Depressive Symptoms in Prepubertal Children.

Lesley Stabinsky Compton

Louisiana State University and Agricultural & Mechanical College

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Depressive symptoms in prepubertal children

Compton, Lesley Stabinsky, Ph.D.
The Louisiana State University and Agricultural and Mechanical Col., 1993
DEPRESSIVE SYMPTOMS
IN PREPUBERTAL CHILDREN

A Dissertation
Submitted to the Graduate Faculty of the
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in
The Department of Psychology

by
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ABSTRACT

This study was designed: 1) to explore interinformant reliability between preadolescent students, their teachers, and their parents; 2) to investigate the use of standardized and non-standardized academic variables as predictors of depression; and 3) to assess differences in depression between black and white students. One hundred and twenty, fourth and fifth grade students and teachers participated. Sixty-eight parents also volunteered for this study. The Child Depression Inventory and the modified Bellevue Index of Depression were administered to students, teachers, and parents. Significant but moderate interinformant reliability was found between teachers and students and between teachers and parents on both assessment scales. Interinformant reliability between parents and children were generally nonsignificant. Current report card grades were found to be a timely predictor of childhood depression. No differences in level of depression were found between black and white students.
INTRODUCTION

As an introduction to the topic of depression in children, a historical perspective of the concept of childhood depression will first be presented. Depression in children was recognized in medical textbooks as early as the 17th century. By the mid 1800s the concept of melancholia was also being attributed to children (Pearce, 1977). Despite this centuries old acknowledgement, the concept of childhood depression received no mention in the American Handbook of Psychiatry, published in 1959 (Costello, 1981). In the 1960s and 1970s attention to this area continued to be scarce, although discussion by professionals on the subject of childhood depression increased slightly. In 1960 the first textbook appeared containing a section on childhood depression (McConville, 1983) and in 1974 the second edition of the American Handbook of Psychiatry devoted a chapter to the topic.

The World Health Organization's Glossary of Mental Disorders included the concept of childhood depression in 1974 (Costello, 1981), but the American Psychiatric Association did not officially recognize the disorder until its 1980 publication of the Diagnostic and Statistical Manual-III (DSM-III; 1980). Recently a dramatic increase has been seen in both interest and research in childhood depression. The consensus is that children can experience symptoms of depression, such as sadness and dysphoric mood.
However, evidence of depression as a syndrome, similar to that witnessed in adult psychiatric literature, has been controversial (Finch, Casat, & Carey, 1990).

The concept of childhood depression in its present stage was slow to develop. As late as the 1960s, depression in children was considered nonexistent. Depressive symptoms were viewed as part of a developmental stage, and, therefore, were not considered pathological (Trad, 1986). This theoretical position of professionals was largely based on the psychoanalytic premise that depression would not occur in prepubertal children. Feelings of despair and hopelessness which characterize depression are theoretically assumed to be functions of the superego, which does not mature until adolescence (French, 1979; Kazdin, 1989). Rie (1966) wrote that children are incapable of experiencing the primary affect of hopelessness and despair characterizing depression.

Although a denial of the concept of childhood depression characterized the psychoanalytic viewpoint, one psychoanalyst recognized depression in infants. In 1946 Spitz described an "anaclitic depression" in infants who were separated from their mothers and institutionalized. Symptoms of sadness, withdrawal, apprehension, weepiness, retarded reaction to external stimuli, slowed movement, dejection, loss of appetite and weight, and insomnia were noted. This "anaclitic depression" was seen as a direct
result of object loss and was not originally viewed as parallel to depression in adults.

During the 1970s several challenges to the psychoanalytic position were addressed. One of these challenges shifted to an emphasis on "masked depression" or "depressive equivalents" in childhood depression (Kazdin, 1989; Trad, 1986). Cytryn and McKnew (1974) proposed masked depression as one of the first theories to acknowledge an evolving set of depressive symptoms in early life. This theory was a bridge between traditional psychoanalytic theory and current thinking about the condition. Childhood depression was seen as a discrete entity different from adult depression. Behaviors such as aggression, hyperactivity, enuresis, somatic complaints, learning disabilities, and difficulties in sleeping and eating were all signs of underlying depression (Petti, 1989; Trad, 1986). Thus, an underlying, unexpressed depressed affect accounts for manifest behaviors even when no overt signs of dysphoric mood, anhedonia or other characteristic symptoms of adult depression are evident (Cantwell, 1983).

One problem of masked depression is that the masking behaviors cover a range of childhood emotional problems (Cantwell, 1983; Kazdin, 1989), making it difficult to diagnose and contributing to the confusion surrounding the concept of childhood depression. Masked depression has lost credibility in the United States primarily because
the term itself has proved misleading and unnecessary (Costello, 1981; Cytryn, McKnew, & Bunney, 1980). In 1981 Christ, Adler, Isacoff, and Gershansky demonstrated that "masked" depressive symptoms were not associated with a diagnosis of depression.

Carlson and Cantwell (1980) also offered evidence to refute "masked" depression. They studied 102 children at a psychiatric clinic, using DSM-III criteria for affective disorders. They found that 28 of these children met criteria for a primary affective disorder, 14 children had no preexisting psychiatric disorder, and 14 had a preexisting psychiatric disorder, generally an overt behavior disorder such as Attention Deficit Disorder with Hyperactivity or Conduct Disorder. These children's psychiatric symptoms did not mask their depressive symptoms. They simply carried an additional diagnosis. The authors noted differences between the behavior problems of primarily depressed children, children who evinced primary behavior problems along with depression, and children who evinced behavior problems without depression. Children who were primarily depressed showed less severe behavior problems and these behavior problems postdated onset of their depressive symptoms. Children who fell into the second group demonstrated chronic behavior problems of greater magnitude than those exhibited by the depressed only children. These other behavior problems or disorders are often the
presenting complaints bringing a child to the clinician's attention.

Glaser (1967) suggests that depressive symptoms can exist without depressive affect, although depressed mood is usually found. This tends to make an accurate diagnosis difficult. Glaser suggests that sometimes it takes a skilled clinician and careful interview techniques to recognize a young child's mood. Variation in children's moods becomes easier to recognize with maturation.

Another school of thought arising in the 1970s also supports the idea that depression does exist in children (Cantwell, 1983). Proponents of this school see childhood depression as consisting of essentially the same set of symptoms experienced by adults but accompanied by an additional unique set of characteristics and symptoms (Kovacs & Beck, 1977). These unique symptoms fall into the cognitive, psychomotor, and vegetative areas. They are not clearly specified and may vary from author to author (Cantwell, 1983).

Closely related and somewhat overlapping to this school of thought is the idea that symptoms of depression may emerge as a normal part of childhood development and will naturally dissipate over time (Lefkowitz & Burton, 1978). This position emphasizes that because cognitive, linguistic and socioemotional capabilities of children and adults differ, the symptoms of depression would certainly vary in
the same way (Cichetti & Schneider-Rosen, 1986). This theory was offered by Lefkowitz and Burton (1978) as evidence against the concept of childhood depression. They felt that if the symptoms of depression remit spontaneously over time, they should not be considered pathological and, therefore, do not require clinical intervention.

Some characteristics of depression are common at different stages of childhood (Kazdin, 1989). Crying, for example, is much more common in 6-year-olds than it is in 12-year-olds. Poor appetite also is relatively common in 5-year-olds but decreases considerably by the time a child reaches 9 years of age. Kazdin (1989) also points out that a problem with the notion of depression as a developmental phenomenon is that the various symptoms of depression may arise at different times during a child's development. Costello (1980) notes that even if the syndrome of depression had a high prevalence rate at a particular age this would not indicate that childhood depression is nonexistent. Nor should it indicate that treatment is unnecessary. Childhood depression may be a precursor for adolescent or adult depression, in which case early identification would be important (Kazdin, 1989; Spitzer, Endicott, & Robins, 1978).

The current consensus amongst researchers allows for the existence of clinical depression in children with one-to-one correspondence between symptoms of depression in
adults (Puig-Antich, Blau, Marx, Greenhill, & Chambers, 1978). Childhood depression can be classified using the same diagnostic criteria used with adult populations (Cantwell, 1983; Cytryn et al., 1980). Several recent studies have verified that depression can be assessed in children, adolescents, and adults using similar diagnostic criteria (Carlson & Cantwell, 1980; Chiles, Miller, & Cox, 1980; Kashani, Barbers, & Bolander, 1981; Puig-Antich et al., 1978). This ability to apply adult criteria to children is primarily responsible for the success of this view (Kazdin, 1989).

As a continuation to this historical review of childhood depression, the following discussion will provide an overall view of various topics relevant to the area of childhood depression. The present and past conflicts in defining the concept of childhood depression will be reviewed, including a discussion on early definitions, difficulties in recognizing depressive symptomatology in children, and currently accepted definitions. Prevalence rates will also be discussed in terms of the variables which affect estimates of depression in children, such as definition in children, such as definition of depression, assessment instruments, age of the population studied, as well as other population variables.

Various models of depression will be presented to give the reader an in depth perspective of the theories
generated to explain the presence of depression. These models generally fall into two categories, those models developed from psychosocial theories and a group of models with biological origins. In an effort to narrow this literature review and focus on issues directly related to the following research, a review of depressive symptoms which appear differentially in children and adults will follow. A section of this paper will cover diagnostic features associated with childhood depression.

A review of general assessment topics will be presented, including the issue of interinformant reliability and its importance in diagnostic evaluations of children. A discussion will follow that will include gender and racial variables with regard to childhood depression. The last section of this review will explore the relationship between school performance and depression and the research that has contributed to current knowledge in this area.
Defining Childhood Depression

Much of the controversy surrounding depression in children stems from difficulties in establishing an operational definition. In this section one can review a variety of early definitions, which will serve to exemplify the difficulties in recognizing depressive symptomatology. The lack of a specific set of symptoms associated with childhood depression has also made classification and diagnosis difficult (Cytryn & McKnew, 1972; Lefkowitz & Burton, 1978; Lewis & Lewis, 1979). Within psychiatric or clinical domains, the term depression can refer to dysphoric mood alone or a depressive syndrome, where the dysphoric mood occurs along with other symptoms. These additional symptoms may include vegetative and psychomotor changes as well as cognitive and motivational ones (Cantwell, 1983).

Early topologies such as Frommer's (1968) divided sad children into three categories: enuretic and encopretic depressives, pure depressives, and phobic depressives. Cytryn and McKnew (1972) studied depressed children and categorized them as experiencing a masked depressive reaction of childhood, an acute depressive reaction of childhood, or a chronic depressive reaction of childhood.

Definitions of childhood depression vary as do the list of accompanying symptoms. Manifestations of depression also
vary depending upon age and developmental stage of the individual. Toolan (1981) states that younger children in the 5- to 8-year old range tend to verbalize feelings of sadness directly, while older children in the 8- to 12-year old range tend to exhibit poor self-esteem. The symptom of guilt, which is sometimes associated with depression, is not common before age 11 to 12. McConville (1983) also notes that guilt themes are more common in adolescents than in younger children as the depressive symptomatology more closely resembles that of adults.

Pearce (1977) lists numerous symptoms as characteristic of childhood depression. Some of these include outward signs of being sad, unhappy, and miserable. Others include crying, social withdrawal, lethargy, listlessness, somatic complaints, sleeping and eating problems, a low frustration tolerance, physical aggression, anxiety, fear, morbid thoughts, suicidal ideation, and an altered perception, which includes a low self-esteem. Petti (1981) noted that the major features of childhood depression are dysphoric mood and self-deprecatory ideation. Petti also specifies that these symptoms or behaviors should indicate a significant change from a child's premorbid level of functioning and should not be a temperament problem or a characteristic trait. Krakowski (1970) further detailed depressive symptomatology by outlining specific depressive characteristics during infancy, childhood, and adolescence.
In outlining the clinical phenomenology of childhood depression, Poznanski (1982) notes that depressive symptomatology may be difficult to recognize in children ages 6 to 12 years. Symptoms to be alert for include dysphoric or depressed affect. Children with moderate to severe depression look distinctly unhappy, but the child who is only mildly depressed may be difficult to identify. Other symptoms include low self-esteem, reduced capacity for fun, massive guilt, social withdrawal, impaired schoolwork, excessive fatigue, sleeping and eating disturbances, psychomotor retardation, and morbid or suicidal ideation. According to Poznanski five of the above mentioned symptoms are necessary to diagnose a child depressive syndrome. In addition several associated features such as irritability, crying, and somatic complaints may be present.

Cytryn and McKnew (1979) report that the course of depression may present itself in at least three different levels. The first is through fantasy where the child focuses on themes of mistreatment, being blamed or criticized, loss and abandonment, injury, death, or suicide. The second manifestation is through verbal expression. The child talks about feeling hopeless, helpless, unattractive, worthless, unloved, and verbalizes suicidal preoccupations. The third domain is mood. The child exhibits sadness, crying, sleep and appetite disturbance, loss of interest,
withdrawal, decreased productivity, and masking behaviors such as hyperactivity, aggression, and school failure.

The identification of childhood depression should follow general guidelines (Kazdin, 1989). The presence of core symptoms should be assessed. For these symptoms to be considered significant they should reflect a change from a previous level of functioning and be consistent in their duration across several days or weeks. The absence of a clear precipitant is also necessary as is evidence that these symptoms are clearly impacting on the child's daily functioning.

Another definitional issue encompasses the differential between depression as a symptom and depression as a syndrome (Cytryn & McKnew, 1972; Cytryn & McKnew, 1974; Cytryn et al., 1980). Depressive symptoms refer to a given overt behavior, such as withdrawal, depressed mood, verbalized irrational beliefs, or somatic complaints (Clarizio, 1984). There appears to be significant evidence from a variety of studies that confirms the clinical syndrome of depression in children that manifests itself analogous to depressive syndromes in adults (Cantwell, 1983). The term syndrome indicates that several behaviors covary and appear as a cluster of affective, cognitive, motivational and vegetative symptoms or behaviors (Clarizio, 1984). A third level of diagnosis involves depression. A disorder refers to a major depression that cannot be accounted for by other disorders,
and is generally accompanied by a characteristic clinical picture, including a family history of affective or mood disorders, positive response to treatment, and possible environmental and biological correlates (Cantwell, 1983; Clarizio, 1984).

Since the concept of childhood depression has been accepted as one that can be diagnosed in accordance with adult criteria, two primary diagnostic systems have surfaced. One is the Research Diagnostic Criteria (RDC) developed by Spitzer, Endicott, and Robins in 1978, primarily for research settings. The other set of diagnostic criteria was developed by the American Psychiatric Association. These criteria were originally specified in the Diagnostic and Statistical Manual-III (DSM-III, 1980) and more recently presented with minor modifications in the DSM-III-R (1987), which is primarily used in clinical settings (Reynolds, 1984). This review of the development of the definition of childhood depression illustrates the complexities surrounding the growth in this field. The acceptance of DSM criteria has significantly contributed to the growth of research in this area during the 1980s.

Prevalence of Childhood Depression

The following section will present information related to the prevalence of depression in children. Estimates of
prevalence for childhood depression vary widely. Results of studies are difficult to compare because of a number of variables, including population, age, definition of depression, assessment instruments, and identity of informants (Petti, 1989). Lefkowitz and Tesiny (1985) used a peer-nomination measure with a group of over 3,000 third-, fourth-, and fifth-graders. They found that 5.2% of this group was severely depressed. In another study Kaplan, Hong, and Weinhold (1984) studied 300 adolescents using the Beck Depression Inventory. Seven percent of their population was moderately depressed while one percent were severely depressed.

Others have surveyed the child population between the ages of 7 to 12. Using DSM-III criteria only 2% of the general population was diagnosed Depressed (Kashani et al., 1983; Kashani & Simonds, 1979). Rutter, Tizard, and Whitmore (1970), in their Isle of Wight study, found 0.1% prevalence of depression in prepubertal children. This prevalence rate may have been underestimated because not all the symptoms of a Major Depressive Disorder were assessed (Kashani et al., 1983).

In clinical populations, estimates of childhood depression range from 2% to 60% (Kashani et al., 1981). Kashani, Cantwell, Shekim, and Reid (1982) studied children admitted to an inpatient community mental health center. In children ages 1 to 6, a 1% rate of depression was found
using DSM-III criteria. For children ages 9 to 12, a 13% prevalence rate was found. Weinberg, Rutman, Sullivan, Penick, and Deitz (1973) assessed children aged 6-12 who were referred to an educational diagnostic center and identified 62% of these children as depressed. Petti (1978) used the Bellevue Index of Depression (BID) and identified 60% of child psychiatry inpatients (aged 6 to 12 years) as depressed.

Finch et al. (1990) summarized several prevalence studies utilizing the DSM-III criteria for a Major Depressive Disorder. They found prevalence rates of 2% in normal children, 7% to 13% in pediatric patients, and 7% to 27% in psychiatric patients.

As previously stated prevalence rates vary considerably depending on the definition of depression. Some studies differentiate between children with depressive symptoms and children who meet criteria for a Major Depressive Disorder. Worchel, Nolan, and Willson (1987) administered the CDI to 304 regular school students in grades 3 to 12. They found that 7% of these students reported severe depression, while 21% of the students reported mild to moderate levels of depression.

Although consistent information on the prevalence of childhood depression has been difficult to obtain, consensus places prevalence rates in the general population at
approximately 2%. Prevalence rates for clinical populations typically fall between 10% and 20% (Kazdin, 1989).

Models of Depression

The etiological models of depression developed with adults have recently been applied to children. In this section of the literature review a brief description of these models will be presented. These models generally fall into two major categories. The first category encompasses psychosocial theories of depression which emphasize intrapsychic, behavioral, and interpersonal aspects. The second category includes biological models of depression, such as biochemical models, genetic models, and physiological models (Kazdin, 1989).

Psychosocial Models of Depression

Psychodynamic models. The psychoanalytic model primarily reflects the Freudian view and focuses on intrapsychic needs. This model involves several components. One in which unsatisfied libidinal strivings are theorized as object loss when a parent for whatever reason fails to fulfill a child's needs (Pearce, 1977). Another aspect of this model involves retroflexed anger (Petti, 1989). Self-criticism and self-rejection are attributed to the battle between the ego and the superego within the individual and also indicate anger and hostility toward the parent (Kazdin,
1989). A third aspect involves the concept of anxiety and proposes that all psychopathology results from an individual's feeling overwhelmed (Petti, 1989). This psychoanalytic dogma insists that depression does not exist in children, even though some psychoanalysts have presented theories to the contrary (French & Berlin, 1979; Spitz 1946).

**Behavioral models.** Behavioral models of depression focus on learning, environmental consequences, and skill acquisition and deficits. Lewinsohn (1974) postulated that depression results from the loss of reinforcement in the environment. The person's behavior fails to elicit positive reinforcement from others. The individual therefore tends to become passive and withdrawn from social interactions and consequently evinces symptoms of depression. Lewinsohn notes three causes of an individual's low rate of response-contingent positive reinforcement: reinforcers are lacking, available reinforcers are not effective, or the individual does not possess the social skills necessary to attain available reinforcers.

Another behavioral model focuses on social skill deficits underlying depression. This model overlaps with Lewinsohn's theory, because a lack of social skill can account for an individual's failure to elicit positive reinforcement from others. Social skills training and assertion training have led to a decrease in depression
Rehm (1977) presents another behavioral model based on self-control. It focuses on a person's maladaptive behavior and deficiencies in coping with stress. The individual is unable to self-monitor, self-evaluate, or self-reinforce his/her own behavior. She/he is likely to focus on negative events. This model incorporates Lewinsohn's ideas of reduced activity and lack of reinforcement and Seligman's and Beck's ideas of helplessness and negativism.

**Cognitive models.** In general the cognitive models of depression are not easily distinguished from behavioral models. They tend to overlap with similar constructs and treatment. Cognitive models emphasize perceptual, attributional, and belief systems (Kazdin, 1989). Beck's (1976) cognitive attribution theory has been described as a bridge between the psychoanalytic and behavioral models (Bebbington, 1985; Petti, 1989). Beck's theory describes a cognitive triad in which the individual develops negative conceptualizations about himself, the world, and his future. These negative cognitions are responsible for affective, motivational, and behavioral symptoms of depression. They lead to cognitive distortions which develop gradually and are probably rooted in unfamiliar life experiences (Kashani et al., 1981). Research has documented the presence of
negative cognitive attributions in children and adolescents (Leitenberg, Yost, & Carroll-Wilson, 1986).

Seligman's (1975) learned helplessness model was developed in animal research. It explains that depression results from people's experience and expectations that their actions have no influence on events in their lives. Helplessness leads to passivity, social impairment, and slowed activity. A positive correlation between learned helplessness and depression has been found. When both learned helplessness and depression are present they lead to motivational and cognitive impairment, evidence of which has been noted in both adults and children (Seligman & Peterson, 1986).

A more recently reformulated helplessness model (Seligman, Kaslow, Alloy, Peterson, Tanenbaum, & Abramson, 1984) states that depressive symptoms are associated with one's style of explaining by events (attributions) via internal, stable, and global causes. In another cognitive model, D'Zurilla and Nezu (1982) propose that depression is due to deficits in interpersonal problem-solving skills. Individuals who are depressed show deficits in generating alternative solutions to problems, particularly when they need to mediate stress and interpersonal interactions.

Socioenvironmental models. Socioenvironmental models focus on life events that influence the onset of depressive symptoms. Stressful events and a person's perception of
the event are seen as equally important. Depressed persons report a larger number of stressful life events than do others (Kashani et al., 1981; Kazdin, 1989). One sociological model suggests that depression occurs when current social structures deprive people of desirable roles (Kashani et al., 1981) and contributes to the breakdown of the individual's self-esteem (Petti, 1989). Billings and Moos (1981) outline an integrative psychosocial approach to depression which involves personal resources and environmental resources impacting on and interacting with environmental stressors. This is further mediated by an individual's appraisal of current events and his coping responses to lead to depression and other methods of personal functioning.

Biological Models of Depression

Biochemical models. Biochemical models emphasize that abnormal amounts of neurotransmitters may lead to depression. The general view is that depression is caused by a deficit or excess in one or more neurotransmitters or by an imbalance in the amount of a neurotransmitter. The fact that certain drugs increase the amount of catecholamine output and act as antidepressants offers support for these biochemical theories. Additional evidence comes from the fact that amines and their metabolites, found in urine, cerebrospinal fluid and plasma, appear in abnormal
concentrations in persons with affective disorders (Kazdin, 1989; McKnew, Cytryn, & Yahraes, 1983).

Cytryn and his associates suggested one of the first biological models for children (Cytryn, McKnew, Logue, & Desai, 1974). They noted that changes in urinary metabolites do occur in depressed children and these changes are pronounced when affective disorders are chronic. Biochemical differences as measured by 3-methoxy-4-hydroxyphenyl-glycol (MHPG) were not consistent and varied with age. In a 1979 study, McKnew and Cytryn found depressed children excreted significantly less MHPG than control subjects.

In another study Puig-Antich, Chambers, Halpern, Hanlon, and Sachar (1981) measured plasma cortisol levels in four prepubertal depressed children. In two of the subjects cortisol hypersecretion returned to normal after the depressed episode had passed, similar to the adult reaction.

Hypersecretion of cortisol is the strongest psychobiological correlate of major depression in adults. Puig-Antich (1983) studied 20 prepubertal children with major depressive disorders. Forty percent of the children who were depressed did not hypersecrete cortisol. The authors suggest that cortisol hypersecretion appears less in children, possibly a factor of age and physiological development.
Neuroendocrine abnormalities have also been hypothesized as being responsible for depressive symptoms such as mood disturbance, disturbances in sex drive, sleep, appetite and autonomic activity, suggesting dysfunction of the hypothalamus. Neurotransmitters, such as noradrenaline, serotonin, and acetylcholine, associated with depressive disorders regulate neuroendocrines that control functions of pituitary and hormonal responses. Support for this theory is also seen in the fact that depressed individuals hypersecrete cortisol and do not suppress cortisol secretion in response to drugs, such as dexamethasone (Kazdin, 1989).

Genetic models. A second biological model is based on genetic influences. Close relatives of individuals with a Major Depressive Disorder are likely to also have a depressive disorder (Kazdin, 1989). Kashani et al. (1981) summarized evidence from seven twin studies and found a concordance rate of 76% for an affective disorder in monozygotic twins, while dizygotic twins had a concordance rate of 19%. Monozygotic twins reared apart still evidenced a 67% concordance rate (Cantwell, 1983). Adopted children whose biological parent evidenced an affective disorder indicated an increased incidence of depression and an increased rate of psychopathology in general (Kashani et al., 1981; Kessler, 1988).

Attempts have been made to identify mode of genetic transmission (Kazdin, 1989), but, at present, the exact
model has not been identified. Several theories have been proposed, including autosomal transmission, dominant transmission, x-linked dominant transmission, and polygenic transmission (Kashani et al., 1981).

**Physiological models.** Research in this area has explored biological markers, both genetic and biochemical. One biological marker is urinary metabolites of monoamines (MHPG) and its resistance to cortisol suppression. Another biological marker involves the growth hormone (GH) releasing response to insulin-induced hypoglycemia. Approximately 50% of adults with a major depressive disorder hypersecrete GH in response to insulin-induced hypoglycemia. A similar effect has been observed in prepubertal children. Cantwell (1983) found that 90% of the children hypersecreted GH in responses to insulin-induced hypoglycemia as compared to 50% of the adults.

Evidence to support biological models comes from a number of studies indicating that tricyclic antidepressants do work in alleviating depressive symptoms in children (Petti, 1983). Additional evidence for biological models of depression comes from the fact that some physical disorders may serve as physiological stressors that make children susceptible to depression. For example, when seizure disorders are treated with barbiturates, a depressive disorder is likely to occur (Petti, 1983). Other physical disorders closely linked to depression include
hypothyroidism, hyperthyroidism, diabetes, brain tumors, and neurological disorders (Petti, 1989).

Akiskal and his coworkers have proposed an integrative model to encompass psychosocial and biological models (Akiskal, 1979; Akiskal & McKinney, 1975). This biobehavioral model of depression integrated physiological stressors, genetic predisposition, psychosocial stressors, and developmental predisposition. These influences work together to alter the central nervous system and converge on a single common pathway to result in a depressive condition.

From this brief discussion of various models of depression, one can see that both the psychosocial and biological models tend to overlap in terminology and concepts. Specific conclusions with regard to etiology can not be reached at this time. Each behavioral and biological model proposed has a degree of empirical support, indicating that depression in children has multiple causes.

With the exception of Akiskal's integrative model, little effort has been made to combine etiological theories. However, evidence supports some type of interaction between environmental and biological causes. Depression depends on the interaction of several factors, including genetic vulnerability, developmental events, psychosocial events, psychosocial stressors, and personality traits (Petti, 1989).
In addition to multiple causes, several factors contribute to the development of depression. Family influences can affect the development, course, and intensity of mood disorders through genetics, modeling, and psychological abandonment and rejection. The child's intellectual level, temperamental factors, adaptation to stress, and internal physiological changes also play a role in the development of a mood disorder. Treatment must be based on an assessment that attempts to pinpoint the relevance of each contributing factor (Petti, 1989).

**Child versus Adult Symptoms**

Although a depressive syndrome may be diagnosed in children using adult criteria, this does not mean that the manifestations of the disorder are the same for children and adults. This section will discuss the age specific features in the DSM-III-R. For example, according to DSM-III-R, diagnoses of a Major Depressive Episode in young children may be accompanied by somatic complaints, psychomotor agitation, hallucinations, anxiety disorders and phobias. Depression in adolescents may be accompanied by social withdrawal, antisocial behaviors, and school problems.

Depressive symptoms appear widespread in children who do not display severe enough symptomatology for the diagnosis of Major Depressive Disorder (MDD). Differences between depressive symptoms common in children and adult
depressive symptoms should be acknowledged. For example, characteristics of psychomotor retardation and sleep disturbance are frequent characteristics of depressed adults, but not of depressed children (McConville, 1983).

Childhood depression manifests different symptoms from depression in adults, which is more prevalent in women with approximately a 2:1 ratio, whereas studies with children have not shown any consistent gender differences. Biological correlates of depression are also not the same for children as they are for adults. For example, EEG sleep patterns of adults are depressed. As previously mentioned, this has not been demonstrated in children (Kazdin, 1989).

Within the non-adult population, ages 0-18 years, differences in depressive symptomatology are also evident. Depression is more prevalent in adolescence than in early childhood, which may be a function of puberty (Rutter, 1988).

Serious consequences of depression, specifically suicide, are rare in children under 12 years of age (Rutter, 1988). Suicide in children, when it does occur, therefore, is less likely to be a manifestation of childhood depression. Suicidal threats, ideation, and suicide attempts are more often seen in patient samples with depressive disorders (Kazdin, 1989). Suicide attempts and suicidal ideation increase in frequency during adolescence. Mania is also seen more frequently in teenagers. Younger
children also experience milder and shorter grief reactions than do adolescents (Rutter, 1988). In general, the literature suggests a continuity in depressive symptoms and associated features (Kazdin, 1989).

This discussion serves as a reminder that although primary diagnostic criteria are the same, children and adults do exhibit some differences in features associated with depression.

**Associated Features of Childhood Depression**

Depression in children is often accompanied by one or more associated features. Some of these features, such as hyperactivity, interpersonal difficulties, and anxiety will be addressed in the following review.

According to Petti (1981), hyperactivity and depression are frequently associated, although they do occur independently of one another. Similar results were found by Staton and Brumback (1981) and Bohline (1985). Hyperactive children who are depressed also experience symptoms of irritability, moodiness, tearfulness, social problems, and low self-esteem (Staton & Brumback, 1981). Shaffer (1985) reported that children diagnosed as hyperactive often were diagnosed as depressed during adolescence.

Poor peer relationships and inadequate social skills have also been associated with children who are depressed (Puig-Antich et al., 1985). Primary school children who
were clinically depressed when compared to a control group displayed lower levels of assertiveness, greater submissiveness, and less adequate social skills (Kennedy, Spence, & Hensley, 1989). Rutter et al. (1970) studied a sample population of 10-year-olds who were "Not much liked by other children." The authors concluded that this description was the best indicator of psychiatric disturbance in the sample. Lewinsohn's theory of depression also implicates inadequate social skills as an associated feature (Costello, 1981). According to his theory, appropriate social skills are necessary to elicit positive reinforcement from others. Those children who are lacking in appropriate social skills lack the ability to interact with other persons and receive reinforcement from them. Matson, Macklin, and Helsel (1985) demonstrated a negative relationship between appropriate social skills and behavior problems in a population of children with emotional problems and hearing impairments.

Evidence for the generalization of Lewinsohn's social-skills-deficit-model of depression to children was noted in a study by Wierzbicki and McCabe (1988). These authors administered a social skills inventory and a depression rating scale to children and their parents and found that social skills were significantly related to level of depressive symptomatology. In another study Kennedy et al. (1989) concluded that depressed children possess low levels
of assertiveness, low ratings of peer popularity, and less adequate social skills as compared to nondepressed children.

Conners (1976) and Frommer (1968) summarized data indicating that depressed children evince a high frequency of enuresis and somatic complaints. Ling, Oftedal, and Weinberg (1970) found a 40% rate of depression in 25 children who were referred for a diagnostic evaluation of headaches. Hughes (1984) discovered severe levels of depression in children referred with complaints of recurrent abdominal pain with no organic etiology.

Anxiety (Battle, Jarratt, Smit, & Precht, 1988; Kolvin, Berney, & Bhate, 1984; Norvell, Brophy, & Finch, 1985), conduct disorders (Kashani, Henrichs, Reid, & Huff, 1982; Ney, Colbert, Newman, & Young, 1986), and eating disorders (Cantwell, Sturzenberger, Burroughs, Salkesi, & Green, 1977) are also associated with depression in children. Bernstein and Garfinkel (1986) found that in a group of 26 adolescents, 50% met both the criteria for an affective disorder and an anxiety disorder, i.e., school phobia. Rutter et al. (1970) found that 42% of children with antisocial disorders also had affective disorders. Additional associations between depression and conduct disorder were noted by Norvell and Towle (1986) and DeBlois and Stewart (1980). One-third of children and adolescents being treated for anorexia nervosa and bulimia nervosa also met criteria for a MDD (Carlson & Cantwell, 1980).
Family history of psychopathology and depression indicate that behavioral disturbances are more common in children of depressed parents as compared to children of normal parents. Typically these depressed children are raised in a home environment that is disruptive, hostile, and rejecting (Orvaschel, Weissman, & Kidd, 1980). These children are exposed to family conflict and inconsistent parenting (Stoneman, Brody, & Burke, 1989). Weissman et al. (1984) studied 194 children aged 6 to 18 and found that children of depressed parents were at increased risk for DSM-III diagnosis, school problems, suicidal behavior, emotional and psychological problems.

These associated features of depression in childhood range from hyperactivity to physical disorders to a family history of psychopathology. This concludes the discussion of general issues related to childhood depression and the remainder of this literature review will concentrate on issues directly related to the current research project.

**Assessment and Related Issues**

Researchers and diagnosticians have sought a means of consistently assessing depression in children. Development of assessment measures began in the 1970s and continues to this date. A discussion of the assessment measures follows, emphasizing self-report assessment scales and their limitations.
The assessment of childhood depression is relatively new. Initial assessment techniques were modified from those assessment measures previously developed for adults. The Bellevue Index of Depression (BID; Petti, 1978) was adapted from and based on adult diagnostic criteria developed by Weinberg, Rutman, and Sullivan (1973). The Children's Depression Inventory (CDI; Kovacs, 1980/1981) was modified from the Beck Depression Inventory for adults, and The Children's Depression Rating Scale (CDRS; Poznanski, Cook, & Carroll, 1979) was adapted from the Hamilton Rating Scale for adults.

Self-report measures are widely used in assessing childhood depression. Since the mid-1970s, numerous self-report measures have been developed, although they tend to vary with respect to their goals. Some are directed at diagnosis while others are developed to assess the severity of a child's symptoms. These measures also vary with respect to the type of symptoms emphasized, i.e. affective versus cognitive. Empirical status of these measures varies considerably as does their method of development. Some instruments were developed as direct adaptations of adult assessment scales, some are based on diagnostic criteria, some were designed to discriminate one population from another, while others were developed from expert opinions concerning item content (Kazdin, 1989).
Possible limitations associated with the usage of self-report assessment measures involve the extent to which the client, particularly in the case of a child, is capable of describing or relating the symptoms that (s)he might be experiencing. Age and age correlated variables such as reading and comprehension skills should be considered when evaluating children. Moretti, Fine, Haley, and Marriage (1985) found that children aged 8 to 17 were capable of providing valid self-reports in the area of depression.

Assessment measures have also been developed for use by significant others, such as parents or teachers, who rate a child's depressive symptomatology. Parental reports of children's depression have been demonstrated useful in providing important information on overt symptoms and verbalizations (Puig-Antich, Chambers, & Tabrizi, 1983). The CDI and the modified BID are self-report measures with alternate forms for teachers and parents (Wierzbicki, 1987). Lefkowitz and Tesiny (1980) developed the Peer Nomination Inventory for Depression (PNID) in which peers rate each other. The PNID is based on the knowledge that peers have an advantage in this respect, because they observe each other in a wide range of settings and for extended time periods.

Self-report measures have resulted in discrepant information between various informants. Because of these discrepancies, the clinician is cautioned against relying
solely on self-report measures for diagnosis (Kazdin & Petti, 1982). This issue of interinformant reliability or the lack of interinformant reliability is pertinent to the research project being proposed and will be discussed in greater detail later in this paper.

The psychometric properties of these assessment measures should also be carefully viewed. Because of their recent development, adequate reliability and validity data have not been obtained on each measure (Kazdin & Petti, 1982; Kovacs, 1980/1981). Studies of some measures report good test-retest reliability and good interrater reliability (Rehm, Gordon-Leventon, & Ivens, 1987). Kazdin, French, Unis, and Esveldt-Dawson (1983) conducted a study of convergent validity of various instruments: CDI, BID, and a symptom checklist from DSM-III criteria. The different assessment instruments were completed by the same informants, both children and their parents. Correlations in the moderate to high range were obtained for children ($r = .32$ to $.81$) and for parents ($r = .61$ to $.81$). Convergent validity of depression instruments was also demonstrated by Kaslow (cited in Rehm et al., 1987) and Schultz (1981). Discriminant validity with the CDI and the BID was obtained by Kashani, Barbero, and Bolander (1981) and Carlson and Cantwell (1979).

Direct observation of overt behaviors has been used to assess depression in adults extensively, but to a much
lesser degree with children. This is perhaps because depressed children do not display a constant dysphoric mood as do depressed adults (Kazdin, 1989; Petti, 1989). Observed behaviors primarily studied have included nonverbal behaviors such as social and motor activity, solitary behavior, and sad facial expression (Altman & Gotlib, 1988; Kazdin, Esveldt-Dawson, Sherick, & Colbus, 1985; Kazdin, Sherick, Esveldt-Dawson, & Rancurello, 1985). Studies using behavioral observations as assessment have focused on inpatient populations, although clinician use of behavioral observation during psychiatric interview should not be overlooked.

Physiological and biochemical assessments have also been used to supplement rating scales in the diagnosis of depression. These laboratory-based measures have implications for etiology and biological correlates, and attempt to establish correlation with depression as a disease and a syndrome (Petti, 1989). In children, assessment of neuroendocrine functioning is the most common biological strategy. Adults with endogenous depressions tend to hypersecrete cortisol when they are depressed. This hypersecretion returns to normal when the depression is terminated (Shaffer, 1985).

Data on cortisol hypersecretion gives limited support to the hypothesis that adult and childhood depression are the same disease (Puig-Antich et al., 1979). In later
studies Puig-Antich and associates reported cortisol hypersecretion in only 10% of prepubertal depressed children (Puig-Antich & Weston, 1983; Puig-Antich, 1986). The dexamethasone suppression test (DST) has been valuable as a research and diagnostic tool with adults. It is based on the fact that dexamethasone will suppress cortisol output in most normal adults. The DST fails to suppress cortisol levels in 50% of depressed adults. Response to DST in children has, generally, not been good. One study found that 42% of adolescents with a MDD were non-suppressors, while another found 32% of an adolescent sample were non-suppressors (Shaffer, 1985). The DST test has been of questionable importance as an aid to diagnosis with children (Petti, 1989).

In addition to cortisol levels, electrophysiological recordings obtained during sleep have been studied with adults. Depressed adults have abnormal sleep patterns characterized by a decrease in total sleep time, a decrease in total delta wave sleep, a shorter REM latency and intermittent and early morning wakenings. These findings have not been seen consistently in children (Kazdin, 1989; Puig-Antich et al., 1982). One study found EEG sleep patterns in prepubertal children with MDDs to be similar to sleep patterns in adults who are depressed (Emslie, Roffwarg, Rush, Weinberg, & Parkin-Feigenbaum, 1987). In another study these same sleep abnormalities were not found
in prepubertal children (Shaffer, 1985). The neurophysiology of depression in children differs from adults because of developmental considerations (Puig-Antich, 1986). According to Cantwell (1983) these biological validation measures are still in the developmental stage in the study of childhood depression.

**Interinformant variability.** Obtaining consistent information from various informants has previously been mentioned as an area of concern in assessing childhood depression. This issue of interinformant variability applies to the usage of rating scales or questionnaires that are administered to a child and a significant other in the process of assessment. This issue will be reviewed extensively.

Researchers emphasize the importance of using information from both the child and the parent in a thorough evaluation (Kazdin, Esveldt-Dawson, Unis, & Rancurello, 1983). This emphasis is stressed when the client is a child, because some investigators feel that children may be unable or reluctant to discuss their dysfunction. Children and their parents also have access to different types of information which contributes positively to the assessment process.

Fifty children ranging in age from 6 to 16 were involved in a study by Herjanic, Herjanic, Brown, and Wheatt (1975). The authors administered a structured psychiatric
interview to children and their mothers and found an 80% average agreement rate between child and parent. Mother-child agreement was higher for girls. Mother-child agreement was also higher on factual information and lowest on mental status question. Reich, Herjanic, Welner, & Gandly (1982) compared diagnoses from 307 children (aged 6 to 16) and their mothers' responses on the Diagnostic Interview for Children and Adolescents (DICA). Acceptable levels of agreement were found for several diagnostic areas, including depression. Older children (aged 12 to 16) evinced a higher rate of agreement with parents than did younger children. The authors concluded that the diagnosis of depression was made reliably across all age groups.

Herjanic and Reich (1982) studied rate of agreement between mother and child with regard to specific symptoms. They found the highest rate of agreement on concrete, observable symptoms. In general, the mothers tended to report more behavioral symptoms, while the children reported more subjective symptoms.

Leon, Kendall, and Garber (1980) used a sample of 302 depressed and nondepressed children attending public school to assess interinformant reliability. The authors found that parents' assessment on the Personality Inventory for Children-Depressed Scale (PIC-D) was moderately, but significantly (r = .33, p<.05) related to their children's self-report on the CDI. In a more recent study conducted by
Slotkin, Fauber, McCombs, and Long (1988) both parents and young adolescents, ages 11 to 15, completed the CDI. In this normal population, a positive significant correlation ($r = .40$) was found between the two informants.

Additional studies demonstrating good interinformant reliability includes those by Orvaschel, Puig-Antich, Chambers, Tabrizi, and Johnson (1982) and Lobovits and Handal (1985). In the first of these two studies the Kiddie-SADS was used by a single rater to evaluate depression in 6- to 11-year olds. Reliability coefficients were .60 for depression items as reported by children and their mothers. The symptom that was least reliably reported was guilt, while the symptoms that were most reliably reported were anhedonia and hypersomnia. The authors concluded that prepubertal children can provide important information regarding their behavior and that errors of underreporting psychopathology were made just as likely by mothers as children.

The second study mentioned above evaluated fifty 8- to 12-year olds referred to an outpatient psychology service center. DSM-III criteria were used to establish prevalence rates, which were compared to results of the PIC-D and the CDI. The authors found that the difference between parent and child ratings of depression "approached significance." The overall agreement rate as to whether a child was
depressed or non-depressed for the parent and the child interview was 78%.

On the other hand several studies incorporating assessment measures suggest that the children's self-report of depressive symptoms does not correlate well with reports from parents, teachers, or peers (Cytryn et al., 1980; Mcknew, Cytryn, Efron, Gershon, & Bunney, 1979). Saylor, Finch, Furey, Baskin, & Kelly (1984) discussed the trend toward a weak relationship between self-ratings and ratings by other informants. It was suggested that differences between informants indicate variations in perspective between self and others. The authors concluded that discrepancies reflect the inability of outsiders to know certain cognitive and affective information to which the client has access.

Weissman, Orvaschel, and Padian (1980) studied 28 children with a psychiatrically ill parent. The subjects ranged in age from 6- to 17-years old. The study examined the relationship between children's responses about themselves and mothers' responses about their children with regard to symptoms and social functioning scales. The children were administered the CDI and The Center for Epidemiological Studies-Depression Scale (CES-D). Mothers rated their children on the CES-D. Results indicated that approximately 45% of these children met criteria for a psychiatric diagnosis. However, agreement between children
and parents with regard to symptomatology was poor. Children's reports did correlate significantly across assessment instruments as did the parents.

Kazdin, Esveldt-Dawson, Unis, and Rancurello (1983) attempted to examine the agreement between assessment of depression and aggression in a sample of 120 inpatient children, aged 5 to 13, their mothers and fathers. The CDI, BID, and a measure of aggression were each completed by the child and his parents. Statistical analysis compared the respective scores and indicated that children rated depression and aggression lower than parents, especially mothers. Interinformant agreement between children and parents was in the low to moderate range (r = .10 to r = .41), and generally not statistically significant. Correlations between mother and father were consistently significant in the moderate to high range.

In another study by Kazdin and associates similar results were found (Kazdin, French, Unis, & Esveldt-Dawson, 1983). One hundred and four inpatient children between the ages of 5 to 13 years were studied. Depression instruments (CDI, BID, and the Depression Symptom Checklist) were administered to both child and parents. The authors found that different measures of depression completed by the same rater were highly correlated. However, when the same measure of depression was completed by mother and child or father and child, there was little or no relationship
Kazdin and his associates concluded that children are not always capable of reporting on their functioning and therefore it is important to use various assessment instruments. It is also noted that, in general, rates of agreement between parent and child were better when reporting factual information and the presence or absence of specific symptoms.

Ivens' study (as cited in Rehm et al., 1987) reported low interinformant agreement between mother and child and father and child. The Kiddie-SADS was used to evaluate 63 outpatient non-clinic and clinic children. Results indicated that the lowest rate of agreement on depressive symptoms was between father and child, while the highest rate of agreement was between father and mother. High father-mother agreement with regard to suicidal thought and moderate agreement between all informants with regard to concentration problems was reported. Mothers noted more depressive symptoms in children than did fathers. Children reported the presence of more fatigue, sleep problems and suicidal ideation than did either parent.

Teachers have begun to take an active role in assessments of childhood depression. Poznanski (1982) indicates that teachers are usually the best observer of a child's affect. Parents are generally less reliable because it is difficult for them to be objective about their child's psychological problems. Parents also tend to minimize
pathology in their children because of guilt feelings. Sometimes the parent's relationship with the child may be strained, contributing to the lack of objectivity. Poznanski also points out that a high percentage of parents of depressed children are themselves clinically depressed and this psychopathology may affect their objectivity. Kashani, Holcomb, and Orvaschel (1986) suggest that parents' tendency to underreport their child's symptoms might be due to unfamiliarity with other children. Parents might also possess a naivety about children always being happy, or they simply do not want to report the truth for fear that it might make them look bad.

Kashani et al. (1986) used four independent sources to investigate the presence of depression in a group of preschool children drawn from the general population. Each child was individually evaluated during a 2-hour session. Parents and teachers were asked to complete rating scales to evaluate behavior and symptoms of depression. Parent ratings were highly correlated with other parent ratings, and teacher ratings were also correlated with one another, some were even negatively correlated. When the children were separated into two groups, those with significant depressive symptoms and those without, it was found that the teachers' ratings and not those of the parents, were consistent with clinical diagnosis. The authors emphasize
the importance of teachers' input for identifying depression.

In another study Reynolds, Anderson, and Bartell (1985) also concluded that teachers appear to be good sources of information regarding childhood depression. This study examined measures for the assessment of depression in a sample of 166 elementary school children in grades 3 through 6. The CDI and the Reynolds Children's Depression Scale (RCDS; Reynolds, 1989) were completed by the children. Parents participated by completing the depression and anxiety scales from the PIC. Teachers provided global ratings of academic performance and depression. Data obtained from the parents did not correlate with the children's self-report assessment. However, the teacher's global rating of depression correlated significantly with the children's self-report assessment ($r = .38$ with the CDI; $r = .33$ with the CDS). The authors concluded that teachers may be a good source of information in assessing depressive symptomatology.

Fauber, Forehand, Long, Burke, and Faust (1987) also conducted a study in which young adolescents' ratings of depression were correlated with findings of social and cognitive functioning by parents and teachers. Teachers' and children's ratings were more highly correlated than parents' and children's ratings. The population studied included 89 normal adolescents between the ages 11 to 15.
Positive significant correlations between adolescents and teachers were also found in a study using the CDI and the Reynolds Adolescent Depression Scale (Matson & Nieminen, 1987).

Shoemaker, Erickson, and Finch (1986) conducted a study designed to assess convergent and discriminant validity of depression measures using third and fourth grade boys. The children completed the CDI, while their classmates completed the PNID, and their teachers completed the Child Behavior Checklist. Agreement between self-reported depression and peer nomination and teacher report of depression ranged from -.05 to .18 while the agreement between peer nomination and teacher reports was better, but still low (r = .24). None of the correlations were statistically significant.

Kashani et al. (1983) concluded that teachers are not the best source of behavior problems associated with childhood depression. In this study teacher input was not effective in distinguishing depressed from non-depressed 9-year old children.

These discrepancies between parent, child, and teacher report discussed in this section contribute to the confusion surrounding childhood depression (Cytryn et al., 1980). They also hamper diagnostic reliability. Obvious differences contributing to these contradictory results between studies include age and demographic variables of the subject population, assessment instruments, and
methodological differences. Some researchers have concluded that information gathered from the child should be the primary and most important source of information. Children are essential informants about their internal feelings and fears, whereas parents may be better sources at giving history, factual and time-related material (Kashani, Orvaschel, Burk, & Reid, 1985).

Gender and Racial Variables in Childhood Depression

The following discussion focuses on a review of the information available concerning gender differences in depressed individuals, particularly children. This section will also examine the literature that relates to racial differences in children who are depressed.

As previously stated, depression in adults is more prevalent in women than in men with approximately a 2:1 ratio (Kazdin, 1989). Overt depressive disorders are more frequent during adolescence (Kandel & Davies, 1982) with a parallel shift from a male preponderance prior to puberty to female preponderance after puberty (Rutter, 1988). Other studies have found inconsistent results with regard to prevalence rates for depressed male and female children (Rehm et al., 1987).

Several hypotheses have been suggested to account for the different sex ratios between adults and children. The first of these hypotheses is referred to as the artifact
hypothesis, indicating that the variation in sex ratio for children results from the nature of these child populations in different settings. For example, a greater number of depressed male children were found in educational diagnostic settings, while more depressed female children were assessed in hospital and clinical treatment settings. The second hypothesis, a biochemical one, suggests that hormonal changes of puberty contribute to mood changes and, therefore, lead to greater vulnerability for depression in females after puberty. The psychosocial hypothesis explains that sociological factors have historically deprived females of desirable roles and consequently led to depression. Preadolescent females have not experienced complete socialization and are not subject to depressive conditions until they reach maturity and set goals for themselves (Rehm et al., 1987).

Prevalence studies have reported statistical differences in sex ratios of childhood depression. A 1973 study by Weinberg et al. indicated that 60% of the children referred to an educational diagnostic clinic because of school or behavior problems experienced depression. These depressed children ranged in age from 6 to 12 years and consisted of 30 boys and 12 girls. Kashani, Cantwell, Shekim, and Reid (1982) conducted a prevalence study of 100 inpatient children between the ages of 9 and 12. They found 11 depressed boys and 2 depressed girls. The authors
did not report original sex ratios within the sample population.

In a sample of fourth- and fifth-grade gifted children, Bartell and Reynolds (1986) found boys reported more depression and lower levels of self-esteem than girls. In another study involving nonclinic children in grades 3 to 12, females reported more overall depression than males in the same age group (Worchel et al., 1987). Reynolds et al. (1985) reported that females in third to sixth grades endorsed more depressive symptoms than males. Within a population of children aged 6 to 10 years living with single-parent families, gender differences were noted with boys reporting more depressive symptomatology (Huntley, Phelps, & Rehm, 1987).

A 1984 study conducted by Kaplan et al. assessed depression with the BDI in 385 nonclinic adolescents. They did not find any differences between total depression scores for males and females. Kashani et al. (1983) studied a sample of 9-year-olds and also found no sex differences with regard to prevalence rates. Similar results were found by Leon et al. (1980). Depression was studied in relationship to behavior problems in 138 children in grades 3 to 6. No sex differences were found between rates of depression in this sample of regular education students. Lefkowitz and Tesiny (1980) administered the PNID to almost 1,000 fourth- and fifth-graders and found no sex differences in prevalence
rates. A study conducted by Lobovits & Handal (1985) using 8- to 12-year old children referred to an outpatient psychology service centers, found no significant differences between prevalence rates of depression using the PIC-D and the CDI. These authors concluded that gender is not as important a factor in child populations as in adult populations.

The issue of racial differences with regard to depressive symptomatology has scarcely been mentioned in the literature. Those studies addressing this issue are discussed below. Eighty one white and 23 nonwhite children (ages 5 to 13) were administered the BID and the CDI (Kazdin, French, Unis, & Esveldt-Dawson, 1983). No overall differences were found significant with regard to age, gender, race, or IQ. It was noted, however, that older children in this sample were slightly more depressed. Kazdin et al. did find a significant relationship between race and the BID with nonwhites tending to score as less depressed.

Kazdin and his associates conducted another study with preadolescents, 99 white subjects and 21 black subjects (Kazdin, Esveldt-Dawson, Unis, & Rancurello, 1983). This study assessed interinformant reliability between children and their parents. The white children were rated higher than black children on the CDI and the BID depression scales by their mothers. The white children were also rated more
depressed than black children on the BID by their fathers. No racial differences were noted on either assessment scale via self-ratings.

The Adolescent Activities Checklist (AAC) has been used to indirectly assess depression because of the association previously found in the literature between activity level and depression. This association demonstrated that as the frequency of unpleasant activities increases, so do the number of depressive symptoms. Cole, Kelley, and Carey (1988) conducted a standardization study on the AAC. Significant main effects were found for gender and race. Females claimed to experience a higher mean number of pleasant items, while males experienced a higher mean number of unpleasant items. Black students indicated that they experienced a higher mean frequency of pleasant events than white students, suggesting that they experience less depression.

Helsel and Matson (1984) studied the relationship of demographic variables to the CDI using 216 children ranging in age from 4 to 18 years. The sample was divided equally across sex. Race distributions approximated U.S. population distribution. The authors found that age was significantly correlated with CDI scores, while sex and race were not. With regard to age, it was found that the older children displayed more depressive symptoms than the younger
children. This finding is similar to that found by Kazdin, French, Unis, and Esveldt-Dawson (1983).

The only study primarily addressing the racial issue was conducted by Politano, Nelson, Evans, Sorenson, and Zeman in 1986. These authors administered the CDI to 392 Caucasian and 159 Black psychiatric inpatients between the ages of 6 and 18. The purpose of their study was to evaluate depressive symptom clusters with regard to minority and ethnic factors. The authors found minor variations in depressive symptom clusters across races. Blacks were found to be less suicidal than whites. Also blacks scored higher on behavioral dimensions (e.g., oppositional behavior), while whites scored higher on affective dimensions (e.g., sadness). Total CDI scores for the two groups were not reported, giving no evidence as to whether or not racial differences occurred with regard to prevalence rates.

Information currently available with regard to gender differences and childhood depression is quite controversial, not allowing the researcher to reach any definitive conclusions. The literature addressing racial differences is scarce. In general, it suggests no overall differences between black and white children, although some studies indicate slight differences with white children consistently appearing as more depressed than black children.
Academic Achievement and Childhood Depression

Depression in children is often associated with a deficit or decrease in academic performance. Research studies yielding supportive data for the relationship between academic performance and depression and those giving contradictory information will be discussed.

Any of the symptoms associated with affective or mood disorders can cause problems in the classroom and consequently result in referrals for evaluation of school problems (Weinberg & Rehmet, 1983). Some individuals feel that childhood depression might be a common problem in children with school difficulties (Weinberg et al., 1973) and children labeled as learning disabled (Colbert, Newman, Ney, & Young, 1982; Goldstein, Paul, & SanFilippo-Paul, 1985; Stevenson & Rommey, 1984). Kauffman (1989) notes that depression is associated with school performance, as well as with lower cognitive functioning, lower self-esteem, and lower social competence. He suggests that school failure and depression may be reciprocal causal factors, i.e., school failure leads to depression and depression leads to school failure.

McKnew et al. (1983) comment on the problem of misdiagnosis. Children who are depressed may be misidentified as having mild mental retardation or learning disabilities because of their low academic functioning. Poor grades in depressed children may be the result of
inattentiveness and an inability to concentrate. Blechman, McEnroe, Carells, and Audette (1986) assessed 364 elementary school students with regard to academic and social competence. Children who scored low in areas of academic and social competence were rated depressed by self-report and peer-nomination. Children who were socially skilled were the happiest according to peer-nomination.

In 1972 Connell investigated 20 depressed children between the ages of 7 to 13. She noted that although each possessed average intellectual abilities, they were underfunctioning academically. Kupermand and Stewart (1979) studied inpatient and outpatient children aged 7 to 16. They found that 13% of the girls and 5% of the boys admitted to the clinic met the criteria for depression. Of these depressed children and adolescents, specific patterns of depressive symptoms were essentially the same, except that the girls demonstrated more somatic complaints and the boys demonstrated more frequent decline in schoolwork.

In another study Tesiny, Lefkowitz, and Gordon (1980) assessed 944 fourth- and fifth-grade students using the PNID as a measure of depression. Academic achievement scores in reading and math were obtained from standardized tests. Teacher ratings of academic achievement and classroom work and study habits were also obtained. The authors found significant negative correlations between standardized reading and math scores and level of depression. Small but
significant positive correlations were noted between depression and teacher ratings of academic achievement and teacher ratings of work/study habits.

Feshbach and Feshbach (1987) obtained measures of depressive affectivity and academic achievement among others in a study of 8- to 11-year olds. Depressive symptomatology was measured by teacher ratings, self-ratings (CDI), and peer-nominations and compared to scores on the Wide Range Achievement Test. Teacher ratings of depression were inversely related to achievement measures, while child ratings of depression were only weakly linked to academic scores.

The relationship between depression and school performance has been addressed in several studies. In general, negative correlations were found between children's depressive symptomatology and academic performance. Strauss, Forehand, Frame, and Smith (1984) assessed the relationship between the CDI with several measures of psychological and social functioning, including a teacher's rating of academic performance. Two groups of 15 children from grades second through fifth were compared. The children in group 1 were selected because of high CDI scores. The children in group 2 were selected because of low CDI scores. With regard to the children's academics, findings suggested that children with extreme scores on the CDI were regarded by teachers as performing "less well"
academically. The children were also rated as "less smart" by their peers.

Puig-Antich et al. (1985) noted that recovered depressed children functioned better in school than they had while they were depressed. They also displayed fewer behavior problems in school, better academic achievement, and developed more positive relationships with their teachers. Vincenzi (1987) studied 139 urban black sixth grade children to assess the relationship between depression and reading ability. He tested the children with the CDI. Academic indicators included current and past reading levels as measured by reading achievement scores and report card grades. Significant negative correlations were found between depression and reading level, depression and reading achievement and depression and grades.

Fauber et al. (1987) studied the relationship of adolescent scores on the CDI to measures of social and cognitive functioning. They found that CDI scores were significantly negatively correlated with the adolescents', the mothers', fathers', and the teachers' perception of the adolescents' cognitive competence. CDI scores were also significantly negatively correlated with grade point averages.

In a 1977 study by Kovacs and Beck, 63 seventh- and eighth-grade students found that teachers' ratings of classroom performance were inversely related to BDI scores.
Similar results were found by Albert and Beck in 1975. They studied 13- and 14- year olds and found that those adolescents who received higher scores on the BDI scale were functioning poorly in academics. Kashani et al. (1983) studied a sample of 9-year-olds in a prevalence study. The depressed children had more negative self-perceptions of their academic ability than nondepressed 9-year-olds.

Carlson and Cantwell (1980) compared performance on the CDI with the child's academic performance in a group of 102 children aged 7 to 17. Sixty-one children received a clinical diagnosis in one of several areas: primary affective disorder, secondary affective disorder with behavior problems, secondary affective disorder with accompanying disorders, behavior disorder alone, and anorexia nervosa alone. Impaired school performance did not distinguish between the groups. In general, the anorexic children and those diagnosed with primary depression were functioning better than the other groups with regard to academics. This provides little evidence to refute the relationship between depression and academic performance, because of the lack of a control group.

Some studies have offered inconsistent or contradictory data. In a study designed to examine two measures for the assessment of depressive symptomatology in children, Reynolds et al. (1985) used the CDI and the RCDS. The sample population consisted of 166 children in third to
sixth grades. As part of their study, teachers provided global ratings of each child's academic achievement. No significant relationship was found between these teacher's ratings of academic achievement and depressive symptomatology.

Similar results were found by Seagull and Weinchank (1984). Their study involved junior high school students who were nominated for this study on the basis of whether or not they exhibited specific symptoms, such as flat affect, passive responses, and motor lethargy, typically associated with depression. Students who exhibited the depressive symptoms were compared to a group of normal students on several variables, some of which were school related. No differences were found between the two groups on standardized achievement test scores, retentions, suspensions, positive and negative teacher comments, school referrals for assessment or use of special school services.

Strauss, Lahey, and Jacobsen (1982) conducted one of the few studies which actually focused on childhood depression and its relationship to academic underachievement. These authors explored the hypothesis that clinical features of depression are incompatible with academic achievement, using a normal population of 103 children aged 7 to 12. They used three measures of depression, the PNID, the CDI, and teacher ratings, and correlated those with achievement test scores on the Peabody
Individual Achievement (PIAT) and the Stanford Achievement Test. They did not find a significant relationship between CDI scores and standardized academic achievement tests, which suggests that the relationship between depression and academic achievement is a weak one. This study was one of the first to use an objective standardized assessment of academic performance. Previous studies compared depressed symptoms to perceptions or ratings of academic performance.

This discussion suggests that the relationship between academic performance and childhood depression is not conclusive. Additional research in this area is needed to help clarify these issues.

In summary, current professionals are presently acknowledging specific symptoms evinced in children which were previously associated with adult depression. A review of the literature indicates many questions in the field of childhood depression which are as yet controversial. Additional research is needed to assist in answering these questions and help lend definition to this area. The present study will attempt to examine in greater detail several facets of depression in prepubertal children.
PRESENT INVESTIGATION

The first goal of this study was to investigate the relationships between child, teacher, and parent responses to two assessment measures of childhood depression. Clinicians should be aware of variations in informant information with respect to their client's evaluations. Previous research demonstrating inconsistencies between information given by teachers and information given by students was either lacking in self-report data (Kashani et al., 1986) or involved the teacher and the child completing different assessment instruments (Kashani et al., 1983; Reynolds et al., 1985; Shoemaker et al., 1986). Substantial interinformant reliability has been demonstrated between adolescent students and teachers (Matson & Nieminen, 1987), but has not been empirically demonstrated in a non-clinical preadolescent population. Given the potential serious nature of depression this is very important.

Studies on interinformant reliability involving parents and preadolescent children have typically been conducted with clinical populations. These studies have failed to yield adequate reliability (Kazdin, Esveldt-Dawson, Unis, & Rancurello, 1983; Kazdin, French, Unis, & Esveldt-Dawson, 1983; Schultz, 1981). Some studies have found substantial reliabilities between parents and nonclinical adolescents and parents and preadolescent children. In these studies the informants either completed different assessment
instruments (Leon et al., 1980; Lobovits & Handal, 1985), or
they completed measures designed to assess general
psychopathology (Herjanic & Reich, 1982; Orvaschel et al.,
1982; Reich et al., 1982) rather than depression. In an
attempt to expand the empirical data in the area of
childhood depression, this study was designed to compare
child and teacher reports to parent reports on the same
childhood depression instruments in a nonclinical
population. Thus, the first goal was to demonstrate
interinformant reliability coefficients between
preadolescent students, teachers, and parents.

The second purpose of this study was to explore the
relationship between depressive symptoms and academic
performance. Confirming the relationship between depression
and academic achievement might prove valuable as a means of
identifying depressive symptoms and by possibly preventing a
depressive syndrome. Prior research efforts in this area
have either 1) incorporated subjective assessment of
academic achievement in the form of teacher ratings on a
single Likert-type scale (Albert & Beck, 1975; Kashani et
al., 1983; Kovacs & Beck, 1977; Puig-Antich et al., 1985;
Reynolds et al., 1985; Strauss et al., 1984), or 2)
incorporated subjective ratings of depression (Seagull &
Weinshank, 1988). Although some studies have incorporated
objective assessment of academics in their methodology
(Fauber et al., 1987; Feshbach & Feshbach, 1987; Strauss
et al., 1982; Tesiny et al., 1980; Vincenzi, 1987), no study has examined interinformant ratings of depression in relation to academics. I attempted to establish the relationship between depressive symptomatology and academic underachievement via child-report and teacher-report depression assessment measures for the former, and standardized measures of performance and report card grades for the latter.

Racial differences across depressive symptomatology in prepubertal children were also studied. Prevalence studies of childhood depression have not dealt with differences between black and white populations (Kandel & Davies, 1982; Kaplan et al., 1984; Kashani et al., 1986; Kashani & Simonds, 1979; Poznanski & Zrull, 1970). This information is relevant to assessment and treatment of childhood depression, particularly in areas of the country with high rates of minority populations. This study involved equal numbers of black and white students in an effort to compare levels of depressive symptomatology in each population. Thus, the third purpose was to evaluate racial differences in preadolescents with regard to depression.
METHOD

Subjects

One-hundred twenty (120) fourth and fifth grade students (60 in each grade) attending Lafayette Parish public schools served as subjects in this study. The sample was divided to include equal proportions of Black and White students and equal proportions of male and female students. Teachers of these students were asked to complete 2 questionnaires on each child. Sixty teachers participated, representing 7 schools. Parental involvement was solicited. A 57% participation rate was obtained from parents.

Data was collected in the city of Lafayette, Louisiana, which has a population of 94,440, according to the 1990 census. Lafayette Parish Schools had a census of 29,744 students for the 1991-1992 school year. All schools in the city of Lafayette containing both fourth and fifth grade classrooms were approached for participation in this research project. There were 10 schools that met this criteria. Seven of these schools were involved in this study. One school principal declined to have her school participate in this research project. Two schools were not included in the study because the proposed sample of 120 students had already been obtained.

The children participating in this study had a mean age of 10 years 2 months. Their mean scores on the standardized
performance test and their report card grades are reported in Table 1. Thirty-three percent of these students had repeated one or more grades including kindergarten. Eleven percent of these students were receiving special services within the school, either in mathematics, reading, or speech.

The 7 participating schools ranged in population from 768 students to 1029 students. The population size of each school is noted in Table 2. This table also indicates the number of subjects from each of the 7 schools and the mean age of these subjects by school. Table 2 also lists the proportion of White to Black students in each school, the proportion of White to Black subjects by school, the number of parents participating in this study by school, the percentage of parents participating, and the proportion of White/Black parent participants. For the 1991-1992 school year, the Lafayette Parish School system consisted of 66.2% white students, 32.4% Black students, and 1.4% other students. The Louisiana public school system reports the following racial breakdown for the same time period, 52.9% White students, 44.5% Black students, and 2.6% other students.

The Lafayette Parish school system does not collect socioeconomic data on its students and none was solicited from the participants in this study. The census department of the Lafayette Parish School System reports each of the 7
Table 1

Means for Age, Standardized Test Scores, and Report Card Grades for 120 Subjects Distributed by Race and Sex

<table>
<thead>
<tr>
<th></th>
<th>Total (N=120)</th>
<th>White (n=60)</th>
<th>Black (n=60)</th>
<th>Male (n=60)</th>
<th>Female (n=60)</th>
</tr>
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<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10-2</td>
<td>10-2</td>
<td>10-7</td>
<td>10-8</td>
<td>10-3</td>
<td></td>
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<tr>
<td>CAT Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51.20%</td>
<td>59.52%</td>
<td>43.17%</td>
<td>47.87%</td>
<td>54.82%</td>
<td></td>
</tr>
<tr>
<td>CAT Math</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56.53%</td>
<td>64.28%</td>
<td>48.93%</td>
<td>53.67%</td>
<td>58.38%</td>
<td></td>
</tr>
<tr>
<td>CAT Language</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>58.53%</td>
<td>68.68%</td>
<td>48.38%</td>
<td>54.68%</td>
<td>62.38%</td>
<td></td>
</tr>
<tr>
<td>CAT Composite</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54.56%</td>
<td>64.06%</td>
<td>45.12%</td>
<td>50.57%</td>
<td>58.70%</td>
<td></td>
</tr>
<tr>
<td>Reading-Final</td>
<td>85.64</td>
<td>88.33</td>
<td>84.27</td>
<td>84.53</td>
<td>86.68</td>
</tr>
<tr>
<td>Math-Final</td>
<td>87.33</td>
<td>89.37</td>
<td>85.13</td>
<td>86.15</td>
<td>88.52</td>
</tr>
<tr>
<td>Language-Final</td>
<td>86.80</td>
<td>89.27</td>
<td>84.33</td>
<td>85.03</td>
<td>88.57</td>
</tr>
<tr>
<td>Reading 1</td>
<td>82.85</td>
<td>85.88</td>
<td>81.14</td>
<td>81.98</td>
<td>86.51</td>
</tr>
<tr>
<td>Math 1</td>
<td>85.97</td>
<td>88.72</td>
<td>83.22</td>
<td>85.65</td>
<td>86.28</td>
</tr>
<tr>
<td>Language 1</td>
<td>87.30</td>
<td>89.33</td>
<td>85.25</td>
<td>86.10</td>
<td>88.52</td>
</tr>
<tr>
<td>Reading 2</td>
<td>84.53</td>
<td>86.85</td>
<td>82.17</td>
<td>83.49</td>
<td>86.73</td>
</tr>
<tr>
<td>Math 2</td>
<td>84.13</td>
<td>86.32</td>
<td>82.75</td>
<td>81.00</td>
<td>86.92</td>
</tr>
<tr>
<td>Language 2</td>
<td>88.38</td>
<td>90.12</td>
<td>86.65</td>
<td>87.68</td>
<td>89.17</td>
</tr>
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</table>
Table 2

Demographic Data of Schools

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td>School</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>951</td>
<td>21</td>
<td>10-1</td>
<td>122:824</td>
<td>3:18</td>
<td>14</td>
<td>(66.67%)</td>
<td>2:12</td>
</tr>
<tr>
<td>2</td>
<td>866</td>
<td>17</td>
<td>9-8</td>
<td>174:689</td>
<td>2:15</td>
<td>10</td>
<td>(58.82%)</td>
<td>0:10</td>
</tr>
<tr>
<td>3</td>
<td>725</td>
<td>13</td>
<td>10-1</td>
<td>548:172</td>
<td>11:2</td>
<td>7</td>
<td>(53.85%)</td>
<td>6:1</td>
</tr>
<tr>
<td>4</td>
<td>805</td>
<td>19</td>
<td>10-1</td>
<td>679:115</td>
<td>17:2</td>
<td>11</td>
<td>(57.89%)</td>
<td>11:0</td>
</tr>
<tr>
<td>5</td>
<td>1029</td>
<td>17</td>
<td>10-5</td>
<td>951:72</td>
<td>15:2</td>
<td>10</td>
<td>(58.82%)</td>
<td>10:0</td>
</tr>
<tr>
<td>6</td>
<td>768</td>
<td>4</td>
<td>10-2</td>
<td>695:27</td>
<td>3:1</td>
<td>1</td>
<td>(25.00%)</td>
<td>1:0</td>
</tr>
<tr>
<td>7</td>
<td>969</td>
<td>29</td>
<td>10-3</td>
<td>632:326</td>
<td>9:20</td>
<td>15</td>
<td>(51.72%)</td>
<td>5:10</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>10-2</td>
<td>3801:2225</td>
<td>60:60</td>
<td>68</td>
<td>(56.67%)</td>
<td>35:33</td>
<td></td>
</tr>
</tbody>
</table>

1 - population of each school
2 - number of subjects per school
3 - mean age of subjects per school
4 - proportion of White:Black students per school
5 - proportion of White:Black subjects per school
6 - number of parent participants per school
7 - percentage of parent participants per school
8 - proportion of White:Black parent participants per school
schools to be middle class with regard to socioeconomic status. No measures of health were obtained.

Of the 64 teachers approached to participate in this study, 4 declined, yielding a refusal rate of 6.25%. Consent forms were distributed to all students in participating classrooms. A total of 1642 student consent forms were distributed. Twenty-five percent or 410 forms were returned and signed by parents. From those consent forms returned and signed with parental consent, 2 students from each classroom were randomly selected to participate.

Fifty-two teachers completed questionnaires on 2 students in their classroom, 4 teachers completed questionnaires on 1 student in their classroom, and 4 teachers completed questionnaires on 3 students. There were 4 cases in which only 1 student from a particular classroom participated in the study. In one of these classrooms, only 1 consent form was returned. In the other 3 classrooms, a participating student was eliminated from the study because his/her school records did not contain complete academic data. There were 4 classrooms in which 3 students participated in this study. Each of these classrooms were in the seventh participating school. Since only 4 more subjects were needed to complete the data collection, a decision was made to randomly select these subjects from the returned consent forms. This decision was primarily made in an effort to complete data collection within a specified
time period, that is between the first and second report card periods.

Instruments

Two semi-structured interview type questionnaires, the Children's Depression Inventory (CDI) and the Bellevue Index of Depression (BID), were used with all subjects.

Children's Depression Inventory. The CDI consists of 27 items and is designed to assess overt depression in children aged 8-13. It includes statements regarding the presence of various feelings and ideas specific to depression (e.g., suicidal ideation, ability to concentrate on school work). Each item is presented via 3 alternative statements which are scored 0, 1, or 2, in direction of increasing psychopathology. The child selects the statement that best describes him/her over the past 2 weeks. Parent and teacher forms are also available. Scores range from 0 to 54, with a score of 19 indicating severe depression and a score of 12 indicating mild or moderate depression (Goldstein et al., 1985).

Adequate reliability has been documented on the CDI to support its usage for research purposes. High internal consistency has been documented by Helsel and Matson (1984; Cronbach's alpha = .89), Costello (1981; Cronbach's alpha = .86), and Saylor, Finch, Spirito, and Bennett (1984; Cronbach's alpha = .80 and .94). Test-retest reliability
varies. Saylor et al. (1984) found a reliability of .38 over a one-week period with normal children and a reliability of .87 over the same time period with emotionally disturbed children. Spanning a 6-week period, moderate to high significant test-retest correlations (r = .50 to .61) have been found by Kazdin, French, Unis, and Esveldt-Dawson (1983).

There is also validity evidence as demonstrated by Reynolds et al. (1985). The authors found a .55 correlation between CDI and clinician's ratings of depression. Additionally, the CDI has been demonstrated to satisfactorily distinguish clinical from non-clinical populations (Kazdin, Esveldt-Dawson, Unis, & Rancurello, 1983; Saylor et al., 1984).

**Bellevue Index of Depression.** The modified BID (Kazdin, French, Unis, & Esveldt-Dawson, 1983) is a self-report measure that assesses depression in prepubescent children, ages 6 to 13. Parent and teacher forms are also available. The BID consists of 27 items that pertain to depressive symptoms (e.g., sadness, crying, sleep habits, changes in appetite).

Symptoms are evaluated on a 5-point scale for severity (1 = no problem to 5 = very many problems) and a 3-point scale for duration (1 = problem originating within the past 2 weeks; 2 = problem existing since beginning of the current school year; 3 = problem existing longer than since the
beginning of the current school year). The teacher-report form consists of 21 items, eliminating items dealing with the child's sleep and eating habits and other items that teachers would not be expected to know. The BID yields a severity, duration, and total depression score. The BID Total depression score is the sum of the BID Severity and the BID Duration score. Total scores can range from 27 to 216. Depressed scores on BID-Total range from 96-102 according to Kazdin's research (Kazdin, Esveldt-Dawson, Unis, & Rancurello, 1983; Kazdin, French, Unis, & Esveldt-Dawson, 1983).

Petti (1983) reports high interrater and test-retest reliability for the BID. In a study involving a clinical preadolescent population, Kazdin, French, Unis, and Esveldt-Dawson (1983) found a .63 test-retest reliability over a 6-week period for the BID. Reynolds and Coats (cited in Reynolds, 1984) reported an internal consistency of .96 for the BID.

Validity data is offered by Kazdin, Esveldt-Dawson, Unis, and Rancurello (1983). They report significant, although modest, correlations demonstrating convergent validity between different raters (r = .27 for mother-child; r = .41 for father-child). These authors also demonstrate discriminant validity, in that the obtained BID validity coefficients are higher than correlation coefficients.
involving a different trait (aggression) when completed by the same raters.

**Data Sheet.** Academic data was obtained from the students' cumulative records. Data used included 1990-1991 California Achievement Test percentiles, 1990-1991 final grades, and 1991-1992 grades from the first and second report card periods. This data was retrieved from cumulative records by the researcher (see Appendix A).

**Procedure**

Approval to collect data in the Lafayette Parish school system was obtained from the superintendent of schools, assistant superintendent of curriculum and instruction, and the principals of the schools used in the present study. Written consent was obtained from the parents and teachers of students participating in the study (see Appendixes B and C). Oral permission was obtained from each child prior to participation. Children, teachers, and parents were interviewed within a 14 day time period. The order of administration of the two forms was counterbalanced.

Students were randomly selected and individually interviewed by the researcher using the child versions of the CDI and the modified BID (see Appendixes D and E). The items on each inventory were read aloud by the researcher and the student marked the appropriate responses. Total
time to complete both interviews was approximately 15-20 minutes.

Teachers completed the teacher's version of the CDI and the modified BID independently (see Appendixes F and G). Total time for completing both questionnaires was approximately 10-15 minutes.

Parents who agreed to participate in this study were contacted by telephone to schedule an appointment to complete the parent versions of the CDI and the modified BID (see Appendixes H and I). Parent interviews were conducted in the parents home or at their child's school. This interview session lasted approximately 20-30 minutes.

The school year in Lafayette is divided into 6 six-week segments. Data for this study was collected during the second six-week period of the 1991-1992 school year.
RESULTS

The means and standard deviations for the CDI, the BID-Total, BID-Severity, and the BID-Duration for each of the 3 informant groups are reported in Table 3. The child, teacher, and parent ratings across assessment scale are further subdivided by race.

Children consistently rated themselves higher on each of the depression inventories, including the BID-Severity and the BID-Duration scales, than did either teachers or parents. The parents' assessments more closely approximated the children's self-report scores. Teacher ratings of the children's depression were consistently lower than those of the children and the parents.

With regard to racial breakdowns, white children consistently rated themselves as more depressed than black children. The difference between the means was significant on the child's BID-Total ($t(118) = 2.76, p<.01$) and the child's BID-Duration ($t(118) = 3.4, p<.01$). One would suspect that a finding of a significant racial difference on the BID-Total would also lead to a finding of a significant difference on the child's CDI, but this is not the case. This makes the significant BID-Total questionable and suggests that the results may be a function of the format of the BID.
Table 3

Means of Depression by Informant including a Racial Breakdown

<table>
<thead>
<tr>
<th>Informant</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child</td>
<td>7.6</td>
<td>6.9</td>
<td>5.4</td>
<td>6.3</td>
<td>7.0</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>(N=120)</td>
<td></td>
<td>(N=120)</td>
<td></td>
<td>(N=68)</td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>7.7</td>
<td>8.0</td>
<td>5.2</td>
<td>7.2</td>
<td>7.1</td>
<td>5.3</td>
</tr>
<tr>
<td>Parent</td>
<td>7.5</td>
<td>5.8</td>
<td>5.6</td>
<td>5.4</td>
<td>6.9</td>
<td>5.6</td>
</tr>
</tbody>
</table>

CDI

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHITE</td>
<td>7.7</td>
<td>8.0</td>
<td>5.2</td>
<td>7.2</td>
<td>7.1</td>
<td>5.3</td>
</tr>
<tr>
<td>BLACK</td>
<td>7.5</td>
<td>5.8</td>
<td>5.6</td>
<td>5.4</td>
<td>6.9</td>
<td>5.6</td>
</tr>
</tbody>
</table>

BID-TOTAL

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHITE</td>
<td>77.0</td>
<td>32.8</td>
<td>53.3</td>
<td>27.5</td>
<td>68.8</td>
<td>33.4</td>
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<tr>
<td>BLACK</td>
<td>70.5</td>
<td>27.8</td>
<td>53.4</td>
<td>21.6</td>
<td>61.4</td>
<td>30.0</td>
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</tbody>
</table>

BID-SEVERITY

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHITE</td>
<td>50.7</td>
<td>18.3</td>
<td>39.7</td>
<td>14.2</td>
<td>44.9</td>
<td>15.5</td>
</tr>
<tr>
<td>BLACK</td>
<td>48.1</td>
<td>14.9</td>
<td>39.6</td>
<td>11.9</td>
<td>42.7</td>
<td>16.1</td>
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</table>

BID-DURATION

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
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<tr>
<td>WHITE</td>
<td>26.3</td>
<td>15.9</td>
<td>13.5</td>
<td>13.6</td>
<td>23.9</td>
<td>18.4</td>
</tr>
<tr>
<td>BLACK</td>
<td>22.4</td>
<td>13.6</td>
<td>13.8</td>
<td>10.5</td>
<td>18.7</td>
<td>14.8</td>
</tr>
</tbody>
</table>
Teachers rated black children as slightly more depressed than white children. However, none of these differences were statistically significant. Parents rated white children as more depressed than black children. The difference on parent ratings was statistically significant for the parent BID-Duration ($t(66) = 2.96, p<.01$) and the BID-Total ($t(66) = 2.82, p<.01$). The differences in overall depression ratings between white and black children was small and generally not significant.

Interrelationships of Depression, Informant and Race with Child and Teacher Data

A series of 2-way ANOVAs was conducted on the CDI, BID-Total, BID-Severity, and BID-Duration scores separately to directly examine the question of whether the child self-report and teacher report assessments differ from one another and across race. Results of each of these ANOVAs was identical, indicating that informant was a significant variable at the .01 level, while race, and the informant by race interaction were not significant (see Table 4).

Subsequently a 3-way ANOVA was conducted to determine the effect of informants (child and teacher) by race by assessment scale, using the CDI and the BID-Total. The ANOVA yielded significant main effects for both informant ($F(1,118) = 42.81, p<.01$) and assessment scale ($F(1,118) = 1224.67, p<.01$), but not for race ($F(1,118) = 0.39, \text{ ns}$).
Table 4

**Two-way ANOVAS: Informant (Child-Teacher) by Race**

<table>
<thead>
<tr>
<th>Scale</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI - Race</td>
<td>0.01</td>
</tr>
<tr>
<td>Informant</td>
<td>12.69**</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>0.26</td>
</tr>
<tr>
<td>BID-Severity</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>0.38</td>
</tr>
<tr>
<td>Informant</td>
<td>36.82**</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>0.59</td>
</tr>
<tr>
<td>BID-Duration</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>0.90</td>
</tr>
<tr>
<td>Informant</td>
<td>46.79**</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>1.75</td>
</tr>
<tr>
<td>BID-Total</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>0.62</td>
</tr>
<tr>
<td>Informant</td>
<td>45.29**</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>1.18</td>
</tr>
</tbody>
</table>

* p<.05. ** p<.01.
The mean for child-informants differs from the mean for
child-teacher-informants. The means for the CDI depression
scale differs from the obtained mean for the BID-Total
depression scale. The interaction between informant and
assessment scale was significant ($F(1,1) = 45.91, p<.01$).
This significant interaction indicates that the children and
their teachers respond to the depression rating scales in
different ways.

Because the CDI and BID are scored on different
measurement scales, the raw scores were transformed in order
to equate these measurement scales. Each item on the CDI is
scored 0, 1, or 2, while each item on the BID is scored from
1 to 8. For the CDI and BID-Total scales to be equated the
0 score on the CDI was made equal to the 1 score on the BID,
the 1 on the CDI was made equal to 4.5 on the BID, and a
score of 2 on the CDI was made equal to a score of 8 on the
BID. When an analysis involved comparison of items on the
CDI (0,1,2) to items on the BID-Severity scale (1,2,3,4,5)
or the BID-Duration scale (1,2,3), additional
transformations were carried out to equate the scales. A
detailed description of these transformations is available
in Appendix J.

The teacher form of the BID has only 21 items, while
the child and parent forms contain 27 items. A conversion
was also conducted to make these scales equivalent. The
method for achieving this is also described in Appendix J.
The means for the CDI, the BID-Total, BID-Severity, and the BID-Duration scores in their original form were presented in Table 3. Transformed mean scores and transformed standard deviations are presented in Appendix K.

Using these transformed scores, a second three-way ANOVA was conducted assessing informant (child versus teacher) by depression assessment scale (CDI versus BID-Total) by race (Black versus White). The ANOVA yielded significant main effects for both informant ($F(1,118) = 35.56, p < .01$) and assessment scale ($F(1,118) = 135.24, p < .01$), but not for race ($F(1,118) = 0.14, ns$). This indicates that the means for the children differs from the mean scores obtained by teachers, the mean scores on the CDI also differ from the mean scores on the BID-Total. The interaction between informant and assessment scale was significant ($F(1,118) = 28.20, p < .01$) suggesting that the main effects of the 2 independent variables (informant and scale) is not the same across levels (see Table 5).

Figure 1 illustrates the significant interaction. As can be seen, the effects of child and teacher vary across the two scales. Self-report ratings of depression were higher than teacher ratings across both measures. The analyses of the simple effects indicates that there is a statistically significant ($p < .001$) difference between the scale scores for the CDI and the BID-Total for each
Table 5

Three-way ANOVA: Scale by Informant (Child-Teacher) by Race using Transformed Data

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td>1</td>
<td>22647.25</td>
<td>135.24**</td>
</tr>
<tr>
<td>Informant</td>
<td>1</td>
<td>23785.75</td>
<td>35.56**</td>
</tr>
<tr>
<td>Race</td>
<td>1</td>
<td>226.38</td>
<td>0.14</td>
</tr>
<tr>
<td>Scale x Informant</td>
<td>1</td>
<td>4749.76</td>
<td>28.20**</td>
</tr>
<tr>
<td>Scale x Race</td>
<td>1</td>
<td>393.57</td>
<td>2.35</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>1</td>
<td>561.94</td>
<td>0.84</td>
</tr>
<tr>
<td>Scale x Informant x Race</td>
<td>1</td>
<td>141.22</td>
<td>0.84</td>
</tr>
</tbody>
</table>

*p<.05.  **p<.01.
Figure 1
Relationship Between Informant (Child-Teacher) on CDI and BID as Indicated by Mean Transformed Scores
informant group. Simple effects tests also indicate a statistically significant (p<.001) difference between the children and the teachers for each assessment scale. Additionally, the BID appears to yield higher ratings of depression than CDI. Finally, visual inspection of Figure 1 indicates that children's ratings of their own depression were higher for the BID scale with a mean difference of 4.5 points between the two scales. Teachers showed much less change between the two scales with a mean difference of 3.7.

A third additional 3-way ANOVA was run, but this time variables for depression scale included the BID-Severity, BID-Duration and CDI scores. This additional ANOVA was conducted to evaluate whether or not use of the BID-Total score might be masking subtle differences between groups, particularly with regard to race. The results are similar to the previous 3-way ANOVA, indicating that scale (F(2, 236) = 238.36, p<.01) and informant (F(1, 118) = 36.51, p<.01) and the interaction between scale and informant are significant (F(2, 236) = 20.05, p<.01), but race (F(1, 118) = 0.37, ns) and interactions involving race are not significant. These results suggest that the BID-Total score was not masking possible racial differences.
The sample of parent participants totaled 68, as compared to 120 child and teacher participants. A nonparametric chi square was used to assess whether the frequency of the obtained parent participants was a good fit to the expected frequency of parent participants. The computed chi-square ($\chi^2 = 17.57$) exceeds the critical value at the .01 level, suggesting that the obtained frequency of parent participants is not within the range of random fluctuations of the expected frequency. Therefore, this data is not considered a good fit. The differences in the obtained and expected frequencies are too great to be attributed to sampling fluctuation.

Subsequently, data from the 68 children whose teachers and parents both participated in this study were analyzed as a subsample of the total data to directly assess the effects of child-report versus teacher-report versus parent-report of depression on the two assessment scales. These 68 children had a mean age of 10 years 5 months. They included 35 White students, with a mean age of 10 years 1 month, and 33 Black students with a mean age of 10 years 9 months. This subsample consisted of 35 males and 33 females.

The mean scores for this subsample across assessment inventory and racial categories are presented in Table 6. Transformed data are presented in Appendix L. A series of
Table 6

Mean Scores on Assessment Scales by Informant and Race for the Child, Teacher, and Parent Data

<table>
<thead>
<tr>
<th></th>
<th>Child (n=68)</th>
<th>Teacher (n=68)</th>
<th>Parent (n=68)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>Mean  SD</td>
</tr>
<tr>
<td>CDI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHITE</td>
<td>6.6  6.7</td>
<td>5.8  7.0</td>
<td>7.1  5.3</td>
</tr>
<tr>
<td>BLACK</td>
<td>6.8  5.0</td>
<td>5.2  4.8</td>
<td>6.9  5.8</td>
</tr>
<tr>
<td>BID-TOTAL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHITE</td>
<td>73.3  27.8</td>
<td>41.6  21.0</td>
<td>68.8  33.4</td>
</tr>
<tr>
<td>BLACK</td>
<td>70.3  25.7</td>
<td>53.0  22.6</td>
<td>61.4  30.0</td>
</tr>
<tr>
<td>BID-SEVERITY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHITE</td>
<td>47.7  15.5</td>
<td>30.8  10.4</td>
<td>44.9  15.5</td>
</tr>
<tr>
<td>BLACK</td>
<td>48.0  14.0</td>
<td>39.2  12.0</td>
<td>42.7  16.1</td>
</tr>
<tr>
<td>BID-DURATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHITE</td>
<td>25.5  14.3</td>
<td>10.8  10.8</td>
<td>23.9  18.4</td>
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<tr>
<td>BLACK</td>
<td>22.3  12.7</td>
<td>13.7  11.2</td>
<td>18.7  14.8</td>
</tr>
</tbody>
</table>
t-tests were run to determine the differences between the means for the children and parent groups of N=120 and the subsample of children and parent groups with an N=68. No significant differences were found between the child group (N=120) and the child subsample (N=68) on the CDI, BID-Total, BID-Severity, and the BID-Duration. No significant differences were found between the teacher group (N=120) and the teacher subsample (N=68) on the CDI, BID-Total, BID-Severity, and the BID-Duration.

It should be noted from Table 6 that, in general, children in the subsample rated themselves as more depressed than did either teachers or parents. The one exception to this was the parent rating of depression on the CDI which was 7.0 as compared to the child's CDI rating of 6.9. It should also be noted that parents rated their children as more depressed than the teachers rated the same children.

A series of t-tests were run to assess possible racial differences between mean scores for each informant group and for each assessment scale. For the children's ratings of depression, the only significant difference between mean scores was noted on the BID-Duration scale ($t(118) = 2.52$, $p < .05$). The teachers' ratings indicated significant differences between mean scores for black and white children on the BID-Total ($t(118) = 23.26$, $p < .01$), the BID-Severity ($t(118) = 22.28$, $p < .01$), and the BID-Duration ($t(118) = -3.02$, $p < .01$). The parent ratings yielded significant
differences between white and black children's scores on the BID-Total ($t(66) = 2.82, p<.01$) and the BID-Duration ($t(66) = 2.96, p<.01$). It appears that racial differences are more likely to be indicated when using the BID rather than with the CDI.

Initially a series of 2-way ANOVAs was run to look at the differences between informant (child-teacher-parent) by race. Results of the ANOVAs on the BID-Severity, BID-Duration, and BID-Total were identical with informant being a significant variable and the effects of race being non-significant (see Table 7). The 2-way ANOVA for the CDI indicated slightly different results. The effects of informant on the CDI were not significant. One possible explanation for this variation may have something to do with the parent population having rated their children as more depressed on the CDI than they rated their children on the BID.

The results of the 3-way ANOVA looking at the effects of informant (child, teacher, and parent) by scale (CDI and BID-Total) by race are the same as found on the 3-way ANOVA with only teacher and child as informant. The ANOVA yielded significant main effects for both informant ($F(2,132) = 10.05, p<.01$) and the assessment scale ($F(1,66) = 714.62, p<.01$), but not for race ($F(1,66) = 0.45, ns$). The means for the two depression scales differ from one another. Also the means for the 3 informant groups differ significantly
Table 7

Two-way ANOVAs: Informant (Child-Teacher-Parent) by Race

<table>
<thead>
<tr>
<th>Scale</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>0.04</td>
</tr>
<tr>
<td>Informant</td>
<td>1.90</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>0.15</td>
</tr>
<tr>
<td>BID-Severity</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>0.10</td>
</tr>
<tr>
<td>Informant</td>
<td>8.31**</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>0.17</td>
</tr>
<tr>
<td>BID-Duration</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>1.31</td>
</tr>
<tr>
<td>Informant</td>
<td>13.60**</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>0.79</td>
</tr>
<tr>
<td>BID-Total</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>0.56</td>
</tr>
<tr>
<td>Informant</td>
<td>11.61**</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>0.37</td>
</tr>
</tbody>
</table>

*p < .05.  **p < .01.
from one another. The interaction between informant and assessment scale was significant ($F(2,132) = 13.22$, $p < .01$). This significant interaction indicates that the children, their teachers, and their parents respond to the depression rating scales in different ways.

Raw scores on the depression inventories were transformed in the same manner as described previously for the child-teacher data. A 3-way ANOVA analyzing scale (BID-Severity, BID-Duration, CDI) by informant (child-teacher-parent) by race was conducted. Again this 3-way ANOVA yielded significant main effects for both informant ($F(2,132) = 8.39$, $p < .01$), scale ($F(2,132) = 172.82$, $p < .01$), and the interaction between scale and informant ($F(4,264) = 10.72$, $p < .01$). The effect of race ($F(1,66) = 0.38$, ns) and interactions involving race were not significant (see Table 8).

Figure 2 illustrates the significant interaction between the informants and assessment scales. The ratings of child, teacher, and parent vary across the two assessment scales. Self-report, teacher-report, and parent-report ratings of depression were similar on the CDI. Self-report ratings of depression were higher than teacher-report or parent-report ratings. The analyses of the simple effects across assessment scales indicates a significant difference ($p < .01$) for the BID across informants. No significant differences between informants was found for the CDI. The
Table 8

Three-way ANOVA: Scale by Informant (Child-Teacher-Parent) by Race Using Transformed Data

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td>2</td>
<td>20701.73</td>
<td>172.82**</td>
</tr>
<tr>
<td>Informant</td>
<td>2</td>
<td>4071.71</td>
<td>8.39**</td>
</tr>
<tr>
<td>Race</td>
<td>1</td>
<td>494.08</td>
<td>0.38</td>
</tr>
<tr>
<td>Scale x Informant</td>
<td>4</td>
<td>686.35</td>
<td>10.72**</td>
</tr>
<tr>
<td>Scale x Race</td>
<td>2</td>
<td>180.56</td>
<td>1.51</td>
</tr>
<tr>
<td>Informant x Race</td>
<td>2</td>
<td>48.43</td>
<td>0.10</td>
</tr>
<tr>
<td>Scale x Informant x Race</td>
<td>4</td>
<td>61.24</td>
<td>0.96</td>
</tr>
</tbody>
</table>

*p<.05.  **p<.01.
Figure 2

Relationships Between Informants (Child-Teacher-Parent) on CDI and BID-Total as Indicated by Mean Transformed Scores
analysis of the simple effects by informant indicate that each is significant across assessment scales at the $p < .01$ level. Parent ratings on the CDI and BID-Total were more consistent with one another indicating only a 2.8 difference between the scores. Child ratings on the CDI and BID-Total indicated a 5.1 difference between the scores, while teacher ratings on the two assessment scales evidenced a difference of 11.7 points.

Correlational Data

Correlational data was computed to assess the relationship between informants on the different depression inventories. Zero-order correlations and intraclass correlations are reported in Table 9. It is noteworthy that overall informant correlation coefficients are most highly correlated within informant group, i.e., the CHCDI-CHBID ($r = .72$, $p < .01$), TCDI-TBID ($r = .81$, $p < .01$), and the PCDI-PBID ($r = .79$, $p < .01$). Across informant groups the teacher and child ratings ($r = .21$ to .48) as well as the teacher and parent ratings ($r = .31$ to .48) fell in the low to moderate range. Parent and child ratings correlated somewhat lower, falling in the $r = .12$ to .37 range. This indicates that depression ratings obtained on different rating scales but within the same informant group provide more reliable results than do depression ratings obtained across informant groups.
Table 9

Zero-order Correlations and Intraclass Correlations for Depression Scales

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
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<td>.31**</td>
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<td>.33**</td>
<td>.73**</td>
<td>.98**</td>
<td>.91**</td>
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* p < .05.  ** p < .01.

Note.  CATC = CAT Composite, CATR = CAT reading, CATM = CAT math,
CATL = CAT language, READF = final reading score, MATHF = final
math score, LANGF = final language score, FINAL = final grade
average, READ1 = first report card grade in reading, MATH1 =
first report card grade in math, LANG1 = first report card grade
in language, GRAVG1 = grade average for first report card period,
READ2 = second report card grade in reading, MATH2 = second
report card grade in math, LANG2 = second report card grade in
language, GRAVG2 = grade average for second report card period.
Intraclass correlations were computed to assess the relation between the self-report measures, teacher-report, and parent-report measures. This information is also reported in Table 9. All of the measures of inter-rater agreement between CDI and BID-Total were positive and significant, with one exception being the parent BID-Total and teacher BID-Total (r = .12). Interrater correlations between child and teacher on the CDI and the BID-Total were higher than correlations between children and parents on the same 2 assessment scales. Correlations between teachers and parents were higher than correlations between children and parents, but not as high as correlations obtained between children and teachers.

Interrelationships between Academic Variables and Depression

Several academic measures were studied to determine if they could be used as predictor variables with regard to the children's scores on the CDI and the BID. These academic measures included standardized test scores on the California Achievement Test (CAT), final grades from the prior academic year in reading, language, and math, and report card grades in reading, language, and math from the first and second report card period of the current school year. Correlations between these variables and depression ratings are presented in Table 10.
Table 10

Zero-order Correlations for Depression Scores and Academic Variables

<table>
<thead>
<tr>
<th></th>
<th>CHCDI (N=120)</th>
<th>CHBID (N=120)</th>
<th>TCDI (N=120)</th>
<th>TBID (N=120)</th>
<th>PCDI (N=68)</th>
<th>PBID (N=68)</th>
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<td>-.14</td>
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<td>.04</td>
</tr>
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<td>-.15</td>
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<td>.01</td>
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<td>-.29**</td>
<td>-.21*</td>
<td>-.13</td>
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<td>-.25**</td>
<td>-.27**</td>
<td>.00</td>
<td>-.02</td>
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<td>-.01</td>
<td>-.16</td>
<td>-.21*</td>
<td>-.22**</td>
<td>-.08</td>
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<td>-.29**</td>
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<td>-.08</td>
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<td>-.13</td>
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<td>-.35**</td>
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<td>GRAVG2</td>
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<td>-.15</td>
<td>-.41**</td>
<td>-.43**</td>
<td>-.09</td>
<td>-.03</td>
</tr>
</tbody>
</table>

Note. CHCDI = Child CDI, CHBIDT = Child BID-Total, CHBIDS = Child BID-Severity, CHBIDD = Child BID-Duration, TCDI = Teacher CDI, TBIDT = Teacher BID-Total, TBIDS = Teacher BID-Severity, TBIDD = Teacher BID-Duration, PCDI = Parent CDI, PBIDT = Parent BID-Total, PBIDS = Parent BID-Severity, PBIDD = Parent BID-Duration

Note. Intraclass correlations appear in parentheses.
Several findings are noteworthy. In general, the correlations indicate that the children who were rated highly on the depression rating scales have lower academic scores on both standardized and nonstandardized measures. With regard to final grade scores, a negative correlation was noted across informants and grades with 2 exceptions, CHCDI and CHBID-READF (r = .04 and .06, ns) and CHCDI and CHBID-LANGF (r = .02 and .01, ns). The grades from the first report card period are consistently and negatively correlated with depression. The teacher CDI in reading and language and the teacher BID in reading, language, and math are significantly and negatively correlated. The grades from the second report card period are also consistently negatively correlated with one exception, the PBID-MATH2 (r = .02, ns). Again the teacher CDI and teacher BID were significantly and negatively correlated with each of the academic areas. The parent CDI was significantly and negatively correlated with the language score. The child's CDI and BID were significantly negatively correlated in reading and the child's CDI was also significant in math (r = .18, p<.05). In general, significant negative correlations were obtained on the teacher CDI and the teacher BID across all areas, with 2 exceptions, TCDI-READF (r = -.16, ns) and TCDI-MATH1 (r = -.16, ns).

Looking at the standardized academic scores obtained on the CAT, one can see that the correlations are generally
negative with a few exceptions. These exceptions are correlations which fall in the .00 to .10 range. The parent ratings on the BID have little to no correlation with the standardized scores. The teacher ratings with both the CDI and the BID were more highly negatively correlated with the standardized scores than were children's and parents' ratings, although the teacher CDI and teacher BID correlations with CAT language score were the only ones to be significant.

The standardized scores were incorporated in this study in order to include an objective measure of academic performance. This objective measure correlated very little with the measures of depression across informants. The one exception to this being the significant negative correlation obtained by teacher ratings on the CDI and BID with CAT language scores. This suggests that this objective measure is not useful as an indicator of depression. This is not necessarily an indication of the objective nature of the test but probably more an indicator of the fact that the test is not teacher-generated. Most significant correlations were obtained from teacher-generated measures. Report card grades and ratings on the assessment scales both generated by the same source, the teacher, were the most significant.

An inspection of the data in Table 10 also shows that the correlation coefficient for GRAVG2 is higher than the
correlation coefficient for either GRAVG1 or FINAL on the TCDI and the TBID. Further analyses were conducted to determine which of the academic variables obtained from report card grades, if any, could be used to predict depression using teacher as informant. The conclusion is that, in this population, the correlation coefficient between the academic variables and the depression ratings by teachers are not equal at the .05 level. GRAVG2 is a better predictor of depression than GRAVG 1 or FINAL. Children and parent correlation coefficients were not examined in this manner because their correlations were not generally significant.

In the following regression analyses the CAT Composite was used to represent the CAT Reading, CAT Language, and CAT Math scores. The final report card grade average was entered to represent the final grades in reading, language, and math. Grade averages were also used to represent first and second report card grades in reading, language, and math. The CAT Composite and grade averages were used because correlation coefficients between the individual scores within each area correlated highly with one another. An attempt was made to identify predictor variables that are highly correlated with the criterion variable, that account for different proportions of the variance in the criterion variables, and have low correlations among themselves. In order to use variables that meet these criteria, the number
of predictor variables was limited by the procedure mentioned above.

The relationship between the depression rating scales and academic variables was further assessed via four simultaneous multiple regression analyses. One analysis was completed for each criterion measure (CHCDI, CHBID, TCDI, TBID). For each depression measure, the following predictor variables were used: 1) the CAT Composite score, 2) the final grade averages in reading, language, and math from the previous school year, 3) the first report card grade averages in reading, language, and math, and 4) the second report card grade averages in reading, language, and math. Beta weights, multiple R, and R squared for each regression are reported in Table 11. With the exception of CHBID, the overall R squared for the academic measures' prediction of depression scale was significant. The only single predictor to emerge as significant across scales in the simultaneous solution was GRAVG2. The CATC score on the TBID was the only exception to this trend.
### Table 11

**Simultaneous Regressions Predicting Depression**

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<th>R squared</th>
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*P<.05. **P<.01.

**Note.** Abbreviations are the same as in Table 10.
DISCUSSION

Obtaining reliable information between sources is particularly important when conducting child evaluations. Children are rarely in a position to be the sole providers of personal, factual, or other relevant information deemed necessary during the assessment process. The reason that children are not sole providers of information is directly related to their emotional level of development, cognitive limitations, age-related restrictions, and possible hesitancy to discuss their problems. One of the purposes of this study was to contribute additional empirical support toward the issue of interinformant reliability as it is directly related to childhood depression.

Confirming previous research in the area of interinformant variability, the data collected in this study within informant groups was more highly related on each of the two assessment scales than was data across informant groups on the same assessment scales. This is to say that the child's self-report ratings of depression on the CDI and BID correlated more highly with one another than did the child's self-report ratings of depression with either parent-report ratings or teacher-report ratings. The same generality applies to the data collected from the teachers and parents in this study, in that ratings of depression
were more highly correlated within informant groups than across informant groups.

Information obtained from both teacher and parent groups evidenced higher correlations between the two assessment scales than did information provided by the children. This stronger relationship in the teachers and the parents ratings may simply be a reflection of adult maturity, in that the adults might have been more consistent in their responses across inventories, noting that certain symptoms do overlap the two assessment scales. These higher correlations might also be a reflection of the child's having experienced difficulties in understanding and coping with the format of the inventories, particularly the BID. The presentation of the CDI and the BID differ. With the CDI the informant selects one of three sentence choices per item throughout the scale. With the BID the informant selects either one or two responses per item depending on the severity of a particular symptom. Because of the number of possible item choices on the BID, there is more room for confusion on the part of the informant, especially when the informant is a child.

These current findings are the first to report statistically significant, although moderate, interinformant relationships between teachers and a preadolescent population, in which both informant groups completed the same assessment scales. Previous studies have corroborated
this finding of significant correlations between normal adolescents and teachers (Matson & Niemenen, 1987) and
normal preschool children and their teachers (Kashani et al., 1986). Significant correlations have also been
documented between normal elementary school children and
their teachers (Reynolds et al., 1985), although in this study the teachers did not complete an assessment scale, but
instead assigned each child a "rating" of depression. Subjective ratings of this nature do not lend themselves to validation.

This study also reports statistically significant correlations between children and their parents using the
same depression inventories. Although significant, these correlations fell in the low to moderate range and were
somewhat lower than correlations obtained between children and their teachers. Slotkin et al (1988) reported
significant moderate correlations between adolescents and
their parents on the CDI. Kazdin's results with
preadolescent children and parents suggested poor
interinformant reliability on the CDI and the BID (Kazdin, French, Unis, & Esveldt-Dawson, 1983; Kazdin, Esveldt-
Dawson, Unis, & Rancurello, 1983). This present study
consistently noted slightly higher interinformant correlations between children and their parents than
previous research studies, although these correlations were still in the low to moderate range.
One major implication of this research centers around the two informant groups which serve as secondary providers of information, teachers and parents. Teacher-report of depression was more highly correlated with the child's self-reports of depression than were parent-reports of depression. Three studies have been found in the literature which involve children, teachers, and parents as informants (Fauber, et al., 1987; Kashani et al., 1986; Reynolds et al., 1985). Each of these studies reflected similar results in that the children's and the teacher's ratings of depression were more highly correlated than the children's and the parents' ratings. These studies covered various age groups from preschoolers to adolescents, and incorporated a variety of measures to assess depression. The results from this current research corroborate previous results. The primary difference between prior research and this study is the consistent use of the same assessment measures across informant groups.

According to Poznanski (1982), teachers report more reliable information than parents because parents find it difficult to be objective when reporting information about their children. Parents may also tend to minimize their children's problems, because of embarrassment or personal concerns. These moderate correlations found between children's and teachers' reports of depression, do confirm previous results suggesting that information obtained from
teachers can serve as an important part of a clinical or school evaluation.

One must also consider the implications surrounding the fact that the subjects in this current research were selected from within a normal population, whereas the children in many prior research studies were inpatients in clinical settings. Parents whose children have serious emotional and/or behavioral problems sufficient to require hospitalization are, in general, experiencing stress delineated by the fact that the family contains a problem child. These same families may experience elevated or depressed emotional levels, environmental or situational difficulties, strained family relationships, as well as numerous other difficulties that may have precipitated or postdated the family's current situation. All of these considerations may affect a parent's accuracy in relating information with regard to their child's symptomatology.

Children in this present study reported the highest levels of depression. Teachers reported lower levels of depression than the children and parents reported lower levels of depression than did the teachers. In evaluating these results one must consider the fact that children may indeed be the most accurate in assessing their own feelings and emotional states. One must also consider the possibly that children may tend to exaggerate their problems. Another consideration might be that teachers may
underestimate a child's difficulties because they are not aware of the child's cognitive, affective, and emotional responses.

Previous research which has examined depression ratings among children and their parents have had mixed results. One study found that parents rated their preadolescent inpatient children as more depressed than did the children themselves (Kazdin, Esveldt-Dawson, Unis, & Rancurello, 1983). Other studies found that parents rated their children lower on depression scales in a normal adolescent population (Slotkin et al., 1988) and in an outpatient population of preadolescents (Lobovits & Handal, 1985).

The parental participation rate in this study was 57 percent. Although this percentage appears somewhat low, the subsample population represented by these parents closely approximates the total population of subjects with regard to age, racial, and sex characteristics of the group. Certainly an 80-90 percentage of parent participation would have been deemed more successful. One reason to justify this low percentage stems from a lack of sufficient explanatory information provided in the consent forms. The consent form could have been more specific about what exactly would be required of each parent and the amount of time and effort involved. A larger number of parents were willing to consent for their child to participate, but choose not to participate themselves. This low percentage
of parent participation could have been avoided by not allowing parents the option of volunteering their child as a research subject without agreeing to participate themselves. Being aware of the difficulties of obtaining research subjects in applied research, the decision was made to give parents an either/or option.

With regard to interinformant reliability, we know that information obtained from adults on these childhood depression inventories yields correlations which show statistical significance, but not necessarily practical significance. For now it appears that information from a variety of sources is best in evaluating childhood depression and that this information should be melded together with other test data, behavioral observations, and data from other sources to formulate clinical impressions. At this time one cannot rely on depression inventories as a sole source alone in clinically diagnosing childhood depression.

Further research in this area needs to expand and continue to incorporate newly developed assessment inventories, such as Reynold's Child Depression Scale. Involvement of other assessment inventories is needed to explore feasibility as to whether or not these low to moderate correlations are inherent in specific depression inventories, the informant groups, or populations involved. It might be interesting to research the topic of
interinformant reliability in adult populations. Research with adults might have some correlations with the literature on childhood depression or it might suggest additional areas for study.

The second goal of this study was to explore the relationship between academics and depression and to investigate the feasibility of using academic variables as possible predictors of depression. The relationship between academic variables and depression has been hypothesized for a number of years. During the 1970s when the concept of "masked depression" was prevalent, school difficulties were earmarked as one of many signs of depression. As the concept of childhood depression evolved, the relationship between this disorder and academic difficulties remained an important one. This association between depression and low academic performance is consistent with the DSM-III-R criteria for a depressive disorder, which states that a person who is depressed is likely to experience difficulties in concentration and a lowered energy level, which would likely have a negative affect on a student's school performance.

A negative relationship between students' current academic grades and depressed mood was found in this study. The word "current" in this statement is used to emphasize the importance of the time frame in which both depressed mood and academic performance was assessed. The children
and their teachers completed the depression scales during the second report card period. Academic measures were assessed at the end of the prior school year and before and after data collection. Grade averages from the first and second report card periods have a stronger negative relationship with depression than did final grade averages or standardized scores, both of which were obtained at the end of the prior academic school year. This finding has practical significance in that it suggests that the relationship between depression and academics is a viable one.

All the significant findings between academic measures and depression involved information that was teacher-generated. This result makes sense because three of the four academic measures employed were obtained from report card grades, which are essentially teacher measures. This suggests that teachers may see depression as concomitant to poor academic grades, while children do not.

The only academic measure that was not teacher-generated was the standardized test score, and was not related to depressed mood at all. This lack of correspondence between depressed mood and the objective measure of academic assessment could suggest either of 3 things. First, it could suggest that because the objective, standardized measure shows no relationship with depressed mood that the objective measure is itself not a good one for
assessing academic performance. Secondly, if one prefers to assume that the objective measure is a better measure of academic performance than report card grades, than one might conclude that the relationship between academic performance and depressed mood is not an accurate one. Thirdly, one can assume that the objective measure did not correlate with depressed mood because of the time span between which the two measures were assessed.

This study does not tell us much with regard to the question of which came first, depressed mood or poor academic performance. However, one might speculate that the two are closely intertwined and cannot be clearly separated. A long term study involving samples of clinically diagnosed depressed children might be useful in reaching conclusions in this area, particularly if these subjects have clearly defined precipitants to their depression.

The third goal of this investigation was to explore possible racial differences in depression with a preadolescent population. This study was the first to systematically look at racial differences in depressed preadolescent children. No differences were found between black and white students on the CDI and the BID depression inventories. This data is consistent with the literature. Studies involving smaller samples (Kazdin, French, Unis, & Esveldt-Dawson, 1983; Kazdin, Esveldt-Dawson, Unis, & Rancurello, 1983) found no racial differences in this

These findings suggest that racial differences with depression may parallel the literature with regard to gender differences and depression. Generally gender differences are not noted until adolescence and they become even more outstanding during adulthood.
REFERENCES


APPENDIX A

PARENTAL CONSENT FORM
Dear Parents,

Your child's class has been selected to participate in a research study designed to assess various moods and feelings which children experience. The study will involve the individual administration of two questionnaires to participants in the study. These questionnaires have been reviewed and approved by the Lafayette Parish School Board and do not contain any questions which would be potentially embarrassing or threatening to your child or your family. These results will in no way affect your child's grades or the routine learning environment in his/her class. All questions will be coded after completion and your child will remain anonymous. His/Her name will not appear in print and no one will know his/her identity.

Participation in the study is voluntary. Although all children in your child's class will have an opportunity to participate in the study, your child cannot be considered a prospective participant without receipt of your written permission. Please read, sign and return the attached permission form to your child's teacher tomorrow.

Furthermore, if you would be interested in participating in the study by also completing similar questionnaires, please indicate this on the form. (You may give permission for your child to participate even if you are not interested in participating yourself.)

This research is being conducted by Lesley Stabinsky Compton, M.S. and is being supervised by Dr. Johnny Matson, Louisiana State University, Baton Rouge, LA 70803 (Phone 504-388-8745)

Thank you.
PARENTAL PERMISSION
FOR PARTICIPATION OF MINOR CHILD

I, ____________________________, hereby agree to permit my child __________________________ to participate in the "Assessment of Children's Moods & Feelings" research study being conducted in Lafayette Parish Schools. I understand that my child's participation includes responding to two questionnaires which will be individually administered by approved personnel. Data will also be collected from my child's records concerning grades and standardized test scores. The questionnaires do not contain information potentially embarrassing or threatening to my family. Furthermore, my child's identity will remain anonymous once data is collected and the results will in no way affect my child's grades or interfere with the routine learning environment in his/her class.

Being in the study is completely voluntary. You may choose to discontinue participation at any time.

__________________________  __________________________
Parent or Guardian                        Date

--- --- --- --- --- --- --- --- ---
PARENTAL INTEREST IN PARTICIPATING IN RESEARCH STUDY

I, ____________________________, am interested in participating in the "Assessment of Children's Moods & Feelings" research study.

Phone: ____________________________ (Home)
__________________________ (Work)

The best time to reach me is ____________________________
Day, Time
"Assessment of Children's Moods & Feelings"

TEACHER CONSENT FORM

This study is designed to assess various moods and feelings which children experience. The study will involved completion of two (2) checklists on each of two (2) children in your classroom. Total time required will be approximately 20 minutes.

Children who participate in this study will do so only after written consent from his/her parent is obtained.

This research is being conducted by Lesley Stabinsky Compton, M.S. and is being supervised by Dr. Johnny Matson, Louisiana State University, Baton Rouge, LA 70803 (Phone 504-388-8745)

I HAVE READ AND UNDERSTAND THIS FORM AND AGREE TO TAKE PART IN THIS STUDY.

________________________________________________________________________

Signature                                                   Date

Please return this form today or tomorrow to the box labeled LSU in the teacher's lounge.

--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

YOUR PARTICIPATION QUALIFIES YOU FOR A CHANCE TO WIN A $50.00 GIFT CERTIFICATE FOR ACADIANA MALL

Name:_____________________________________________________

School:__________________________  Room #:________

Name:_____________________________________________________

School:__________________________  Room #:________
APPENDIX C

CHILDREN'S DEPRESSION INVENTORY: STUDENT FORM
PLEASE NOTE

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132-137
139-141
143-145

University Microfilms International
APPENDIX D

BELLEVUE INDEX OF DEPRESSION: STUDENT FORM
<table>
<thead>
<tr>
<th>CAT:</th>
<th>Reading</th>
<th>Math</th>
<th>Language Arts</th>
<th>Composite</th>
<th>Percentile</th>
<th>Percentile</th>
<th>Percentile</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINAL GRADE:</td>
<td>Reading</td>
<td>Math</td>
<td>Language Arts</td>
<td>Conduct</td>
<td>Percentile</td>
<td>Percentile</td>
<td>Percentile</td>
<td>Percentile</td>
</tr>
</tbody>
</table>

### SCHOOL TERM 1991-1992

**1ST 6 WKS. GRADES:**

<table>
<thead>
<tr>
<th>Reading</th>
<th>Math</th>
<th>Language Arts</th>
<th>Conduct</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2ND 6 WKS.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

**Has student ever been retained?** Yes No What grade(s) ___

**Does child receive any special assistance?** Yes No Type ____

<table>
<thead>
<tr>
<th>BID:</th>
<th>Severity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CDI</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td>Parent</td>
<td>Teacher</td>
</tr>
</tbody>
</table>
APPENDIX H

CHILDREN'S DEPRESSION INVENTORY: PARENT FORM
PLEASE NOTE

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University Microfilms International
APPENDIX I

BELLEVUE INDEX OF DEPRESSION: PARENT FORM
APPENDIX J

EXPLANATION OF TRANSFORMATIONS
The CDI is a 3-point scale \((0,1,2)\), the BID-Severity is a 5-point scale \((1,2,3,4,5)\), and the BID-Duration is a 4-point scale \((0,1,2,3)\). First the CDI and BID-Duration scores were converted to have non-zero low points like the BID-Severity scale. That is, the CDI now ranges from 1 to 3 and the BID-Duration now ranges from 1 to 4.

Now, the least common denominator of 3, 4, and 5 (the number of scale points of the 3 scales) is 60. So, to compute the conversion, the following formula was used to equivocate the three scales.

\[
\text{LCD divided by Scale} \times \text{Old} \div 10
\]

\[
\text{LCD} = \text{Least Common Denominator (60)}
\]

\[
\text{Scale} = \text{Highest Scale Points}
\]

\[
\text{Old} = \text{Old Value}
\]

The equation was divided by 10. This was to keep the values from becoming astronomical. As it works out, the values now range from 1.2 to 6.0 instead of 12 to 60. For example, a score of 2 on the CDI (which is actually a score of 1) would convert to 4 \((60/3 = 20; 20 \times 2 = 40; 40/10 = 4)\). Below is a table of how everything worked out.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Original Value/Old Value</th>
<th>New Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0)</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>(1)</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>(2)</td>
<td>3</td>
<td>6.0</td>
</tr>
<tr>
<td>BID-Severity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>(2)</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>(3)</td>
<td>3</td>
<td>3.6</td>
</tr>
<tr>
<td>(4)</td>
<td>4</td>
<td>4.8</td>
</tr>
<tr>
<td>(5)</td>
<td>5</td>
<td>6.0</td>
</tr>
<tr>
<td>BID-Duration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0)</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>(1)</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>(2)</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>(3)</td>
<td>4</td>
<td>6.0</td>
</tr>
</tbody>
</table>

A final conversion was necessary because the teacher BID scale has only 21 items. This conversion was attained by dividing the total score on the scale by 21 then multiplying it by 27. Thus the scale was equivalent to the other 27 item scales.
APPENDIX K

TRANSFORMED MEAN SCORES OF DEPRESSION SCALES BY INFORMANT

INCLUDING A RACIAL BREAKDOWN
<table>
<thead>
<tr>
<th></th>
<th>Child (N=120)</th>
<th>Teacher (N=120)</th>
<th>Parent (N=68)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>CDI</td>
<td>69.2</td>
<td>13.8</td>
<td>64.8</td>
</tr>
<tr>
<td>WHITE</td>
<td>69.4</td>
<td>15.9</td>
<td>64.4</td>
</tr>
<tr>
<td>BLACK</td>
<td>69.0</td>
<td>11.6</td>
<td>65.2</td>
</tr>
<tr>
<td>BID-TOTAL</td>
<td>73.7</td>
<td>30.4</td>
<td>68.5</td>
</tr>
<tr>
<td>WHITE</td>
<td>77.0</td>
<td>32.8</td>
<td>68.5</td>
</tr>
<tr>
<td>BLACK</td>
<td>70.5</td>
<td>27.8</td>
<td>68.7</td>
</tr>
<tr>
<td>BID-SEVERITY</td>
<td>59.3</td>
<td>20.0</td>
<td>47.6</td>
</tr>
<tr>
<td>WHITE</td>
<td>60.8</td>
<td>22.0</td>
<td>47.7</td>
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<tr>
<td>BLACK</td>
<td>57.7</td>
<td>17.9</td>
<td>47.5</td>
</tr>
<tr>
<td>BID-DURATION</td>
<td>76.9</td>
<td>22.2</td>
<td>63.0</td>
</tr>
<tr>
<td>WHITE</td>
<td>79.9</td>
<td>23.9</td>
<td>63.0</td>
</tr>
<tr>
<td>BLACK</td>
<td>73.8</td>
<td>20.2</td>
<td>63.0</td>
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</table>
APPENDIX L

MEAN TRANSFORMED SCORES ON ASSESSMENT SCALES BY INFORMANT AND RACE FOR THE CHILD, TEACHER, AND PARENT DATA
<table>
<thead>
<tr>
<th></th>
<th>Child (n=68)</th>
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<th>Parent (n=68)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
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<td>CDI</td>
<td>7.4</td>
<td>11.8</td>
<td>65.0</td>
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<tr>
<td></td>
<td>WHITE 67.1</td>
<td>13.4</td>
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<td></td>
<td>BLACK 67.6</td>
<td>10.0</td>
<td>64.3</td>
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<tr>
<td>BID-TOTAL</td>
<td>72.5</td>
<td>27.2</td>
<td>53.3</td>
</tr>
<tr>
<td></td>
<td>WHITE 73.3</td>
<td>27.8</td>
<td>53.7</td>
</tr>
<tr>
<td></td>
<td>BLACK 70.3</td>
<td>25.7</td>
<td>53.0</td>
</tr>
<tr>
<td>BID-SEVERITY</td>
<td>57.5</td>
<td>17.6</td>
<td>47.4</td>
</tr>
<tr>
<td></td>
<td>WHITE 57.4</td>
<td>18.5</td>
<td>47.7</td>
</tr>
<tr>
<td></td>
<td>BLACK 57.6</td>
<td>16.8</td>
<td>47.1</td>
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<tr>
<td>BID-DURATION</td>
<td>76.4</td>
<td>20.1</td>
<td>63.6</td>
</tr>
<tr>
<td></td>
<td>WHITE 79.1</td>
<td>21.3</td>
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<tr>
<td></td>
<td>BLACK 73.6</td>
<td>18.5</td>
<td>63.2</td>
</tr>
</tbody>
</table>
Lesley Stabinsky Compton received her undergraduate degree in psychology from Louisiana State University in 1972. She went on to obtain a Masters degree in psychology in 1975 from the University of New Orleans. After completing her graduate studies at the Masters' level, Ms. Compton worked for several years as a psychological assistant in a state psychiatric hospital. Since that time she has worked as a chemical dependency counselor, school psychologist, and has also worked in private practice in the New Orleans area. Ms. Compton currently is completing her clinical internship at Colorado Mental Health Institute at Fort Logan in Denver, Colorado.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Lesley Stabinsky Compton

Major Field: Psychology

Title of Dissertation: Depressive Symptoms in Prepubertal Children

Approved:

[Signatures]

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

March 31, 1993