as it relates to mania and depression. Perhaps details pertaining to developmental and family history may be more appropriately obtained from parents through an alternate format, such as the completion of a social history form or structured interview as a component of an intake process, for example.

For the third and most broad level of data analysis, the factor structure of the MBRSY-PF was explored at the domain scale level. One general factor was found to emerge as a result of the analysis, and such a finding has important implications for the utility of the MBRSY-PF. The existence of only a single factor suggests that the domain scales of the overall measure are composed of the appropriate primary and comorbid features of bipolar disorder, and that these aspects work in concert with one another to provide identification of bipolar disorder. Overall, evidence supporting the use of the MBRSY-PF as a parent questionnaire to assess for bipolar disorder in the child and adolescent population has been demonstrated by the present study. Furthermore, the MBRSY-PF can not only be considered structurally sound, but also sufficiently brief and economical for use by a wide range of mental health practitioners. Given these advantages, the MBRSY-PF may indeed be an appropriate addition to the literature, such that it

shows promise to enhance that which is currently available as a screening and/or supplementary instrument that targets not only core features of pediatric bipolar disorder, but also comorbid conditions.

Though the present study does substantiate the use of the MBRSY-PF as an informant report for bipolar disorder, a number of limitations can be identified and considered as directions for future research involving the measure. One such limitation is the small sample size utilized within the present study. This study should be replicated with a larger sample size in order to address the stability of the present results, especially the resulting factor structure.

In addition, the demographic composition of the sample utilized for the study may also be adapted for future research, as it was largely a sample of convenience. For the reason that the majority of parents included within the sample had children with a primary diagnosis of bipolar disorder or ADHD, it may be of interest to determine if a similar factor structure is obtained should a more heterogeneous clinical sample be utilized. To explore even further, future extensions could also utilize a sample composed entirely of parents whose children hold a primary diagnosis of bipolar disorder to investigate the factor structure of the measure when this population is targeted exclusively. Also related to the composition of the present sample, the external validity of the measure is another area to be considered for future research, in order to explore the extent of generalization across varying samples. Finally, the discriminant validity of the MBRSY-PF would be a valuable addition to the current body of MBRSY-PF psychometric support. Such discriminant validity research could be conducted to investigate the ability of the measure to differentiate between bipolar disorder and any of the potentially comorbid conditions detailed within the literature, though should particularly address the power of the measure to distinguish between bipolar and its most commonly comorbid disorder, ADHD (Kowatch & DelBello, 2006).

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Appendices

Appendix 1

Mood and Behavior Rating Scale for Youth – Parent Form (MBRSY-PF)

MOOD AND BEHAVIOR RATING SCALE FOR YOUTH-PARENT FORM
MBRSY-PF Experimental Edition ©pending Perry & Bard (2005)

Child's Name_____ Date of Birth_____

Today's Date_____Child's Age____Race/Ethnicity_____Gender_____

Parents'/Guardians' Names_____

Person Completing Rating Scale_____Relationship to Child_____

DIRECTIONS: This booklet includes descriptions of moods, behaviors, and other symptoms that youth may experience. Please notice that some items indicate that a mood or behavior is true sometimes or almost always. Read each item carefully and answer all items. Rate the degree that each item is true of the child currently or over the past year using the scale below and circle a number for all items.

0 = Not True or No Problem **1 = A Little Bit True or Mild Problem**

2 = Somewhat True or Noticeable Problem **3 = Very True or Severe Problem**

Behavior and Emotions

1.	Is almost always hyperactive, active, impulsive, and inattentive.	0	1	2	3
2.	Sometimes becomes tense and anxious when separated from family members.	0	1	2	3
3.	Is usually oppositional and refuses to follow directions.	0	1	2	3
4.	Sometimes tries to do things that are much too difficult for him/her.	0	1	2	3
5.	Becomes so sad and irritable that he/she has no interest in people or activities for most of the day and most days during 1 week or longer.	0	1	2	3
6.	Sometimes close supervision is needed due to his/her reckless behavior.	0	1	2	3
7.	Does not think before acting most of the time.	0	1	2	3
8.	Becomes so involved in an activity that seems driven to finish the task.	0	1	2	3
9.	Often breaks rules and does not follow directions.	0	1	2	3
10.	Becomes very meticulous and perfectionist at times.	0	1	2	3
11.	Has frequent temper tantrums that usually last for only several minutes.	0	1	2	3
12.	Sometimes is very sensitive and gets upset over minor issues.	0	1	2	3
13.	Does not seem to listen to directions.	0	1	2	3
14.	Has days when there are rapid changes in moods with too much happiness and sadness that are obviously different than his/her usual mood.	0	1	2	3
15.	Sometimes is able to complete a lot of work but then becomes disorganized and does not finish the work.	0	1	2	3
16.	Gets suddenly involved in activities and later does not remember the activities.	0	1	2	3
17.	Sometimes gets bossy and even tries to tell adults what to do.	0	1	2	3
18.	Sometimes has temper outbursts or crying spells that cannot be controlled.	0	1	2	3
19.	Has tried to sexually touch or kiss others inappropriately.	0	1	2	3
20.	Sometimes becomes so upset and cannot be calmed down for hours.	0	1	2	3
21.	Has an exaggerated sense of self-importance or high self-esteem at times.	0	1	2	3
22.	Sometimes becomes too dependent on family members.	0	1	2	3

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23.	Sometimes becomes very noticeably excited, happy, and high for no apparent reason and stays that way for 1 week or longer.	0	1	2	3
24.	Is usually too fearful, tense and worried.	0	1	2	3
25.	Sometimes becomes giddy with inappropriate laughter and silly behaviors.	0	1	2	3
26.	Can become aggressive and sometimes physically fights with others.	0	1	2	3
27.	Is usually distractible and does not finish things that had started doing.	0	1	2	3
28.	Sometimes becomes so irresponsible that he/she gives away valuable things or spends too much money foolishly.	0	1	2	3
29.	As a child, played sex games with other children.	0	1	2	3
30.	Is almost always careless and has frequent accidents.	0	1	2	3
31.	Sometimes worries about family members more than other children.	0	1	2	3
32.	Usually cannot sit still and stay in seat when this is required.	0	1	2	3
33.	Displays negative reaction to changes in routine.	0	1	2	3
34.	Has hurt self or attempted suicide.	0	1	2	3
35.	Has been noticeably unhappy and depressed for 1 year or longer.	0	1	2	3
36.	Sometimes does not come home and stays out all night without permission.	0	1	2	3
37.	Has outbursts that can cause harm to self or others.	0	1	2	3
38.	Has inappropriately touched self in a sexual manner while in public places.	0	1	2	3
39.	Displays a detached, uncaring attitude regarding expectations.	0	1	2	3
40.	Sometimes responds to correction or being told "no" with severe rages.	0	1	2	3
41.	Sometimes performs risky or dangerous activities for excitement such as setting fires or reckless driving.	0	1	2	3
42.	Has temper tantrums that usually last for only several minutes.	0	1	2	3
43.	Sometimes gets very irritable about minor problems such as having extreme and volatile rages that can last 1 to 2 hours.	0	1	2	3
44.	Has days, weeks, or months of good behavior, but then moods and behavior problems return.	0	1	2	3
45.	Is frequently dishonest and has been suspected of lying, cheating, or stealing but usually does not admit these problems.	0	1	2	3
46.	Has been too involved in activities for pleasure that cause problems such as trying to have sexual activities multiple times in a day.	0	1	2	3
47.	Has used drugs and/or alcohol excessively which has resulted in noticeable behavioral and/or emotional problems.	0	1	2	3
48.	Has displayed too much sexuality such as wearing clothing that is too revealing and/or dancing in an erotic manner.	0	1	2	3

Speech and Thinking

0 = Not True 1 = A Little Bit True 2 = Somewhat True 3 = Very True

1.	Talks too much and cannot be stopped or interrupted.	0	1	2	3
2.	Has trouble making decisions about what to do about very simple matters.	0	1	2	3
3.	Believes that he/she has special abilities, talents, or power.	0	1	2	3
4.	Talks about not liking self or having low self esteem.	0	1	2	3
5.	Annoys others at times by interrupting them when they are talking.	0	1	2	3
6.	Denies problems and need for help despite having very noticeable and negative changes in moods and behavior with distress.	0	1	2	3

MBRSY-PF 3

7.	Seems unable to stop laughing and giggling for no apparent reason when others are not laughing.	0	1	2	3
8.	Thinks about religion, death, and dying at times.	0	1	2	3
9.	Talks so fast that speech is slurred and cannot be understood.	0	1	2	3
10.	Sometimes believes that other people are trying to harm him/her.	0	1	2	3
11.	Refuses to accept advice and believes that "my way is the only way".	0	1	2	3
12.	Believes that other people can read his/her mind or control his/her thoughts.	0	1	2	3
13.	Reports racing thoughts or talks about many different topics quickly.	0	1	2	3
14.	Hears noises or voices that are not there or are not real.	0	1	2	3
15.	Sees things that are not there or are not real.	0	1	2	3
16.	Sometimes talks or sings too loudly.	0	1	2	3
17.	Sometimes makes decisions too quickly and carelessly about serious matters.	0	1	2	3
18.	Blames self for problems excessively.	0	1	2	3
19.	Talks about sexual topics or fantasies inappropriately.	0	1	2	3
20.	Has times of not talking or having little interest in conversation.	0	1	2	3
21.	Blames others for problems and denies any responsibility for problems.	0	1	2	3
22.	Expresses ideas so fast that can't seem to say everything he/she is thinking and repeats words or ideas.	0	1	2	3
23.	Does not remember past behavior problems or temper outbursts.	0	1	2	3
24.	Believes that he/she is being be punished when this is not true.	0	1	2	3
25.	Talks about hurting or killing self.	0	1	2	3
26.	Sometimes thinks that things will only get worse and feels hopeless.	0	1	2	3
27.	Sometimes believes that persons on TV or the radio are talking about him/her.	0	1	2	3

Physical and Medical Background

0 = Not True 1 = A Little Bit True 2 = Somewhat True 3 = Very True

1.	Has times of high energy despite not sleeping the night before.	0	1	2	3
2.	Sometimes needs no more than 3 hours of sleep to feel rested and alert.	0	1	2	3
3.	Gets up at night with high energy and engages in activities.	0	1	2	3
4.	Sleeps excessively and sometimes falls asleep during the daytime.	0	1	2	3
5.	Wakes up with night terrors involving crying and cannot be calmed down with no memory of night terror the next morning.	0	1	2	3
6.	Lies in bed for more than 30 minutes before falling asleep.	0	1	2	3
7.	Has times of being tired during the day after getting adequate sleep.	0	1	2	3
8.	It takes more than10 minutes to get the child up from sleep in the morning.	0	1	2	3
9.	Almost always has high energy and hyperactivity.	0	1	2	3
10.	Has increased appetite and craves sweets or carbohydrates.	0	1	2	3
11.	Has lost or gained at least 10 pounds within a month.	0	1	2	3
12.	Has times of drinking too much water or other liquids.	0	1	2	3
13.	Seems to have a high sex drive and displays sexual behavior.	0	1	2	3
14.	Has responded to stimulant medication such as Ritalin with increased activity, excitement, or sleep problems.	0	1	2	3
15.	Use of substances such as alcohol, street drugs, or steroids cause noticeable and long-term changes in mood or emotions.	0	1	2	3

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16.	Has responded to antidepressant medication such as Prozac with increased activity, excitement, or sleep problems.	0	1	2	3
17.	Has responded to mood stabilizing medications such as Lithium with improved emotional control, behavior, or sleep.	0	1	2	3
18.	Medical conditions such as neurological diseases, head injuries, hyperthyroidism, and mononucleosis cause a noticeable and long-term change in moods with depression and/or feeling too excited and happy.	0	1	2	3
19.	Has times of eating too much that causes a depressed mood.	0	1	2	3
20.	Has reported that he/she can smell odors that others cannot smell.	0	1	2	3
21.	Has times of low energy and frequently feeling tired.	0	1	2	3
22.	Frequently complains about pain such as headaches.	0	1	2	3
23.	Has refused to eat since he/she believes that the food is poisoned.	0	1	2	3
24.	Has been sexually abused or exposed to sexually explicit behavior or materials.	0	1	2	3

Impairments and Distress

0 = Not true or No Problems with No Need for Help.

1 = A Little Bit True or Mild Problems with Little Need for Help.

2 = Somewhat True or Noticeable Problems with Help Needed.

3 = Very True or Severe Problems with Immediate Help or Control Needed.

1.	Cannot focus attention or concentrate to complete tasks.	0	1	2	3
2.	Does not complete tasks due to working too quickly or slowly.	0	1	2	3
3.	Is too frequently absent or late for school, work, or other activities.	0	1	2	3
4.	Cannot take care of self for dressing, grooming, toilet use, etc.	0	1	2	3
5.	Cannot manage activities or daily living such as chores, sleeping, eating, shopping, etc.	0	1	2	3
6.	Cannot effectively communicate with others.	0	1	2	3
7.	Cannot get along with others children such as siblings and peers.	0	1	2	3
8.	Cannot get along with adults such as parents, teachers, and neighbors.	0	1	2	3
9.	Reacts to stress and problems with excessive anger, tantrums, aggression, and explosive behavior.	0	1	2	3
10.	Reacts to stress and problems with excessive worry, fear, withdrawal, sadness, and depression.	0	1	2	3
11.	Has talked about suicide or attempted suicide.	0	1	2	3
12.	Has failed major classes at school such as reading and math.	0	1	2	3
13.	Has been suspended or expelled from school.	0	1	2	3
14.	Has deliberately threatened, hurt, or harmed others at school.	0	1	2	3
15.	Has deliberately threatened, hurt, or harmed others at home.	0	1	2	3
16.	Has deliberately damaged property at home.	0	1	2	3
17.	Has run away from home overnight or stayed out all night.	0	1	2	3
18.	Sexual behavior has caused legal problems in community, school, or home.	0	1	2	3
19.	Has violated laws and was arrested or placed in a juvenile detention center.	0	1	2	3
20.	Requires very close supervision at home or school in order to avoid safety problems such as harming self or others.	0	1	2	3
21.	Has needed to be hospitalized due to possible harm to self or others.	0	1	2	3

*** Note that this total should be recorded on the Scoring & Profile Form.** **Total_____**

Developmental and Family Background
0=Not True 1= A Little Bit True 2=Usually True 3=Very True

1. During the pregnancy, mother used alcohol, street drugs, or medications.----------0 1 2 3
2. During infancy, child had an active temperament with frequent crying.----------0 1 2 3
3. Began to be hyperactive, impulsive, and inattentive **before** 7 years of age.----------0 1 2 3
4. Began to be hyperactive, impulsive, and inattentive **after** 7 years of age.----------0 1 2 3
5. Began bedwetting after having been toilet trained.----------0 1 2 3
6. As a young child, had much better behavioral and emotional control than now.-------0 1 2 3
7. Has failed to make the weight gains expected for age during medical exams----------0 1 2 3
8. Has experienced severe distress such as divorce or death of a close relative that triggered long-term mood changes such as depression beyond normal sadness.-------0 1 2 3
9. Has been placed outside the home by child protective services due to abuse. and/or depression disorders.----------0 1 2 3
10. Biological parent(s), brother(s), or sister(s) have been diagnosed with bipolar and/or depression disorders.----------0 1 2 3
11. Biological grandparent(s), aunt(s), uncle(s), or cousin(s) have been diagnosed with bipolar and/or depression disorders.----------0 1 2 3
12. Biological parent(s), brother(s), or sister(s) have been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) and /or behavior problems.------0 1 2 3
13. Biological grandparent(s), aunt(s), uncle(s), or cousin(s) have been diagnosed Attention Deficit Hyperactivity Disorder (ADHD) and /or behavior problems.----------0 1 2 3
14. Biological parent(s), brother(s), or sister(s) have attempted and/or committed suicide.----------0 1 2 3
15. Biological grandparent(s), aunt(s), uncle(s), or cousin(s) have attempted and/or committed suicide.----------0 1 2 3
16. Biological parent(s), brother(s), or sister(s) have abused or been dependent on alcohol and/or street drugs.----------0 1 2 3
17. Biological grandparent(s), aunt(s), uncle(s), or cousin(s) have abused or been dependent on alcohol and/or street drugs.----------0 1 2 3

MBRSY-PF 6

Mood Changes

Please note that you may need to review this final section with the examiner due to the complex information needed for rating the type of overall problems in the items and the specific time that a problem took place.

This section involves rating of changes in the child's moods over at least the last year. Please read all 7 items before completing this section since differences in severity are included for the same type of moods. Rate each item according to the degree that the mood change is true of the child using the scale below.

0=Not True 1= A Little Bit True 2=Usually True 3=Very True

1. Has times of feeling so high, happy, excited, and upset that he/she has severe problems sleeping, concentrating, thinking realistically, speaking clearly, stopping self from doing activities, or stopping self from being reckless. This very obvious change in mood causes severe impairments and distress with hospitalization often needed 0 1 2 3
   If true to some degree, how long does the high mood last?
   ☐ 1 to 6 days
   ☐ 7 days or more
   If true, how many months or years has the high mood happened? _____

2. Has times of feeling high, happy, excited, and upset that you can notice, but do **not** cause such major problems as thinking unrealistically nor impairments and distress. 0 1 2 3
   If true to some degree, how long does the high mood last?
   ☐ 1 to 3 days
   ☐ 4 days or more
   If true, how many months or years has the high mood happened? _____

3. Has times of feeling so sad, unhappy, and irritable that he/she has a loss of energy, appetite, and interest in activities with problems sleeping, concentrating, and thinking realistically. This change in mood is very obvious and causes severe impairments and distress such as suicide risks. 0 1 2 3
   If true to some degree, how long does the severely depressed mood last?
   ☐ 1 to 6 days
   ☐ 7 days or more
   If true, how many months or years has the depressed mood happened? _____

4. Has times of feeling mildly depressed, unhappy, and irritable that you can Notice but do **not** cause major problems, impairments, or distress. 0 1 2 3
   If true to some degree, how long does the mildly depressed mood last?
   ☐ 1 to 3 days
   ☐ 4 days or more
   If true, how many months or years has the depressed mood happened? _____

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5. **During the same day**, has times of mixed moods, being both too high and upset as well as too unhappy and irritable to the extent that he/she has problems sleeping, concentrating, thinking realistically, and controlling self with severe impairments and distress. **0 1 2 3**
   If true, how long does the mixed mood last?
   ☐ 1 to 6 days
   ☐ 7 days or more
   If true, how many months or years has the mixed mood happened?_____

6. **For 1 year or more**, has many days of mixed feelings, being both too high and upset as well as too depressed and irritable, that you can notice but do **not** cause severe problems, impairments, or distress. **0 1 2 3**

7. The child have severe depression only during a specific season of the year. . . **0 1 2 3**
   If true to some degree, which season? __Spring __Summer __Fall __Winter

Questions or comments about the use of this experimental edition of the MBRSY could be directed to Dr. Joseph D. Perry at (305) 899-3273 or jperry@mail.barry.edu

Appendix 2

Mood and Behavior Rating Scale for Youth - Parent Form (MBRSY-PF) Scoring and Profile Form

MOOD AND BEHAVIOR RATING SCALE FOR YOUTH-PARENT FORM
MBRSY-PF Experimental Edition ©pending Perry & Bard (2005)

SCORING & PROFILE FORM

Child's Name_____ Date of Birth_____

Today's Date_____Child's Age_____Gender_____Race/Ethnicity_____

School Distict/Building_____Teacher_____

Person Completing this Scale_____Position_____

How long have you known this child? _____ Hours per day with child_____

DIRECTIONS: Transfer scores from each item number of the MMBYRS-PF to the scales listed below. Total each subscale and transfer the scales to the MMBYRS Profile Summary Form at the end of this booklet.

DEPRESSION

Behavior and Emotions

5.	Becomes so unhappy and lethargic that he/she has no interest in people or activities for most of the day and most days during 1 week or longer.	0	1	2	3
22.	At times becomes dependent on family members	0	1	2	3
34.	Hurt self or attempted suicide.	0	1	2	3
35.	Has been noticeably unhappy and depressed for 1 year or longer.	0	1	2	3
39.	Displays a detached, uncaring attitude regarding expectations.	0	1	2	3
43.	Gets very irritable at times such as becoming easily upset, cranky, negative and rude	0	1	2	3

Total _____

Speech and Thinking

2.	Has trouble making decisions about what to do about very simple matters.	0	1	2	3
8.	Thinks about religion, death, and dying at times.	0	1	2	3
18.	Blames self for problems excessively.	0	1	2	3
20.	Has times of not talking or having little interest in conversation.	0	1	2	3
24.	Believes that he/she is being be punished when this is not true.	0	1	2	3
25.	Talks about hurting or killing self.	0	1	2	3
26.	Sometimes thinks that things will only get worse and feels hopeless.				

Total _____

DEPRESSION (continued)

Physical and Medical Background

4.	Sleeps excessively and sometimes falls asleep during the daytime.	0	1	2	3
6.	Lays in bed for more than 30 minutes before falling asleep.	0	1	2	3
7.	Has times of being tired during the day after getting adequate sleep.	0	1	2	3
8.	It takes more than10 minutes to get the child up from sleep in the morning.	0	1	2	3
11.	Has lost or gained at least 10 pounds within a month.	0	1	2	3
16.	Has responded to antidepressant medication such as Prozac with increased activity, excitement, or sleep problems.	0	1	2	3
21.	Has times of low energy and frequently feeling tired.	0	1	2	3

Total _____

Mood Changes

3.	Major Depression	0	1	2	3
4.	Dysthymia	0	1	2	3
7.	Seasonal Pattern of Depression	0	1	2	3

Total _____

Developmental and Family HX

7.	Has failed to make the weight gains expected for age during medical exams	0	1	2	3
10..	Biological parent(s), brother(s), or sister(s) have been diagnosed with bipolar and/or depression disorders.	0	1	2	3
11.	Biological grandparent(s), aunt(s), uncle(s), or cousin(s) have been diagnosed with bipolar and/or depression disorders	0	1	2	3
14.	Biological parent(s), brother(s), or sister(s) have attempted and/or committed suicide	0	1	2	3
15.	Biological grandparent(s), aunt(s), uncle(s), or cousin(s) have attempted and/or committed suicide	0	1	2	3

Total _____

MBRSY-PF
MANIA

Behavior and Emotions

4.	Sometimes tries to do things that are much too difficult for him/her.	0	1	2	3
6.	Has times of presenting unpredictable, reckless behavior.	0	1	2	3
8.	Becomes so active that seems driven to carry out activities excessively.	0	1	2	3
12.	Sometimes is very sensitive and gets upset over minor issues.	0	1	2	3
14.	Has a change in moods during the same day including too much happiness & sadness that are obviously different than usual mood.	0	1	2	3
15.	Sometimes has accidents due to carelessness.	0	1	2	3
16.	Gets very involved in activities such as hobbies a lot more than usual.	0	1	2	3
17.	Sometimes gets bossy and even tries to tell adults what to do.	0	1	2	3
18.	Has frequent temper outbursts or crying spells that cannot be controlled.	0	1	2	3
19.	Has sexually touched others' inappropriately.	0	1	2	3
20.	Becomes so upset that cannot be calmed down for hours.	0	1	2	3
21.	Has exaggerated sense of self-importance or high self-esteem at times.	0	1	2	3
23.	Sometimes becomes very suddenly excited, happy, and high for no apparent reason and stays that way for 1 week or longer.	0	1	2	3
25.	Displays inappropriate laughter and silly behaviors.	0	1	2	3
28.	Becomes so irresponsible that gives away valuable things or spends too much money foolishly.	0	1	2	3
29.	As a child, played sex games with other children.	0	1	2	3
36.	Sometimes does not come home and stays out all night in unkown locations without permission.	0	1	2	3
37.	Has outbursts that can cause harm to self or others.	0	1	2	3
38.	Has inappropriately touched self in a sexual manner while in public.	0	1	2	3
41.	Sometimes performs reckless or dangerous activities for excitement, such as setting fires.	0	1	2	3
43.	Gets very irritable at times such as becoming easily upset, cranky, negative, and rude.	0	1	2	3
44.	Has days, weeks, or months of good behavior, but then moods and behavior problems return.	0	1	2	3
46.	Has been too involved in activities for pleasure that cause problems such as engaging in sexual activity multiple times in a day.	0	1	2	3
47.	Has used drugs and/or alcohol excessively which has resulted in noticeable behavioral and/or emotional problems.	0	1	2	3
48.	Has worn clothing that is too revealing and/or has danced in an overly sexual and erotic manner.	0	1	2	3

Total _____

Speech and Thinking

1.	Talks too much and cannot be stopped or interrupted.	0	1	2	3
3.	Believes that he/she has special abilities, talents, or power.	0	1	2	3
5.	Annoys others at times by interrupting them when they are talking.	0	1	2	3
6.	Denies problems and need for help despite having very noticeable and negative changes in moods and behavior with distress.	0	1	2	3

MBRSY-PF

7.	Seems unable to stop laughing and giggling for no apparent reason when others are not laughing.	0	1	2	3
9.	Talks so fast that speech is slurred and cannot be understood.	0	1	2	3
13.	Reports racing thoughts or talks about many different topics quickly.	0	1	2	3
16.	Sometimes talks very loudly.	0	1	2	3
17.	Sometimes makes decisions too quickly and carelessly about serious matters.	0	1	2	3
19.	Talks about sexual topics inappropriately.	0	1	2	3
22.	Expresses ideas so fast that can't seem to say everything he/she is thinking and repeats words or ideas.	0	1	2	3

Total _____

Physical and Medical Background

1.	Has times of high energy despite not sleeping the night before.	0	1	2	3
2.	Sometimes needs no more than 3 hours of sleep to feel rested and alert.	0	1	2	3
3.	Does not sleep for one night or more.	0	1	2	3
6.	Lays in bed for more than 30 minutes before falling asleep.	0	1	2	3
10.	Has increased appetite and craves sweets or carbohydrates.	0	1	2	3
12.	Has times of drinking too much water or other liquids.	0	1	2	3
13.	Seems to have a high sex drive and displays sexual behavior.	0	1	2	3
17.	Has responded to mood stabilizing medications such as Lithium with improved emotional control, behavior, and sleep.	0	1	2	3
20.	Has reported that he/she can smell odors that others cannot smell.	0	1	2	3

Total _____

Mood Changes

1.	Manic	0	1	2	3
2.	Hypomanic	0	1	2	3
3.	Major Depression	0	1	2	3
4.	Dysthymia	0	1	2	3
5.	Mixed/ Manic	0	1	2	3
6.	Mixed / Hypomanic	0	1	2	3
7.	Seasonal Pattern of Depression	0	1	2	3

Total _____

Developmental & Family Hx

4.	Began to be hyperactive, impulsive, and inattentive **after** 7 years of age.	0	1	2	3
6.	As a young child, had much better behavioral and emotional control than now.	0	1	2	3
10.	Biological parent(s), brother(s), or sister(s) have been diagnosed with bipolar and/or depression disorders.	0	1	2	3
11.	Biological grandparent(s), aunt(s), uncle(s), or cousin(s) have been diagnosed with bipolar and/or depression disorders	0	1	2	3

Total _____

PSYCHOTIC THOUGHTS

Speech and Thinking

3.	Believes that he/she has special abilities, talents, or power.	0	1	2	3
9.	Talks so fast that speech is slurred and cannot be understood.	0	1	2	3
10.	Has paranoid thinking such as believing that others intend harm.	0	1	2	3
12.	Believes that other people can read his/her mind or control his/her thoughts.	0	1	2	3
14.	Hears noises or voices that are not there or are not real.	0	1	2	3
15.	Sees things that are not there or are not real.	0	1	2	3

Total_____

Physical & Medical

20.	Has reported that he/she can smell odors that others cannot smell.	0	1	2	3
23.	Has refused to eat since he/she believes that the food is poisoned.	0	1	2	3

Total_____

ANXIETY

Behavior and Emotions

2.	Becomes tense and anxious when separated from family members.	0	1	2	3
10.	Becomes very meticulous and perfectionist at times.	0	1	2	3
12.	Sometimes is very sensitive and gets upset over minor issues.	0	1	2	3
20.	Becomes so upset and cannot be calmed down for hours.	0	1	2	3
22.	At times becomes too dependent on family members.	0	1	2	3
24.	Becomes too fearful, tense and worried.	0	1	2	3
30.	Is almost always careless and has frequent accidents.	0	1	2	3
31.	Sometimes worries about family members more than other children.	0	1	2	3

Total _____

Physical and Medical Background

5.	Wakes up with night terrors involving crying and cannot be calmed down with no memory of night terror the next morning.	0	1	2	3
6.	Lays in bed for more than 30 minutes before falling asleep.	0	1	2	3
22.	Frequently complains about pain such as headaches.	0	1	2	3

Total _____

MBRSY-PF

ATTENTIONS DEFICITY HYPERACTIVITY DISORDER (ADHD)

Behavior and Emotions

1.	Is almost always hyperactive, active, impulsive, and inattentive.	0	1	2	3
7.	Does not think before acting most of the time.	0	1	2	3
13.	Does not seem to listen to directions.	0	1	2	3
27.	Is usually distractible and does not finish things that had started doing.	0	1	2	3
30.	Is almost always careless and has frequent accidents.	0	1	2	3
32.	Usually cannot sit still and stay in seat when this is required..	0	1	2	3

Total _____

Speech and Thinking

1.	Talks too much and cannot be stopped or interrupted.	0	1	2	3
5.	Annoys others at times by interrupting them when they are talking.	0	1	2	3
9.	Talks so fast that speech is slurred and cannot be understood.	0	1	2	3
16.	Sometimes talks very loudly.	0	1	2	3
17.	Sometimes makes decisions too quickly and carelessly about serious matters.	0	1	2	3

Total _____

Physical and Medical Background

6.	Lays in bed for more than 30 minutes before falling asleep.	0	1	2	3
14.	Has responded to stimulant medication such as Ritalin with increased activity, excitement, or sleep problems.	0	1	2	3

Total _____

Developmental and Family HX

2..	During infancy, child had an active temperament with frequent crying.	0	1	2	3
3.	. Began to be hyperactive, impulsive, and inattentive **before** 7 years of age.	0	1	2	3
12.	Biological parent(s), brother(s), or sister(s) have been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) and /or behavior problems.	0	1	2	3
13.	Biological grandparent(s), aunt(s), uncle(s), or cousin(s) have been diagnosed Attention.	0	1	2	3

Total _____

CONDUCT / OPPOSITIONAL DISORDERS

Behavior and Emotions

3.	Is usually oppositional and refuses to follow directions from parents and teachers.	0	1	2	3
9.	Often breaks rules and does not follow directions.	0	1	2	3
11.	Has temper tantrums that usually last for only several minutes.	0	1	2	3
13.	Does not seem to listen to directions.	0	1	2	3
17.	Sometimes gets bossy and even tries to tell adults what to do.	0	1	2	3
18.	Has frequent temper outbursts or crying spells that cannot be controlled.	0	1	2	3
26.	Can become aggressive and sometimes physically fights with others.	0	1	2	3
33.	Displays negative reaction to changes in routine.	0	1	2	3
37.	Has outbursts that can cause harm to self or others.	0	1	2	3
40.	Responds to correction or being told "no" with severe rages and temper tantrums.	0	1	2	3
41.	Sometimes performs reckless or dangerous activities for excitement, such as setting fires.	0	1	2	3
43.	Gets very irritable at times such as becoming easily upset, cranky, negative, and rude.	0	1	2	3
45.	Is frequently dishonest and is suspected of lying, cheating, or stealing but usually does not admit to any problems.	0	1	2	3

Total _____

Speech and Thinking

6.	Denies problems and need for help despite having very noticeable and negative changes in moods and behavior with distress.	0	1	2	3
11.	Refuses to accept advice and believes that "my way is the only way".	0	1	2	3
21.	Blames others for problems and denies any responsibility for problems.	0	1	2	3
23.	Does not remember past behavior problems or temper outbursts.	0	1	2	3

Total _____

BIPOLAR RULE OUTS

Physical and Medical Background

14.	Has responded to stimulant medication such as Ritalin with increased activity, excitement, or sleep problems.	0	1	2	3
15.	Use of alcohol and/or street drugs cause noticeable and long-term changes in mood.	0	1	2	3
16.	Has responded to antidepressant medication such as Prozac with increased activity, excitement, or sleep problems.	0	1	2	3
18.	Medical conditions such as neurological diseases, head injuries, hyperthyroidism, and mononucleosis cause a noticeable and long-term change in moods.	0	1	2	3
24.	Has been sexually abused or exposed to sexually explicit behavior or materials.	0	1	2	3

Total _____

MOOD AND BEHAVIOR RATING SCALE FOR YOUTH-PARENT FORM
MBRSY-PF Experimental Edition ©pending Perry & Bard (2005)

SCORING & PROFILE FORM

Child's Name_____ Date of Birth_____

DEPRESSION
_____Behavior and Emotions
_____Speech and Thinking
_____Physical and Medical
_____Mood Changes
_____Developmental and Family History
_____TOTAL DEPRESSION

MANIA
_____Behavior and Emotions
_____Speech and Thinking
_____Physical and Medical
_____Mood Changes
_____Development and Family History
_____TOTAL MANIA

PSYCHOTIC THINKING
_____Speech and Thinking
_____Physical and Medical
_____TOTAL PSYCHOTIC THINKING

ANXIETY
_____Behavior and Emotions
_____Physical and Medical
_____TOTAL ANXIETY

ADHD
_____Behavior and Emotions
_____Speech and Thinking
_____Physical and Medical
_____Developmental and Family History
_____TOTAL ADHD

CONDUCT / OPPOSITIONAL
_____Behavior and Emotions
_____Speech and Thinking
_____TOTAL CONDUCT / OPPOSITIONAL

IMPAIRMENTS AND DISTRESS
_____TOTAL THE SECTION FROM THE TEST BOOKLET

BIPOLAR RULE OUTS
_____TOTAL THE SECTION FROM THE SCORING PROFILE

Tables

Table 1

Internal Consistency Coefficients for Items of the Depression Subscales

	Subscale: Depression Behavior and Emotions	
Items	Alpha Coefficient	Alpha if Item Deleted
5	.71	.70
22	.41	.74
34	.67	.71
35	.65	.70
39	.59	.71
43	.61	.71
Overall	.74	--

	Subscale: Depression Speech and Thinking	
Items	Alpha Coefficient	Alpha if Item Deleted
2	.36	.75
8	.57	.73
18	.73	.71
20	.72	.71
24	.53	.73
25	.63	.73
26	.83	.70
Overall	.75	--

	Subscale: Depression Physical and Medical	
Items	Alpha Coefficient	Alpha if Item Deleted
4	.58	.72
6	.67	.71
7	.73	.70
8	.58	.72
11	.58	.72
16	.46	.73
21	.70	.71
Overall	.74	--

	Subscale: Depression Mood Changes	
Items	Alpha Coefficient	Alpha if Item Deleted
3	.75	.73
4	.73	.73
7	.64	.78
Overall	.78	--

	Subscale: Depression Developmental and Family History	
Items	Alpha Coefficient	Alpha if Item Deleted
7	.40	.73
10	.59	.69
11	.58	.69
14	.65	.68
15	.71	.67
Overall	.72	--

Note. n=97

Table 2

Internal Consistency Coefficients for Items of the Mania Subscales

	Subscale: Mania Behavior and Emotions	
Items	Alpha Coefficient	Alpha if Item Deleted
4	.49	.70
6	.52	.70
8	.47	.70
12	.70	.70
14	.62	.70
15	.60	.70
16	.56	.70
17	.51	.70
18	.64	.70
19	.04	.71
20	.58	.70
21	.50	.70
23	.58	.70
25	.72	.70
28	.58	.70
29	-.04	.71
36	.12	.71
37	.65	.70
38	.26	.71
41	.32	.71
43	.66	.69
44	.48	.70
46	.17	.71
47	-.04	.72
48	-.04	.71
Overall	.71	--

	Subscale: Mania Speech and Thinking	
Items	Alpha Coefficient	Alpha if Item Deleted
1	.61	.71
3	.36	.72
5	.61	.71
6	.45	.72
7	.65	.71
9	.58	.71
13	.67	.70
16	.42	.71
17	.61	.71
19	.29	.73
22	.72	.70
Overall	.73	--

Note. n=97

Table 2

Internal Consistency Coefficients for Items of the Mania Subscales (continued)

	Subscale: Mania Physical and Medical	
Items	Alpha Coefficient	Alpha if Item Deleted
1	.69	.68
2	.73	.68
3	.69	.69
6	.64	.69
10	.44	.71
12	.48	.71
13	.29	.72
17	.29	.72
20	.57	.70
Overall	.72	--

	Subscale: Mania Mood Changes	
Items	Alpha Coefficient	Alpha if Item Deleted
1	.74	.74
2	.60	.74
3	.59	.75
4	.70	.73
5	.80	.72
6	.77	.72
7	.51	.76
Overall	.76	--

	Subscale: Mania Developmental and Family History	
Items	Alpha Coefficient	Alpha if Item Deleted
4	.56	.67
6	.49	.66
10	.59	.63
11	.52	.66
Overall	.68	--

Note. n=97

Table 3

Internal Consistency Coefficients for Items of the Psychotic Thoughts Subscales

	Subscale: Psychotic Thoughts Speech and Thinking	
Items	Alpha Coefficient	Alpha if Item Deleted
3	.66	.72
9	.62	.73
10	.75	.71
12	.71	.74
14	.77	.72
15	.66	.74
Overall	.76	--

	Subscale: Psychotic Thoughts Physical and Medical	
Items	Alpha Coefficient	Alpha if Item Deleted
20	.82	.80
23	.77	.86
Overall	.83	--

Note. n=97

Table 4

Internal Consistency Coefficients for Items of the Anxiety Subscales

	Subscale: Anxiety Behavior and Emotions	
Items	Alpha Coefficient	Alpha if Item Deleted
2	.58	.72
10	.49	.73
12	.66	.72
20	.61	.71
22	.67	.71
24	.75	.70
30	.38	.74
31	.61	.71
Overall	.74	--

	Subscale: Anxiety Physical and Medical	
Items	Alpha Coefficient	Alpha if Item Deleted
5	.45	.79
6	.74	.68
22	.74	.67
Overall	.74	--

Note. n=97

Table 5

Internal Consistency Coefficients for Items of the Attention Deficit Hyperactivity Disorder (ADHD) Subscales

	Subscale: ADHD Behavior	
Items	Alpha Coefficient	Alpha if Item Deleted
1	.73	.72
7	.77	.72
13	.60	.75
27	.74	.72
30	.54	.75
32	.70	.73
Overall	.77	--

	Subscale: ADHD Speech and Thinking	
Items	Alpha Coefficient	Alpha if Item Deleted
1	.68	.73
5	.72	.73
9	.55	.76
16	.79	.71
17	.65	.74
Overall	.77	--

	Subscale: ADHD Physical and Medical	
Items	Alpha Coefficient	Alpha if Item Deleted
6	.79	.67
14	.57	.87
Overall	.74	--

	Subscale: ADHD Developmental and Family History	
Items	Alpha Coefficient	Alpha if Item Deleted
2	.48	.73
3	.58	.71
12	.70	.66
13	.66	.68
Overall	.72	--

Note. n=97

Table 6

Internal Consistency Coefficients for Items of the Conduct/Oppositional Disorder (CD/ODD) Subscales

	Subscale: CD/ODD Behavior and Emotions	
Items	Alpha Coefficient	Alpha if Item Deleted
3	.61	.72
9	.69	.72
11	.61	.72
13	.55	.73
17	.58	.72
18	.60	.72
26	.73	.72
33	.51	.73
37	.71	.72
40	.76	.71
41	.42	.73
43	.60	.72
45	.52	.73
Overall	.74	--

	Subscale: CD/ODD Speech and Thinking	
Items	Alpha Coefficient	Alpha if Item Deleted
6	.74	.74
11	.70	.76
21	.77	.73
23	.65	.76
Overall	.78	--

Note. n=97

Table 7

Principal Component Analysis with Varimax Rotation for the MBRSY-PF Depression Subscales

	Factor Loadings	
Depression Subscales	Factor 1	Factor 2
Depression Behavior and Emotions	.81	
Depression Speech and Thinking	.88	
Depression Physical and Medical	.80	
Depression Mood Changes	.82	
Depression Developmental and Family History		.99
Eigenvalue	2.78	1.02
% of Variance	55.68	20.55

Table 8

Principal Component Analysis with Varimax Rotation for the MBRSY-PF Mania Subscales

	Factor Loadings	
Mania Subscales	Factor 1	Factor 2
Mania Behavior and Emotions	.82	
Mania Speech and Thinking	.88	
Mania Physical and Medical	.77	
Mania Mood Changes	.75	
Mania Developmental and Family History		.99
Eigenvalue	2.63	1.00
% of Variance	52.65	20.12

Table 9

Principal Component Analysis † for the MBRSY-PF Psychotic Thoughts Subscales

Psychotic Thoughts Subscales	Factor Loadings
Psychotic Thoughts Speech and Thinking	.86
Psychotic Thoughts Physical and Medical	.86
Eigenvalue	1.49
% of Variance	74.90

† Because only one component was extracted, Varimax rotation can not be applied.

Table 10

Principal Component Analysis † for the MBRSY-PF Anxiety Subscales

Anxiety Subscales	Factor Loadings
Anxiety Behavior and Emotions	.82
Anxiety Physical and Medical	.82
Eigenvalue	1.35
% of Variance	67.81

† Because only one component was extracted, Varimax rotation can not be applied.

Table 11

Principal Component Analysis † for the MBRSY-PF ADHD Subscales

ADHD Subscales	Factor Loadings
ADHD Behavior and Emotions	.87
ADHD Speech and Thinking	.81
ADHD Physical and Medical	.66
ADHD Developmental and Family History	.42
Eigenvalue	2.06
% of Variance	51.49

† Because only one component was extracted, Varimax rotation can not be applied.

Table 12

Principal Component Analysis † for MBRSY-PF CD/ODD Subscales

CD/ODD Subscales	Factor Loadings
CD/ODD Behavior and Emotions	.88
CD/ODD Speech and Thinking	.88
Eigenvalue	1.56
% of Variance	77.81

† Because only one component was extracted, Varimax rotation can not be applied.

Table 13

Factor Structure of the MBRSY-PF Based Upon Domain Scale Totals

Scales	Factor Loadings
Depression	.40
Mania	.90
Psychotic Thoughts	.79
Anxiety	.67
Attention Deficit Hyperactivity Disorder (ADHD)	.78
Conduct/Oppositional Disorders (CD/ODD)	.71
Eigenvalue	3.28
% of Variance	54.70

Table 14

Revised Factor Structure of the MBRSY-PF Based Upon Domain Scale Totals with the Developmental and Family History Subscale Removed from the Depression and Mania domain Scales

Scales	Factor Loadings
Depression	.80
Mania	.96
Psychotic Thoughts	.79
Anxiety	.82
Attention Deficit Hyperactivity Disorder (ADHD)	.74
Conduct/Oppositional Disorders (CD/ODD)	.68
Eigenvalue	3.87
% of Variance	64.46