

Cognitive Self-appraisal and Depressive Symptomatology in
Children

by

Nancy E. Meyer

A thesis
presented to the University of Manitoba
in partial fulfillment of the
requirements for the degree of
Master of Arts
in
Department of Psychology.

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COGNITIVE SELF-APPRAISAL AND DEPRESSIVE SYMPTOMATOLOGY IN CHILDREN

BY

NANCY E. MEYER

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
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MASTER OF ARTS

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ABSTRACT

The present study examined differences in self-appraisal between relatively depressed and nondepressed school children in response to a performance task. Seventy-two children were classified as depressed or nondepressed on the basis of their scores on the Children's Depression Inventory (CDI) (Kovacs & Beck, 1977). Then, subjects were presented with modified Picture Arrangement problems from the WISC-R and self-appraisal questions about their performance. Three questions assessed their pre-task expectations, evaluations, and future expectations of their performance. Another three questions assessed their appraisal of their peers' performance. The results showed that the depressed group evaluated themselves less favorably than their peers on all three self-appraisal variables whereas the nondepressed group did not display this tendency. It is noteworthy that the depressed children made these unfavorable or negative self-appraisals despite similar performance and identical feedback given both groups. This pattern of social comparison results is similar to those found with depressed adults (Lobitz & Post, 1979) and extends aspects of Beck's (1967) cognitive model of depression to children.

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Cognitive Self-appraisal and Depressive Symptomatology in Children

In contrast to the abundance of research investigating adult depression, childhood depression is a relatively new area of investigation. Most of the research in the area has focused on conceptual and diagnostic issues: Is there such a syndrome as depression in children, what are its essential features, and is it similar to depression in adults? Recently, some resolution has emerged that depression in children exists and that its essential features are similar to those of adult depression with some additional developmentally appropriate features. This perspective is illustrated by the application of adult diagnostic criteria, the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) (American Psychological Association, 1980), for identifying depression in children. Investigators have also developed similar criteria for studying depression in children (e.g., Cytryn, McKnew, & Bunney, 1980; Kovacs & Beck, 1977).

Historical, Conceptual, and Diagnostic Issues

In order to define and clarify the concept of depression it is important to distinguish between depression as a symptom, depression as a syndrome, and depression as a disorder. Carlson and Cantwell (1980a) have clarified these distinctions for children and adults.

Depression as a symptom refers to a single symptom of sadness or dysphoric mood. Depression as a syndrome refers to a constellation of symptoms (i.e., sadness, self-deprecation, sleep disturbances) that regularly occur together. Depression as a disorder defines a characteristic clinical picture (i.e., onset, duration, response to treatment, family or biological correlates). Thus, the syndrome of depression refers to a constellation of symptoms whereas additional parameters determine its status as a clinical disorder as assessed by DSM-III. Although the present study meets the operational definition of a syndrome, it may also be described as an investigation of depressive symptomatology. Depressive symptomatology is regarded as equivalent to a syndrome in operational terms but it is better suited to the non-clinical population used and the single measure of depression used.

Research has primarily focused on defining the syndrome of childhood depression by attempting to identify its particular characteristics and symptoms (Gittleman-Klein, 1977). This research has primarily been conducted with clinical populations (Carlson & Cantwell, 1980a, 1980b; Cytryn et al., 1980; Cytryn & McKnew, 1972, 1974; Frommer, 1968; Glasser, 1968; Kovacs & Beck, 1977; Ling, Ofetdal, & Weinberg, 1970; Toolan, 1962; Weinberg, Rutman, Sullivan, Penick, & Dietz, 1973), although a number of studies have examined the features of depression in school

populations (Friedman & Butler, 1979; Jacobsen, Lahey, & Strauss, 1983; Kaslow, Rehm, & Siegel, 1984; Lefkowitz & Tesiny, 1980, 1985; Leon, Kendall, & Garber, 1980; Moyal, 1977).

A review of the literature suggests two views of childhood depression. One view is that childhood depression is similar to the adult syndrome with some additional developmentally appropriate features (Carlson & Cantwell, 1980b; Cytryn et al., 1980; Kovacs & Beck, 1977; Ling et al., 1970; Weinberg et al., 1973). The second, and somewhat more dated, view is that childhood depression is quite different from the adult syndrome and is expressed in depressive equivalents or masked symptoms (e.g., somatic complaints or conduct problems) rather than depressive symptoms (Cytryn & McKnew, 1972, 1974; Glasser, 1968; Toolan, 1962).

Toolan (1962) and Glasser (1968) were early proponents of the view that depression in children is masked by symptoms which are not readily identified with the adult syndrome. Cytryn & McKnew (1972, 1974) initially supported this view in their classification scheme of acute, chronic, and masked depression. They also developed diagnostic criteria for childhood depression which included: sad mood, feelings of despair, helplessness, and hopelessness, impaired school performance and social adjustment, withdrawal, sleep and eating disturbances, and psychomotor

retardation. These criteria described both acute and chronic depression. The acute and chronic distinction was made on the basis of duration, precipitating stress, previous functioning, and family history of depression. They identified masked depression in children who did not manifest overt depressive symptoms, but instead exhibited behaviors which included: hyperactivity, conduct problems, enuresis, aggressiveness, delinquency, somatic complaints, phobias, and underachievement. The underlying depression was diagnosed from periodic displays of depressed affect and depressive fantasy material.

Weinberg et al. (1973) were early proponents of the view that overt depression, as a group of depressive symptoms, exists in children. Their study was designed to identify and define depression in children referred to an educational diagnostic center. Weinberg and associates operationalized a set of diagnostic criteria for depression by combining well-established characteristics of adult depression (Feighner, Robins, Guze, Woodruff, Winokur, & Munoz, 1972) with characteristics readily observed in children. The Weinberg et al. criteria for childhood depression required both the major symptoms of dysphoric mood and self-deprecatory ideation, and two or more of the following eight symptoms: sleep or appetite disturbances, decreased school performance or social interaction, change in attitude toward school, loss of energy, somatic

complaints, and aggressive behavior. Moreover, it was required that these symptoms represent a change in behavior and that they be present for at least one month. They found that the most common symptoms were moodiness, agitated behavior, and crying, often accompanied by sleep disturbance and/or somatic complaints. Further, they found that depressed children all had presenting school and/or behavior problems.

The Weinberg et al. (1973) study is of considerable significance despite some methodological weaknesses. First, it demonstrated the applicability of modified adult criteria for identifying depression in children. Second, their finding, that behavior problems coexisted with depressive symptoms, suggested that these problems were not the equivalent of depression but were associated symptoms, most likely the result of a child's age and developmental level.

Kovacs and Beck (1977) compared the findings of different investigators and found considerable agreement among their criteria for depression. Moreover, they suggested that the two views of childhood depression differed in the emphasis placed upon associated features such as masked symptoms. They argued that since the diagnosis of masked depression first required the diagnosis of depression, that the concept was not necessary or useful for identification and possibly resulted in overinclusion

of other problems such as conduct disorders.

Kovacs and Beck (1977) applied Beck's (1967) model of adult depression to children. They examined depressive symptoms in children and found that these symptoms could be categorized into the following four components: (1) an affective component, manifested in sad mood or lack of pleasure, (2) a cognitive component, manifested in self-deprecation, (3) a motivational component, manifested in decreased school performance and social interaction, and (4) a vegetative and psychomotor component, manifested in sleep and appetite disturbances and atypical activity level. In addition, they examined depression in children by developing and testing a children's self-report measure of depressive symptoms, the Childhood Depression Inventory (CDI) which was modelled after the adult Beck Depression Inventory (BDI) (Beck, 1967). Thus, a major contribution of Kovacs and Beck, consistent with NIMH conference recommendations (Schulterbrandt & Raskin, 1977), is their use of an adult model as the basis for studying depression in children (i.e., for generating hypotheses and developing diagnostic measures).

In the current DSM-III (APA, 1980), the same criteria are used for the diagnosis of depression in children as adults. DSM-III states that the major symptoms of dysphoric mood or pervasive loss of interest or pleasure must be present for at least two weeks. In addition, four

of the eight following symptoms must be present: 1) sleep disturbance, 2) loss of energy, or fatigue, 3) change in appetite, 4) loss of interest or pleasure in usual activities, 5) feelings of worthlessness, self-reproach or guilt, 6) psychomotor agitation or retardation, 7) diminished ability to think or concentrate, 8) recurrent thoughts of death or suicide, or a suicide attempt. DSM-III adds that the associated features of depression may differ in children and may vary according to age. However, these features are not well-defined and are not considered for the purposes of diagnosis.

The DSM-III (1980) criteria are based upon well-established adult research criteria for depression, the Research Diagnostic Criteria (Spitzer, Robins, & Endicott, 1978), which are in turn derived from Feighner et al.'s (1972) criteria which also form the basis of Weinberg et al.'s (1973) modified criteria for children. Therefore, it is not surprising that Cytryn and associates (1980) found considerable overlap between Weinberg et al. (1973), Cytryn & McKnew (1972), DSM-III (1980), and CDI-defined (Kovacs & Beck, 1977) criteria or symptoms. After Cytryn et al. (1980) reclassified their Cytryn & McKnew (1972) clinical data according to DSM-III, they rejected masked depression as a useful category for identifying depression in children, although they found that their acute and chronic categories were equivalent to the currently accepted

reactive and endogenous distinction.

In summary, the current view of childhood depression is that the essential criteria of depression are the same for children and adults but that there are some age-specific differences (Cytryn et al. 1980; Kashini, Husain, Shekim, Hodges, Cytryn, & McKnew, 1981; Wiener & Hendren, 1983). DSM-III appears to have dealt effectively with the issue of concomitant behavior problems (Carlson & Cantwell, 1980b; Cytryn et al., 1980). If children fit the essential criteria for depression, then other behavior problems are to be identified as ancillary or associated features of depression. Alternatively, if behavior problems predominate and depression appears secondary, then this is identified as a conduct disorder with depressive features. Most notably, DSM-III criteria for childhood depression provide previously lacking diagnostic uniformity for investigators. The agreement between the self-report CDI and DSM-III criteria (Carlson & Cantwell, 1980b; Cytryn et al., 1980; Kazdin, French, Unis, & Esveldt-Dawson, 1983a) provides a means of studying childhood depression in a general population as well as a clinical population. One criticism of the use of unmodified adult criteria, such as DSM-III, is that it may not be sensitive to associated symptoms in children, such as change in school performance, that may be more definitive symptoms of depression in children than some of the symptoms outlined for adults. In

other words, the criteria may not be attuned to the special features of depression in children which is often the subject of current investigations examining depression in school populations.

Assessment Techniques and Issues

Kazdin (1981) reviewed the major techniques for assessing childhood depression which included: self-report scales, clinical interviews, projective techniques, and peer and parent ratings. He noted that the most commonly used techniques have been self-report inventories and clinical interviews. Self-report and interview assessment are similar in that both formats rely on the information presented by the child. Also, self-report measures used with children are usually presented orally by an adult to increase the comprehension of questions and responses.

Kazdin & Petti (1982) examined the reliability, validity, and special features of several self-report and interview measures for assessing childhood depression. Most pertinent to the present study are the self-report measures reviewed: the Children's Depression Inventory (CDI) (Kovacs & Beck, 1977), the Children's Depression Scale (CDS) (Lang & Tisher, 1978), the Self-Rating Scale (Birlleson, 1981), the Modified Zung (Lefkowitz & Tesiny, 1980), and the Center for Epidemiological Studies Depression Scale (modified for children) (Weissman,

Orvaschel, & Padian, 1980). The two best researched measures have been the CDI and CDS. The 27-item CDI includes the range of symptoms outlined in DSM-III criteria for depression. The 66-item CDS includes additional features that are not defining symptoms of depression and omits or minimizes other features that are defining symptoms (i.e., somatic complaints and loss of appetite). The response formats of the two scales also differ. The CDI presents three response alternatives per item which represent the absence, presence, and severity of a depressive symptom. The CDS presents a Likert-type scale in the form of a card sorting task, in which the child rates the severity of a symptom by choosing the card most characteristic of him or her.

The CDI has been the most frequently used measure, and has been validated in clinical and general populations (Carlson & Cantwell, 1980b; Friedman & Butler, 1979; Kovacs, 1980/81). The CDI has been found to correlate significantly with clinicians' global ratings of depression ($r = .55$, $p < .001$) (Kovacs, 1980/81), and is able to distinguish between depressed and nondepressed diagnostic groups (Carlson & Cantwell, 1980b). In a normative study, Friedman & Butler (1979) found that CDI scores were associated with several known features of depression (i.e., low self-esteem, helplessness, and self-blame). In the development of the CDI, children's input was solicited to

make the items more meaningful and relevant to children's experiences. As well, six items were added on the basis of Albert & Beck's (1975) study. These items tap specifically into children's experiences at school and with peers.

In addition to self-report and interview assessment, rating scales for peers and parents have been used to identify children's depression. Lefkowitz and Tesiny (1980, 1985) have developed a peer nomination rating scale for evaluating depression in children. On this scale, children rate peers on the presence or absence of depressive features (i.e., Who plays alone?). They established the reliability and validity of their measure in school populations but not in a clinical population which Kazdin (1981) has noted is the critical criterion population for developing diagnostic measures of depression.

As well, rating scales such as the Personality Inventory for Children (Wirt, Lachar, Klinedienst, & Seat, 1977) have been developed for clinicians and used by parents to rate children's depression (Leon et al., 1980). In a study examining depression in a school population, Leon and associates found a low to moderate correlation between parents' and children's ratings of depression on the PIC and CDI. This disparity between parents' and children's reports of depression is consistent with findings in clinical studies (Kazdin et al., 1983a;

Weissman et al., 1980).

The important assessment issue for self-report measures is the extent to which children are capable of reporting the features of their depression. Some investigators have suggested that children tend to avoid the expression of depressed affect (Cytryn & McKnew, 1972, 1974). However, other investigators have suggested that children can report on their own depression since there is considerable agreement between self-report, interview, and clinician assessment (Carlson & Cantwell, 1980a, 1980b; Kazdin et al., 1983a; Kovacs & Beck, 1977). These investigators have found that depressed and nondepressed diagnostic groups can be reliably differentiated on the basis of children's self-report on questionnaires such as the CDI and interviews such as the Kiddie-SADS.

Kazdin et al. (1983a) examined the discrepancy between children's and parent's reports of depression. Proposing that the discrepancy was partly due to the different measures used, both parents and children responded to the same measures, the CDI and interviews. As well, they proposed that the same symptoms of depression were not equally accessible to both children and parents: that children were better able to report on their own subjective experience of depression (i.e., mood, self-criticism, guilt) whereas parents were better able to report on their child's overt behavior. They found that children's self-

reports were consistent with diagnostic assessment, but that children rated themselves as less depressed than they were rated by their parents. Thus the generally accepted view (Carlson & Cantwell, 1980b; Cytryn et al., 1980; Kazdin et al. 1983a; Wiener & Hendren, 1983) is that children can report on their own depression, but that they provide a lower bound estimate of their symptoms.

Conceptual Models

Most of the research on childhood depression has been generated from observation of symptoms rather than derived from a conceptual model, with a few exceptions such as Kovacs and Beck (1977). Kashini et al. (1981) have reviewed several adult models and their applications to childhood depression. The major conceptual models presented by Kashini and associates included: biochemical, genetic, learned helplessness, life stress, behavioral reinforcement, cognitive, and sociological. The psychological models will be briefly described here, with the focus on describing Beck's cognitive model of depression which forms the basis of the present study.

First, the learned helplessness model of depression (Abramson, Seligman, & Teasdale, 1978; Seligman, 1975) proposes that depressed persons perceive their behavior as unrelated to outcomes, and that this leads to helplessness and hopelessness. Diener & Dweck (1978, 1980) have shown

that certain children react in a helpless fashion to failure but the nature of the relationship between helplessness and depression has not been specified. Second, the life stress model (Holmes & Rahe, 1967) proposes that depression is partly the result of significant life stresses which require readjustment. Coddington (1970) has shown that stress is related to childhood psychopathology and health problems, although childhood depression was not specifically examined in the study. Third, the behavioral model of depression (Lewinsohn, Biglan, & Zeiss, 1976) proposes that depressed persons receive less reinforcement because they interact less and have fewer social skills. Although children have been exposed to social skills training (Gottman, Gonso, & Rasmussen, 1975), the behavioral perspective has not been studied in relation to childhood depression.

Beck (1967) emphasized the central role of cognitive distortions (or negative assumptions about the self) in depression. He also suggested that these negative views may have developed from unfavorable past experiences with family or peers. Beck's cognitive triad defines the individual's negative view of the self, the world, and the future. Briefly, in the negative view of the self, depressed persons see themselves as deficient, inadequate, or unworthy - that there is something within them that is responsible for their negative feelings and experiences.

Secondly, in the negative view of the world, depressed persons view themselves in a constant, losing struggle with the environment. They interpret their experiences in terms of defeat, failure and as self-deserving. Finally, in the negative view of the future, depressed individuals view their current difficulties and suffering as continuing indefinitely - that they are helpless in a hopeless situation. Beck also proposed that depressed persons process information about the world in ways that are consistent with their negative attitudes and beliefs. In other words, depressed persons distort information by selecting information that confirms their negative views and rejecting information (such as success) which disconfirms them.

Although Beck's cognitive triad was initially derived from clinical experience, its features have been operationalized, tested and supported in a number of studies of adult depression (e.g., Lewinsohn, Mischel, Chaplin, & Barton, 1980; Lobitz & Post, 1979; Loeb, Beck, & Diggory, 1971; Nelson & Craighead, 1977). Nelson and Craighead (1977) found that depressed as compared to nondepressed adults distorted feedback by recalling more negative than positive feedback. Lewinsohn et al. (1980) found that depressed as compared to nondepressed adults rated themselves as less socially competent above and beyond their less adept social skills. Loeb et al. (1971)

found that depressed as compared to nondepressed inpatients had lower expectations for success on a performance task despite similar performance.

Particularly relevant to the present study, Lobitz & Post (1979) found that depressed as compared to nondepressed inpatients displayed lower self-expectations, self-evaluations, and self-reward, although there were no actual performance differences on a set of tasks. It was also demonstrated, in ratings of self and others, that depressed relative to nondepressed subjects had lower expectations and evaluations for themselves than they did for others. Thus, rather than a negative view in general, it was shown that depressed persons exhibited only a negative view of themselves. The study, then, assessed cognitions that subjects brought to the task, as well as those following their performance.

Studies of Childhood Depression in the General Population

Recently, a number of investigators have examined childhood depression in the general school population. As in clinical studies, most of this research has been devoted to delineating the features and correlates of depression. Most pertinent to the present study are those few investigations which have examined cognitive appraisal processes in depressed children (Friedman & Butler, 1979; Haley, Fine, Keith, Marriage, Moretti, & Freeman, 1985;

Kaslow et al., 1984; Leon et al., 1980; Moyal, 1977).

Leon et al. (1980) evaluated the similarities between childhood depression and the affective, cognitive, motivational, and somatic components of adult depression. Children were categorized as depressed or nondepressed on the basis of parent ratings of depression on the Personality Inventory for Children (Wirt et al., 1977). The authors concluded that the affective component of depression was demonstrated by a moderate correlation between parents' ratings of depression and children's self-report of depression on the CDI. The motivational component of depression was supported by teacher ratings of inattention and passive behavior in the classroom though not by parent ratings or by children's performance on Porteus mazes. Most pertinent to the present study, the cognitive component of depression was partly demonstrated by the author-devised Cognitive Processes Inventory for Children. This inventory presents eight hypothetical situations with four questions about aspirations, expectations, attributions, and affect. Of the four cognitive attributes assessed, only attributional differences were found. Depressed children tended to make internal attributions for negative events and external attributions for positive events.

Friedman and Butler (1979) conducted a large school study comparing the CDI, the Nowiki-Strickland Children's

Locus of Control Scale (Nowicki & Strickland, 1973), the Piers-Harris Children's Self-Concept Scale (Piers & Harris, 1969), and the Moyal-Miezitis Stimulus Appraisal Scale (Moyal, 1977). They found that depressed children, as defined by the CDI, exhibited low self-esteem and an external locus of control (i.e., they perceived their behavior as unrelated to reinforcing outcomes). Most pertinent to the present study and similar to Moyal (1977), they found that depressed children displayed distortions of inference and evaluation on the Moyal-Miezitis Stimulus Appraisal Questionnaire which assesses children's adaptive, helpless, blaming, and self-blaming responses to hypothetical situations.

In a similar vein, but in a clinical population, Haley et al. (1985) examined cognitive distortion in depressed and nondepressed inpatients by means of the author-devised Cognitive Bias Questionnaire for Children (CBQC). The CBQC provides children with hypothetical situations followed by four categories of responses which include: depressed-distorted, depressed-nondistorted, 'nondepressed-distorted,' and nondepressed-nondistorted responses. They found that the Depressed-distorted scale distinguished depressed from nondepressed inpatients, thereby providing additional evidence of negative cognitive appraisal processes in depressed children.

Examining the social-cognitive correlates of

depression in school children, Kaslow et al. (1984) found that depressed relative to nondepressed children had lower self-esteem, a more depressive attributional style, and more self-control (self-appraisal) deficits. Unlike the aforementioned studies which solely used questionnaire measures to assess depressive cognitions, Kaslow and associates assessed self-control deficits (i.e., self-attribution, self-reinforcement) in response to an actual performance task.

Although Butler & Miezeitis's (1980) book is primarily aimed at intervention, they reported similar observations as Beck (1967), namely, that depressed children exhibited a negative view of themselves that was maintained by distorting their experiences. For example, they reported that it was not uncommon for the depressed child to interpret a teacher's lack of positive feedback as personal rejection, or peers whispering as personal criticism. Butler and Miezeitis pointed out that depressed children are caught in a vicious cycle, where negative thoughts and feelings lead to maladaptive behavior that results in experiences that support their negative view of themselves.

Also relevant to the present study are studies which have investigated gender differences and performance differences among depressed and nondepressed school children. Jacobsen et al. (1983) examined depressive characteristics and behavioral correlates in school

children, correlating the CDI with peer and teacher ratings of behavior. They found that depression in children was correlated with other behavior problems, although not necessarily the same ones for girls and boys. They suggested that gender differences should be taken into account in studies of childhood depression. Although some studies (Kovacs & Beck, 1977) have found that preadolescent girls report more depression than boys, most studies have not found such gender differences (Friedman & Butler, 1979; Kaslow, Tannenbaum, Abramson, Peterson, & Seligman, 1983; Lefkowitz & Tesiny, 1980, 1985; Leon et al., 1980; Schwartz, Friedman, Lindsay, & Narol, 1982).

Only two studies (Kaslow et al., 1983; Schwartz et al., 1982) have examined conceptual or problem solving deficits in depressed children. Schwartz et al. selected two groups of depressed and nondepressed children on the basis of a depression battery which included the CDI. Comparing these groups on a Matching Familiar Figures Test (Kagan, Rosman, Day, Albert, & Philips, 1964), they found that depressed children exhibited performance deficits (i.e., latency and errors). Similarly, in a correlational study, Kaslow et al. found conceptual problem solving deficits in children as a function of depressive symptomatology as defined by the CDI.

The Present Study

The present study compared the cognitive appraisals made by relatively depressed and nondepressed Grade 5 and 6 school children who were selected on the basis of their self-report of depressive symptoms on the Childhood Depression Inventory (Kovacs & Beck, 1977). The CDI was selected for purposes of categorization on the basis of its demonstrated validity and reliability as a measure of the essential features of depression in children (Carlson & Cantwell, 1980b; Kazdin & Petti, 1982; Kovacs, 1980/81). Also, since a primary interest in this study was the child's experience of depression and the relationship of this to their self-appraisal, a self-report measure, as opposed to peer or parent ratings, was used to assess the child's phenomenological experience of depression (i.e., perceptions of hopelessness or unworthiness).

It has been shown that children are able to report their depression (Carlson & Cantwell, 1980b; Kazdin et al., 1983a; Kovacs & Beck, 1977), although they provide a lower bound estimate of their symptoms (Kazdin et al., 1983a). Since the study examined depression in a non-clinical population, this more conservative estimate was used to decrease the likelihood of nondepressed children being categorized as depressed.

The categorization of children into depressed and

nondepressed groups was similar to grouping procedures used in other studies of depression in school populations (Friedman & Butler, 1979; Leon et al., 1980; Schwartz, et al., 1982). This grouping method was chosen over a correlational method because of practical considerations. Specifically, the experimental protocol of the present study involved individual participation in an experimental situation which was intensive and time-consuming. Since there are many more nondepressed than depressed children (Friedman & Butler, 1979), a considerable amount of time and effort would have been spent testing nondepressed children. Prior grouping eliminated this problem.

The present study compared depressed and nondepressed subjects, not on their performance, but on their self-appraisal of their performance. In the past, investigators have examined correlates of childhood depression by questionnaire methods or performance tasks (Kaslow et al., 1983; Schwartz et al., 1982). However, depressed children's interpretations of their performance have received little attention. Such interpretations or self-appraisals are central to the cognitive model of depression. Therefore, the goal of the study was to assess the cognitive component of depression as measured by self-appraisal questions in response to a performance task.

The present study tested hypotheses derived from Beck's (1967) conceptual model, specifically the cognitive

triad, in order to examine depression in children. According to this model, depressed children have a negative view of themselves their experiences, and the future. In a similar manner to Lobitz and Post (1979), the present study assessed Beck's triad by questioning subjects about their expectations, evaluations, and future expectations in response to a performance task. Social comparison questions about peers' performance (Lobitz & Post, 1979) were also asked to determine if depressed children were more negative in general or specifically more negative toward themselves. According to Beck's model, depressed relative to nondepressed children should display a more negative view of themselves as evidenced by their self-appraisals in the performance situation.

In order to unambiguously ascribe the predicted differences to self-appraisal it was necessary to equate for possible performance differences between the two groups. It was also necessary to create a situation with a high degree of ambiguity so that children would be more likely to judge their performance on the basis of more subjective rather than objective standards of performance. To achieve these ends, first a task with an ambiguous outcome was selected. The task was a picture sequencing task adapted from the Picture Arrangement subtest of the WISC-R (Wechsler, 1974). In order to hold performance differences constant, the task was modified to provide both

solvable and unsolvable problems. Unsolvable problems were created by removing a key picture from each problem. As well, since it has been shown that a 50% reinforcement schedule maximizes the ambiguity of outcome evaluation in a performance situation (Watson & Dyck, 1984) two solvable and two unsolvable performance problems were provided. Finally, the self-appraisal questions about performance were adapted from previous research which has investigated similar cognitive variables (e.g., Diener & Dweck, 1980; Lobitz & Post, 1979).

In summary, the goal of the study was to examine the cognitive component of depression in children. Depressed and nondepressed children were selected on the basis of CDI scores and then exposed to a set of performance problems. Before and after the problems, subjects responded to several self-appraisal questions (i.e., expectations and evaluations) about their and their peers' performance.

Hypotheses

1. The first hypothesis stated that depressed as compared to nondepressed children (as defined by the CDI) would display a more negative view of themselves in response to the performance task. It was predicted that this negative view or negative self-appraisal would be demonstrated by: a) initially lower pre-task expectations for the performance task, b) lower evaluations once the task was complete, and c) lower expectations for future

performance.

2. It was also predicted that depressed children would have lower expectations and evaluations for themselves than for others. Such a poorer self-than-other comparison would be taken as evidence that depressed children have a negative view of themselves in particular, rather than a negative view in general.

3. In contrast, it was predicted that nondepressed children would have higher expectations and evaluations for themselves than for others. Taken in combination, the second and third hypotheses were expected to result in an interaction between level of depression (depressed vs. nondepressed) and the target of evaluation (self vs. other).

Method

Overview

Initially, the Children's Depression Inventory was administered to all children with parental consent to participate. Two groups of depressed and nondepressed subjects were formed on the basis of their scores on the CDI. Then, subjects were presented with modified Picture Arrangement problems from the WISC-R and self-appraisal questions about their performance. The problems were presented in the following order: a) one training problem, b) four performance problems (two solvable, and then, two unsolvable, problems), and c) one debriefing problem. All

subjects received identical feedback about their performance. Prior to the training problem, subjects were asked two questions: How well they expected to do on the task and how well they expected other children their age to do. Following the performance problems, subjects were asked four more questions: Two about their evaluations of their performance (and others'), and two about their future expectations of their performance (and others'). An additional question assessed their perceptions of the performance manipulation. Following these questions, subjects were presented with an additional solvable problem and debriefed.

Subjects

Seventy-two children were selected as subjects from a total sample of 360 fifth and sixth grade students from three schools in a Winnipeg school division. The study was introduced to students in fifth and sixth grade classrooms and letters of consent were sent home to parents. The CDI was then administered to all 360 students with permission to participate or 83.5% of the total fifth and sixth grade population. Then, two groups of children, depressed and nondepressed, were formed on the basis of CDI scores. The depressed group consisted of 36 children scoring in the upper 10% of scorers on the CDI (scores of 16 and above). The nondepressed group consisted of 36 children randomly selected from below the median of scorers on the CDI

(scores of 5 and below). In addition, the nondepressed group was matched to the depressed group on the basis of gender. Thus, there were 16 boys and 20 girls in each group. This matching was done so that the hypothesized differences in self-appraisal as a function of depression would not be confounded by gender.

Materials

Measure of depressive symptoms. The Children's Depression Inventory (Kovacs & Beck, 1977) was used to assess depressive symptomatology. The CDI is a 27-item, self-report questionnaire that is designed to measure the severity of depressive symptoms in children (e.g., sadness, lack of pleasure or interest, sleep and appetite problems). The CDI is modelled after the adult Beck Depression Inventory (Beck, 1967). Each item provides 3 responses (e.g., "I feel like crying everyday," "I feel like crying many days," "I feel like crying once in a while"). The child is asked to choose one of the three responses that best describes his or her typical reaction during the last two weeks. The child's responses are scored on a 0-2 scale. A score of 0 represents the absence of a depressed symptom, a score of 1 represents its presence, and a score of 2 represents its presence in severe form. The overall score may range from 0-54, and is formed by summing the scores of individual items.

The CDI has been validated in studies using clinical and normative samples (Carlson & Cantwell, 1980b; Friedman & Butler, 1979; Kovacs, 1980/81; Kovacs & Beck, 1977; Saylor, Finch, Spirito, & Bennett, 1984). The CDI has been found to correlate significantly with clinicians' global ratings of depression ($r=.55$, $p<.001$) (Kovacs, 1980/81), and is able to distinguish between depressed and nondepressed diagnostic groups (Carlson & Cantwell, 1980b). The CDI's internal consistency (coefficient alpha=.86) and test-retest reliability for a one month interval ($r=.72$) also prove satisfactory (Kazdin & Petti, 1982; Kovacs, 1980/81). In a normative sample (N=875), Friedman & Butler (1979) found that CDI scores ranged from 0-51 (mean=9.27; SD=7.29; mode=7.0). As expected most of the children had low scores indicating the relative absence of depressive symptomatology. The currently used cut-off score for depression, a score of 19, defined symptom endorsement in the top 10% of this sample.

Performance task. A picture sequencing task was the performance task administered to all subjects. The task was derived from the Picture Arrangement (PA) subtest of the WISC-R (Wechsler, 1974) with several modifications made for the purposes of this study. Each problem consists of a series of comic strip pictures which tell a story. The experimenter places the pictures in front of the child in a specified, disarranged order. The child is then asked to

rearrange the pictures in the right order to tell a story that makes sense. Upon completion of the problem, the experimenter records the accuracy of the arrangement, but provides no feedback to the child.

In the present study, the children were presented with one training problem and four performance problems. The training problem is the simplest three-picture problems for younger children from the PA subtest (Sample item Scale, #1 Fight). Two of the four performance problems were solvable and two were unsolvable. The solvable problems are two of the least difficult problems for children of this age group from the subtest (#3 FIRE, #4 PLANK). These problems contain four pictures which tell a story. The unsolvable problems are two of the most difficult problems for this age group (#11 BENCH, #12 RAIN). These problems also contain four pictures since one key picture was removed from each problem to ensure that the problems were unsolvable (the third picture from #11 and the first picture from #12 is removed). Therefore, both solvable and unsolvable problems contained the same number of pictures. In preliminary testing with a small sample of children, the removal of these particular pictures resulted in the children reporting that these problems were more difficult and that they were more uncertain of their answer.

Procedure

CDI administration. The CDI and performance task were individually administered to subjects on separate occasions. The CDI was initially validated for individual administration (Kovacs, 1980/81) and in clinical studies this has been the common protocol (Kazdin & Petti, 1982). In school studies (Kaslow et al., 1983; Schwartz et al., 1982) group administration has been more feasible. Saylor, Finch, Baskin, Saylor, Darnell, and Furey (1984) have found no differences between group and individual administration of the CDI. Here, individual administration of the CDI to small groups of children was used to reduce possible social desirability factors operating within a classroom group. This was accomplished by setting up six individual tape recorder and headphone centers in the administration room.

The CDI was accompanied by an audiotaped rendition. Thus, each child listened to the tape while he or she read along and responded to each item. This was done to maximize attention and comprehension, although the readability of the CDI has been placed at the first grade level (Kazdin & Petti, 1982). The subjects were first told that their responses were confidential: that neither teachers or parents would receive any information about their responses, and that their names were coded as numbers to provide anonymity. Then the experimenter gave the instructions and sample question. The child was instructed

to choose the response which best described himself or herself in the last two weeks. Following the instructions, the subjects were left to respond to the questionnaire on their own.

Training problem. Prior to actually doing the training problem, the children were questioned about their expectations concerning their performance. The task was explained to them in the following manner and the questions introduced: "What I have for you today is a set of problems where you have to find the right answer. I'm going to mix up these pictures that tell a story. What you have to do is put them in the right order so they tell the story. I'll explain more later, but for now I'd like to ask you a few questions."

Then, similar to Diener and Dweck (1980), the children were shown a scale that contained numbers between 1 and 10, anchored by "not very good at all" and "very, very good," respectively. The scale was explained to them. Then, they were asked to respond to the following two questions by choosing a corresponding number on the scale:

1. How do you think you will do on these problems?
2. How do you think other "kids" your age will do on these problems?

They recorded their answers on the response sheets provided.

Following these questions, the training problem and

further instructions were presented. The pictures were placed in front of the subjects in a specified scrambled order. In the first training problem, the children were told the topic of the story and asked to put the pictures in the right order so that the pictures told the story. If the subjects provided the correct order, then they proceeded to the performance problems. If the order was incorrect, the experimenter demonstrated the right order, explained why it was correct ("First the lady is walking toward the scale. Then she weighs herself. Finally, she walks away."), and had subjects repeat the problem.

Performance problems. The performance problems were explained to the children in the following manner: "The next four problems are going to be the same as the last one. Remember, what you have to do for each problem is put the pictures in the right order to tell the story. Tell me when you finish each problem."

The children proceeded through the performance problems in a similar manner as the training problem. The experimenter layed down the pictures in a specified scrambled order and recorded the accuracy of the subject's order. In the third and fourth performance problems, however, key pictures were missing from each problem which made them unsolvable. In terms of feedback, subjects were told that they got the first two problems correct and the second two incorrect despite how they responded. Following

the last problem, the children were asked to respond to four more self-appraisal questions using the response scale:

1. How do you think you did on these problems?
2. How do you think other "kids" your age would have done on them?
3. If you had to do ten more of the same kind of problems, how many do you think you would get right?
4. How many do you think other "kids" your age would get right?

They also responded to a fifth question, "How many of the four problems do you think you got right?" which was included to assess the efficacy of the manipulation.

Debriefing. Following the self-appraisal questions, the children were given a solvable problem and debriefed by providing an explanation for their performance. They were told that they got two out of the four problems right, and that the ones they got wrong were meant for older students and that no one else got them right either. Thus, subjects received an externally based, and reasonably accurate, explanation for their performance, and experienced success on one last problem.

Results

The Sample

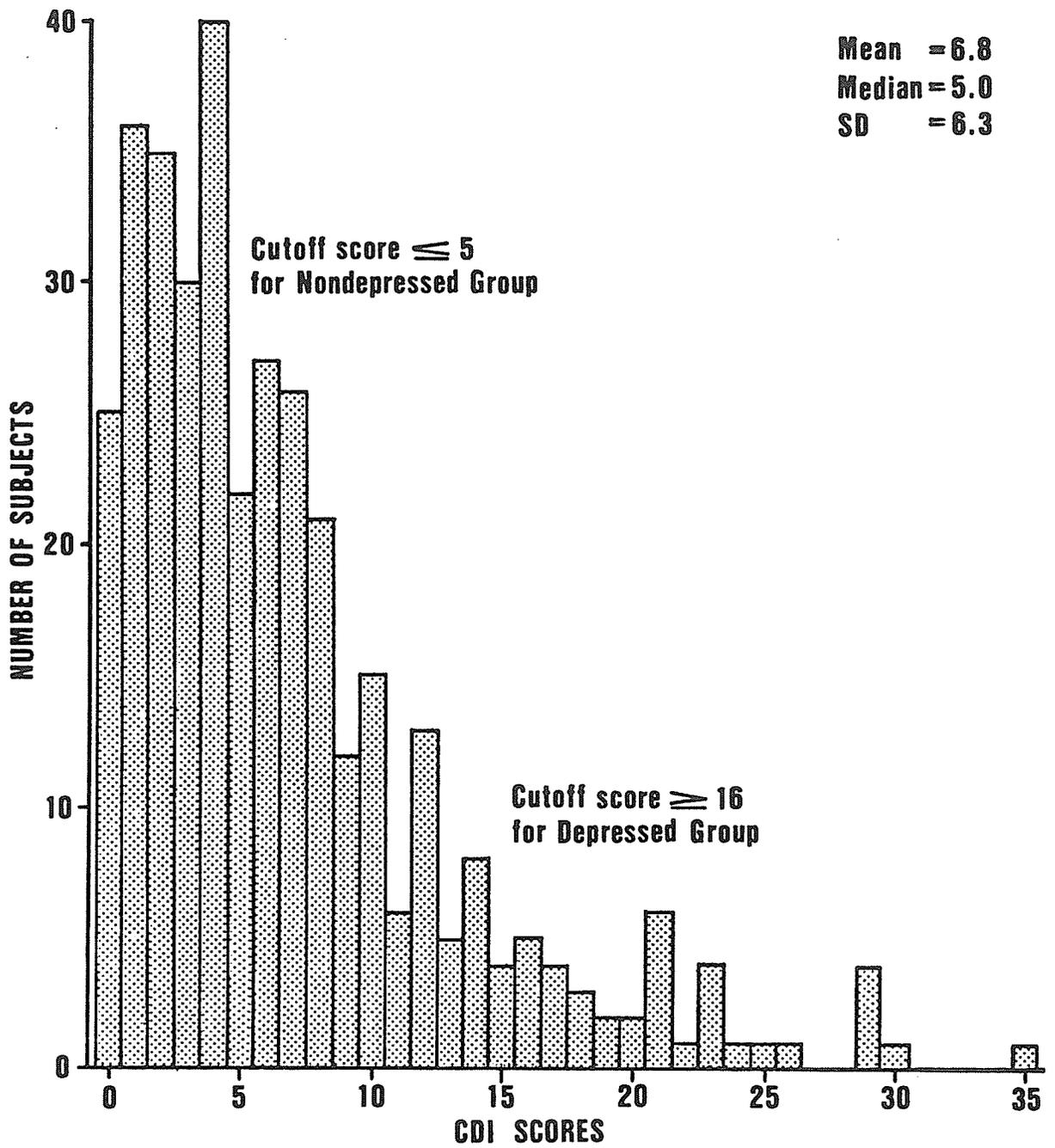
The CDI scores of the total population of 361 students, from which the depressed and nondepressed subjects were selected, yielded a positively skewed distribution with a range of scores from 0 to 35, with a mean of 6.84, mode of 4.0, and standard deviation of 6.30. Figure 1 presents the distribution of CDI scores for all 361 students, as well as the cutoff scores for the depressed and nondepressed groups. To reduce the possibility of classifying nondepressed children as depressed, a stringent selectivity criterion was used to determine the cutoff score for the depressed group (Kovacs, personal communication, 1986). Therefore, the cutoff score of 16 was used, resulting in 36 children being classified as depressed or 10% of the total sample. The means of the depressed and nondepressed groups were 21.6 and 2.5, respectively, with 20 girls and 16 boys in each group.

In order to assess possible gender or school differences in depression, a 2 (gender: male vs. female) X 3 (school: 1 vs. 2 vs. 3) analysis of variance was performed on the CDI scores. To approximate a normal distribution, the scores were transformed using a cube root transformation. As well, to control experimentwise Type I error, $\alpha = .01$ was used in this and all subsequent tests of significance. No gender or school differences in

depression were found.

To assess reliability, the CDI was administered a second time to all students after a three week time period. The Pearson correlation coefficient for CDI scores for Times 1 and 2 was $r(333)=.76$, $p<.001$. Although test-retest reliability was demonstrated, the CDI scores were lower at second ($M=5.72$) than at first ($M=6.85$) administration, $t(333)=4.70$, $p<.001$.

Figure 1. Distribution of CDI scores. (N=361)



Performance and Manipulation Check

A chi-square analysis revealed that the performance manipulation was effective in that the subjects perceived that they had been successful on two of the four performance problems. Also, there were no differences between depressed and nondepressed children's perceptions of their performance ($M=2.06$, and $M=2.28$, respectively). With regard to actual performance, depressed and nondepressed children were found not to differ in the number of correct answers on the two success problems ($M=1.78$ for both depressed and nondepressed children).

Relationships between Cognitive Appraisal Measures

Since the dependent variables were postulated to be interrelated components of Beck's (1967) cognitive triad, correlational analyses were performed to examine the relationships between them. Pearson r correlations showed that the three measures of appraisal were in fact significantly intercorrelated as shown in Table 1, although not to the extent to pose problems of multicollinearity (Tabachnick & Fidell, 1983). The most theoretically meaningful intercorrelations were the self-ratings of pre-task expectations, self-evaluations, and future expectations. These results support the interpretation that the self-ratings shared a commonality which could be labelled as self-appraisal.

Table 1

Pearson r Correlations for the Three Appraisal Measures

		EX		EVAL		FEX	
		Self	Other	Self	Other	Self	Other
EX	Self	1.00	0.48*	0.35*	0.04	0.39*	-0.14
	Other	0.48*	1.00	0.12	0.32*	0.01	0.25+
EVAL	Self	0.35*	0.12	1.00	0.61*	0.54*	0.15
	Other	0.04	0.32*	0.61*	1.00	0.25+	0.48*
FEX	Self	0.39*	0.01	0.54*	0.25+	1.00	0.42*
	Other	-0.14	0.25+	0.15	0.48*	0.42*	1.00

EX= Pre-task expectations

EVAL= Evaluations of task performance

FEX= Expectations of future performance

* $p < .001$ + $p < .01$

Grouping Variables and Cognitive Appraisal

To examine the effects of gender and school, as well as the hypothesized effects of depression and self-other comparison, a 2 (gender: male vs. female) X 3 (school: 1 vs. 2 vs. 3) X 2 (group: depressed vs. nondepressed) X 2 (comparison: self vs. other) mixed design multivariate analysis of variance was performed on the 3 dependent variables: pre-task expectations, evaluations, and future expectations. Since neither the main effects or interactions for gender and school were significant, these variables were omitted from further analyses. The major hypotheses, then, were tested with a 2 between-groups (depressed vs. nondepressed) X 2 within-subjects (self vs. other) repeated-measures multivariate model, using the SAS General Linear Model program.

Pillai's Trace criterion was used to test the combined dependent variables (Bird & Hadzi-Pavlovic, 1984). No main effect was found for depression ($\underline{V}=.02$, $\underline{F}(3,68)=.52$, $\underline{p}<.67$). This was expected since this effect collapses the effects of the self-other comparison which was proposed to work in opposite directions for the depressed and nondepressed groups, thereby cancelling differences between them. A significant main effect was found for self-other comparison ($\underline{V}=.51$, $\underline{F}(3,68)=23.38$, $\underline{p}<.0001$) with children generally providing higher evaluations for others than for themselves. Most importantly, and consistent with

prediction, this effect was qualified by a significant interaction between depression and self-other comparison ($\underline{V}=.44$, $\underline{F}(3,68)=10.01$, $\underline{p}<.0001$).

Separate univariate analyses were carried out to determine which variables were responsible for the observed effect. All three variables showed the same pattern of results, most notably a significant Depression X Self-other interaction for pre-task expectations ($\underline{F}(1,70)=11.44$, $\underline{p}<.0012$), evaluations ($\underline{F}(1,70)=21.67$, $\underline{p}<.0001$), and future expectations ($\underline{F}(1,70)=25.68$, $\underline{p}<.0001$).

Although the Depression X Self-other interaction was significant for all three response variables, a discriminant function analysis was performed in order to determine the extent to which each variable contributed to the MANOVA effect. Huberty's (1984) standardized \underline{u} weighting was used in order to take into account the interrelatedness of the variables. These results showed that of the three dependent measures, future expectation contributed most to the observed effect, $\underline{u}=.236$, followed by evaluation, $\underline{u}=.168$, followed by pre-task expectation, $\underline{u}=.002$.

To determine the nature of the interaction, pairwise comparisons were carried out on the pre-task expectation, evaluation, and future expectation variables. To test the pairwise comparisons, a Bonferroni critical value ($\underline{t}=3.42$,

familywise $\alpha = .01$) was used with Cochran and Box's adjustment for pooled error terms (Kirk, 1982). Three comparisons were performed on each dependent variable. Table 2 shows the means and standard deviations for the three self-appraisal variables. Table 3 shows the t -values for each of the comparisons. Figure 2 graphically depicts the interactions between level of depression and self-other ratings for the three variables.

Table 2

Means (and SDs) for Depressed and Nondepressed Children
for the Three Appraisal Measures

	Depressed		Nondepressed	
	Self	Other	Self	Other
EX	5.7 (1.2)	6.8 (1.2)	6.4 (1.4)	6.5 (1.5)
EVAL	5.1 (1.7)	6.8 (1.4)	5.9 (1.3)	6.2 (1.2)
FEX	6.1 (1.4)	7.6 (1.0)	6.6 (1.0)	6.9 (1.0)

EX= Pre-task expectations

EVAL= Evaluations of task performance

FEX= Expectations of future performance

Table 3

Pairwise Comparison Values for the Three Appraisal Measures

Comparison	Dependent Variable		
	EX	EVAL	FEX
Depressed/Self vs. Nondepressed/Self	2.38	2.14	1.91
Depressed/Self vs. Depressed/Other	5.17*	8.48*	8.73*
Nondepressed/Self vs. Nondepressed/Other	.39	1.90	1.56

EX= Pre-task expectations

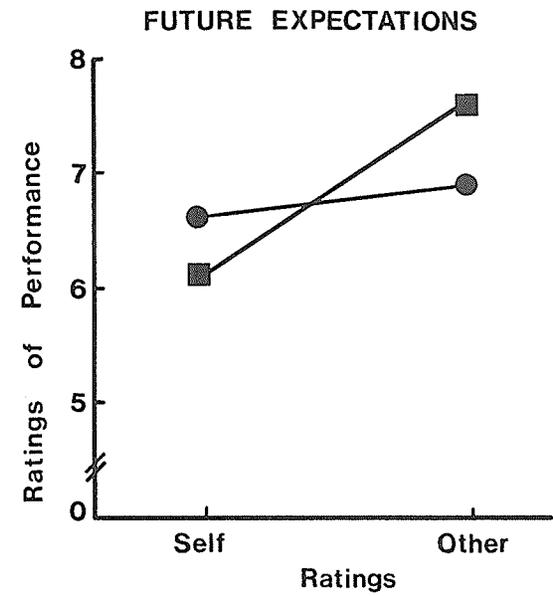
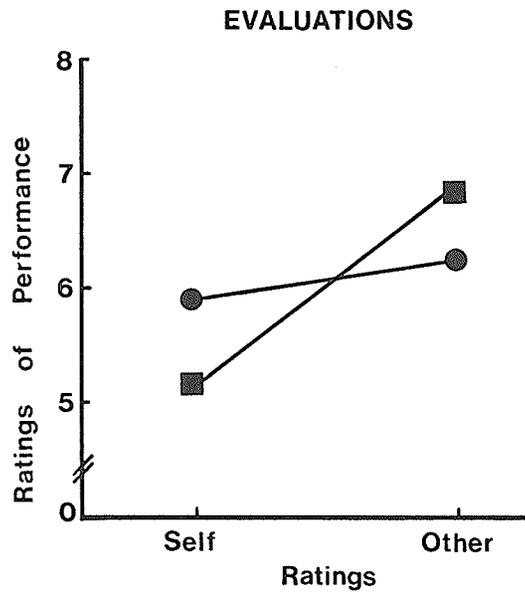
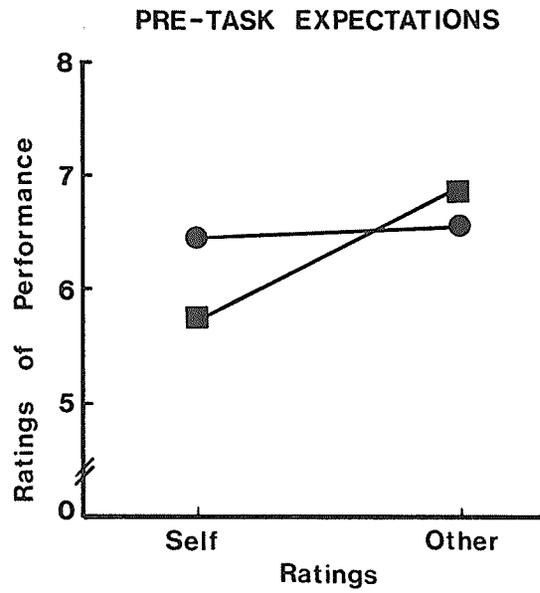
EVAL= Evaluations of task performance

FEX= Expectations of future performance

* Critical Bonferroni $t(.01, 9, 70) = 3.42$

Figure 2. Means for self- and other- ratings
for depressed and nondepressed subjects.

- = Depressed Group
- = Nondepressed Group



With regard to pre-task expectations, there was no between-groups difference between the depressed and nondepressed subjects on expectations for the self. Thus, the first hypothesis that depressed children would have lower self-expectations in comparison to nondepressed children was not supported by the between-groups comparison. However, the within-group comparison revealed that the depressed group did differ in terms of expectations for the self and expectations for others. Thus, depressed children had lower expectations for themselves than they did for others (i.e., they compared themselves less favorably to their peers). In contrast, the nondepressed group showed no difference between their expectations for themselves and for others. In other words, nondepressed children expected themselves and other children to perform similarly on the task. Thus, the interaction took the form of depressed and nondepressed children expressing different views of themselves in comparison to other children: Depressed children compared themselves less favorably to their peers and nondepressed children compared themselves as favorably to their peers. Thus, the hypothesis that the depressed group would exhibit lower self- than other- ratings, whereas the nondepressed group would not, was confirmed. However, nondepressed children did not compare themselves more favorably to others as had been expected. Thus, the combination of differences in self-other ratings for the depressed group

and no differences for the nondepressed group was responsible for the observed interaction.

Comparisons on the evaluation and future expectation variables were carried out in a similar manner to pre-task expectations with a similar pattern of results. There were no differences between the depressed and nondepressed groups in self-evaluation or for future expectations for the self. Similar to pre-task expectations, the differences were found in how depressed children viewed themselves and how they viewed others with regard to post-task evaluation and future expectations. In contrast again, the nondepressed children exhibited no differences in how they compared themselves to others on these two variables. On both variables, as with the pre-task expectation variable, the interaction was the result of depressed children rating themselves less favorably than their peers and nondepressed children rating themselves as favorably as their peers.

In summary, the group of comparisons which examined between-group differences showed that depressed and nondepressed groups did not differ on self-expectations, self-evaluations, and future expectations for the self. The second and third group of comparisons examined self-other differences within the depressed group and the nondepressed group, respectively for all three variables. The results of the second group of comparisons, showed that

depressed children evaluated themselves more poorly than their peers, whereas the results of the third group of comparisons showed that there were no differences in how nondepressed children evaluated themselves and others. Thus, the interaction on all three variables was provided by the contrast of how depressed and nondepressed children compared themselves to others, with depressed children appraising themselves less favorably than others. Thus, overall, pre-task expectations, evaluations, and future expectations showed a similar pattern of results: An interaction accounted for by differences in depressed, but not nondepressed, childrens' self-other ratings.

Discussion

The findings of the study showed a consistent and reliable pattern of within-group differences in self-appraisal among relatively depressed and nondepressed school children. It is noteworthy that these differences were revealed through the process of social comparison or self-other ratings. Depressed children consistently compared themselves less favorably to their peers on expectations prior to the task, evaluation of performance once the task was complete, and expectations of future performance. In contrast, nondepressed children viewed themselves as favorably as they viewed their peers. Thus, depressed children exhibited a negative view of themselves

in comparison to their peers on all three self-appraisal variables. These results are consistent with those found with depressed adults (Lobitz & Post, 1979) as well as with those few studies that have investigated cognitive appraisal processes in depressed children (Haley et al., 1985; Kaslow et al., 1984; Moyal, 1977). The results also support an extension of Beck's (1967) cognitive model of depression to children in that the depressed children displayed a negative view of themselves, particularly when they compared themselves to others. Although developmental limitations in the experience and expression of depression in children are acknowledged (Bemporad & Wilson, 1978), the results suggest similarities in the cognitive attributes which accompany childhood and adult depression.

It is noteworthy that the differences in self-appraisal displayed by depressed and nondepressed children occurred despite similar performance and identical patterns of feedback given to both groups. This is an important point since it shows that the negative thinking of the depressed group cannot be accounted for by poorer performance, and that such thinking reveals a negative interpretation of events rather than the valence of the events themselves. Thus, it is solely the cognitive appraisal variables which discriminated the two groups. It is also noteworthy that depressed children's future

expectations contributed the most to the self-appraisal differences between the two groups, followed by post-task evaluations, and finally pre-task expectations. In other words, it was the depressed children's view of their future performance that distinguished them the most from their nondepressed counterparts.

The finding that future expectations proved to be the best differentiators of depressive symptomatology is both significant and somewhat surprising. This result is significant because it suggests that pessimism and/or hopelessness about the future (at least in the context of the performance task) are identifiable features of childhood depression just as they are in adult depression. To some extent this characteristic has been noted in clinical case studies of prepubertal children (Carlson & Cantwell, 1983a), in a comparison of clinically depressed prepubertal children and adolescents (Carlson & Cantwell, 1982b), and in the development of a Hopelessness Scale for Children (Kazdin, French, Unis, Esveldt-Dawson, & Sherick, 1983b). On the other hand, given children's limited ability to conceptualize the future prior to the development of formal operational thinking (Piaget, 1970; Flavell, 1977), it is somewhat surprising that these characteristics of pessimism and/or hopelessness were associated with depression. Of course, lower future expectations in a specific task may not adequately evaluate

the more generalized construct of pessimism and/or hopelessness. Thus, the the generalizability of this finding to other situations and tasks needs to be studied to determine the extent of pessimistic and/or hopeless thinking in depressed children.

The comparatively lower future expectations of the depressed children may also reflect a perception that future outcomes are uncontrollable based upon perceived noncontingency in the performance task. This explanation is consistent with learned helplessness theory which also serves as an explanatory model of depression (Seligman et al., 1978). According to Seligman and colleagues, it is the expectation of future noncontingency (mediated by causal attributions or explanations for events) that is critical in producing the cognitive, motivational and affective deficits of helplessness. They propose that depression results (i.e., the deficits increase in severity accompanied by low self-esteem) when individuals view themselves as responsible for negative outcomes. Studies of adult depression have generally supported the relationship between helplessness and depression (e.g., Peterson & Seligman, 1984) although few studies have empirically examined this relationship in childhood depression until recently (Seligman et al., 1984). In a population of school children, Seligman et al. found that depression was associated with internal, stable, and global

attributions for negative events as predicted by theory. Other research by Dweck et al. (1978, 1980) may be pertinent to this issue although helpless children (i.e., exhibiting a particular attributional style), rather than depressed children were studied. Dweck et al. reported that helpless children's self-appraisals of their performance were more negatively affected by laboratory failure than nonhelpless or normal children. Similarly, it may be the case in the present study that the depressed children's self-appraisals of their performance were more negatively affected by the 50% schedule of failure than the nondepressed children. Watson & Dyck (1984) have shown such a schedule to be particularly effective in the elicitation of attributional style differences between clinically depressed and nondepressed adults. Kaslow et al. (1984) have also shown that depressed school children have more stringent standards for success which suggests that they perceive failure more readily. Thus, taken together, divergent sources of evidence suggest that the findings of the present study (that depressed children have lower task evaluations and future expectations, particularly for themselves) may also be consistent with the learned helplessness paradigm. However, to provide the necessary link between helplessness and depression in the present study, it would have been necessary to examine causal attributions directly.

Although the focus in the present study was on the depressed children, certain notable observations were made of the nondepressed children, particularly in relation to findings with nondepressed adults. In contrast to findings of self-serving bias among nondepressed adults (e.g., Alloy & Abramson, 1979), nondepressed children did not compare themselves more favorably to others. This discrepancy between adults and children may be explained by research in child development (Stipek & Tannatt, 1984; Veroff, 1969) which has shown that children become progressively less self-serving (egocentric) with age as they develop the ability to acquire and evaluate information about the environment and the self. In particular, as children increase their use of social comparison, they become less self-serving. It is possible that children in the present study were in the age-range where egocentric responding has diminished and where acceptance by peers has become an important factor influencing social comparison processes (Rubin & Ross, 1982). Thus, it may be that in order to maximize acceptance by peers, normal prepubertal children evaluate themselves in a similar light to their peers.

Another possible reason for the lack of self-serving bias among nondepressed children may be the heterogeneous nature of the nondepressed population. That is, children in the nondepressed group were randomly selected from below the 50th percentile of scores. This was done to obtain a

more representative sample of normal school children with which to compare the depressed group. This selection procedure may have produced different results for the nondepressed group than would have been obtained with the more commonly used median split or extreme score methods. Thus, the equally favorable social comparisons displayed by the nondepressed children may be more indicative of how the average school child evaluates himself or herself in comparison to others.

The findings of the study were consistent with Beck's (1967) cognitive model of depression. According to Beck depressed persons evidence a negative cognitive triad in which they view themselves, their experiences, and their future in negative terms. Beck also asserts that this bias in thinking plays a causal role in determining the affective, motivational and behavioral symptoms of depression. Although there has been considerable empirical support for the presence of such negative cognitions in depressed adults (e.g., Krantz & Hammen, 1979; Lobitz & Post, 1979; Nelson & Craighead, 1977; Roth & Rehm, 1980), the proposed causal role of these cognitions has received little support (Coyne & Gotlib, 1983; Hammen, 1985; Lewinsohn et al., 1981). The major thrust of the present study was to examine whether depressed children also evidence negative thought patterns analogous to the cognitive triad. As predicted, depressed children

exhibited cognitive deficits similar to those observed in depressed adults. Thus, relative to nondepressed children, depressed children evidenced (1) a negative view of themselves by comparing themselves less favorably to their peers, (2) a negative view of their experiences by evaluating their performance more negatively, and (3) a negative view of their future by displaying more negative expectations prior to and following their performance.

Unlike adult depression, there have been a limited number of studies which have focused on the cognitive component of depression in children. Self-esteem, attributions and locus of control have been the primary cognitive variables investigated (Kaslow et al., 1984; Lefkowitz & Tesiny, 1980, 1985; Leon et al., 1980; Moyal, 1977; Seligman et al., 1984). Overall, depression in children has been found to be associated with low self-esteem, low expectancies of control, and internal, global, and stable attributions for negative events.

Evidence supporting a systematic negative bias in thinking in depressed children has been limited to three studies (Haley et al., 1985; Kaslow et al., 1984; Moyal, 1977). The findings of the present study are consistent with those of Kaslow et al. (1984) who examined social-cognitive correlates of depression in a similar procedural manner. In response to a copying task, they found that depressed children relative to nondepressed children

displayed more negative self-evaluation, lower expectations for performance, more stringent criteria for failure, and a preference for punishment over reward. The present study is similar to Kaslow et al. (1984) in demonstrating the presence of a negative self-bias in depressed children and the continuity in this respect between adults and children. In addition, the present study examined the process of social comparison which was of considerable significance in distinguishing depressed children's negative views of themselves.

Haley et al. (1985) and Moyal (1977) investigated the extent to which depressed children evidenced cognitive distortion (inaccuracies in information processing). These results are consistent with adult research (e.g., Krantz & Hammen, 1979) and support Beck's (1967) contention that depressed persons misconstrue or distort events in a negative manner to be consistent with their negative views of themselves. In a clinical population, Haley et al. found that depressed relative to nondepressed children endorsed more depressed-distorted responses on the Cognitive Bias Questionnaire. Similarly, Moyal found that depression among school children was related to helpless, external blaming, self-blaming, but not adaptive responses as measured by the Stimulus Appraisal Scale. Both Moyal and Haley et al. concluded that depressed children, like depressed adults, display a tendency to distort events and

reach non-adaptive conclusions.

A limitation of the two aforementioned studies is that they dealt with hypothetical situations which do not necessarily parallel behavior or assumptions in a real-life situation (see Gong-Guy & Hammen, 1980 for similar criticism of the adult literature). Coyne and Gotlib (1983) also point out that it is difficult to provide evidence of distortion, since not only does the researcher need to demonstrate differences between depressed and nondepressed subjects but also needs to show inaccuracies in comparison to some objective measure. In the present study the evidence for cognitive distortion on the part of depressed children was mixed. On one hand, depressed children inaccurately judged themselves as doing less well than others when in fact they did as well. In contrast, nondepressed children accurately judged their performance in comparison to others. Thus, cognitive distortion was observed among depressed children on a measure tapping into social comparison processes. On the other hand, a manipulation check on the credibility of the performance manipulation (2 success and 2 failure problems) revealed that both depressed and nondepressed children accurately judged how many problems they did correctly. Thus, depressed children did not evidence distortion on their performance outcome but did evidence distortion in judging the meaning of that performance in relation to others.

These results may be explained by the fact that the performance outcome was made explicit whereas the social comparisons were based solely in children's subjective appraisal (i.e., there was no feedback or criteria provided). Thus, the important question does not seem to be whether subjective processes distort environmental information but rather how cognitive distortion is affected by situational factors in the child's environment.

The implication of these results for limiting negative appraisals among depressed children is that it would be important to provide them with explicit feedback both about their performance and about the meaning of it in relation to their peers. In the absence of the latter feedback, depressed children's own subjective appraisals seem to take precedence and lead them to negative social comparisons. In summary, the data are consistent with the view that depressed children, like depressed adults, process information with a negative self-bias.

Limitations

The present study is limited by the nature of its definition of depression with respect to the single self-report measure used and the non-clinical population used. As with all analogue studies, caution must be exercised in extrapolating the findings, in this case, to clinically depressed children. However, the study is based on the

assumption that depression in children can be meaningfully studied using mild to moderate self-reported depression in a normative population. This assumption has resulted in fruitful research in adult depression though with similar caveats. Thus, a replication of the findings with a clinical population would be desirable.

Although the CDI is one of the most widely and well-validated measures of childhood depression (Kazdin, 1982) there are some limitations to its use. It is designed to assess severity of depression, and cutoff scores are arbitrary though the cutoff score of 13 had been frequently used in previous research. In the present study, Kovacs (personal communication, 1986) recommended that the cutoff score be determined by the desired criterion for sensitivity and selectivity. Therefore, the cutoff score of 16 was chosen to increase selectivity (i.e., to reduce false positives). Although this criterion was deemed more appropriate in terms of a closer approximation of severe depression, the fact remains that a single self-report measure, even if conservatively used, is not equivalent to a clinical diagnosis of depression based upon a personal interview and several sources of information. Self-report from parents and teachers was not solicited in the present study because research (Kazdin et al., 1983a; Leon et al., 1980) has shown that discrepancies exist between these different sources therefore posing additional difficulties

for classification in the present study. The cutoff score that was used identified 10% of the population as depressed which is an overestimate of depression but falls within the 10% criteria recommended for clinical research (Shephard, Oppenheim, & Mitchell, 1971).

Also, since only depression was measured, it is possible that the cognitive appraisal differences might in part reflect other dimensions of child psychopathology. In some studies the discriminative validity of the CDI has been questioned in that symptoms have been found to overlap with symptoms of anxiety in a normal population (Saylor et al., 1984) though not necessarily in a clinical population (Hershberg, Carlson, Cantwell, & Strober, 1982). Since depression occurs with other forms of psychopathology, particularly in children (e.g., conduct disorder, attention deficit disorder), such future research would benefit from the inclusion of nondepressed psychopathological controls.

Future Investigation

It is suggested that social comparison may not only be useful in assessing children's view of themselves in achievement contexts, as it was here, but also in assessing their view of themselves in interpersonal contexts (i.e., with family and peers). Despite evidence that depressed children experience difficulties in family and peer relationships (Lefkowitz & Tesiny, 1980, 1985), there has

been little research examining the social aspect of depressed children's functioning. The type of social comparison procedure used in the present study may be well-suited to exploring what is likely to be depressed children's negative perceptions of their interpersonal competence. Thus, a fruitful avenue for future investigation would be to use a similar social comparison procedure to examine negative cognitions in the social sphere.

There are several avenues of investigation that could be undertaken to further elucidate the cognitive component of depression. Some findings of the study, such as negative expectancies of the future, could be interpreted as support for Seligman et al's (1978) learned helplessness paradigm as well as Beck's (1967) cognitive processing paradigm. Whereas Beck focuses on cognitive processing via a negative self-bias, Seligman and colleagues focus on cognitive processing via causal explanations for uncontrollable outcomes. It may be that social comparison processes underly both negative self-evaluation and depressive attributional style. In future research, therefore, it may be worthwhile to contrast the predictive power of negative self-evaluations (i.e., as operationalized in the present study) with that of depressive attributional style.

Finally, the present study was designed to investigate

the similarities rather than the differences between childhood and adult depression. It has been important for researchers to demonstrate the similarities between childhood and adult depression since it was initially questioned whether the syndrome of depression, as it was evident in adults, was applicable to children. Now that evidence exists with respect to some of the similarities between adult and childhood depression, the next step would be to identify developmental differences in childhood depression. The associated features of depression specific to children have received little research attention despite their clinical significance. As well, preliminary evidence (Jacobsen et al., 1983) suggests that there may be gender differences in the expression of depressive symptoms which also speaks to the issue of identification and treatment. Thus, as well as continuing investigations into the similarities in depression across developmental levels, it seems important at this time to extend research to possible developmental differences in depression.

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Appendix A

Parental Consent and Feedback Forms

Dear Parent(s),

I would like your permission for your child to participate in a project which is for my Master's thesis. In general, the project deals with how mood affects learning. More specifically, the relationships between children's mood, expectations, and performance are examined. The students will do a picture sequencing task and respond to questions about their expectations and mood. The project will run over a two week period and each student will contribute about 50 minutes in total.

I have designed the study to make it an interesting and positive experience for the students. Each child's results will be confidential, but parents and teachers will receive information about the overall findings.

I was a teacher in the Division for a number of years and I am very interested in the motivational factors that affect learning. I hope that this study will shed some light on this matter, and I am willing to share that information with you. Please contact me at _____ if you have any questions.

Please indicate whether you will give permission for your child to participate by completing the permission slip below. Have your child return it to his or her classroom teacher as soon as possible.

Yours sincerely,

Nancy E. Meyer

Please sign your name on the appropriate line.

Name of child _____

Classroom teacher _____

I give permission _____

I do not give permission _____

Dear Parent(s),

I would like to thank you for allowing your child to participate in my study earlier this year. Over 360 Grade 5 and 6 students participated from 3 schools within the Division. I indicated previously in the consent letter that I could not share individual findings, but I do have some general findings to share with you.

First of all, the aim of the study was to assess how children's moods and attitudes affect their evaluations of themselves on a learning task. The findings showed that varying levels of sadness or anxiousness affected children's expectations and evaluations for the task (i.e., how they expected to do, how they evaluated what they did, and how they expected to do in the future). Thus, as parents and teachers might expect, this study confirms that mood and attitude play an important role in children's expectations and evaluations of themselves and their learning.

My assistants and I enjoyed working with the Grade 5 and 6 students, and I appreciate their contribution and your cooperation.

Yours sincerely,

Nancy E. Meyer

Appendix B

The Children's Depression Inventory

CDI

Name: _____ Code #: _____

Date: _____ Adm: _____

Kids sometimes have different feelings and ideas.

This form lists the feelings and ideas in groups. From each group, pick one sentence that describes you best for the past two weeks. After you pick a sentence from the first group, go on to the next group.

There is no right answer or wrong answer. Just pick the sentence that best describes the way you have been recently. Circle the letter next to your answer.

Here is an example of how this form works. Try it. Circle the letter next to the sentence that describes you best.

Example:

- a. I read books all the time.
- b. I read books once in a while.
- c. I never read books.

Remember, pick out the sentences that describe your feelings and ideas in the past two weeks.

1.
 - a. I am sad once in a while.
 - b. I am sad many times.
 - c. I am sad all the time.

2.
 - a. Nothing will ever work out for me.
 - b. I am not sure if things will work out for me.
 - c. Things will work out for me O.K.

3.
 - a. I do most things O.K.
 - b. I do many things wrong.
 - c. I do everything wrong.

4.
 - a. I have fun in many things.
 - b. I have fun in some things.
 - c. Nothing is fun at all.

5.
 - a. I am bad all the time.
 - b. I am bad many times.
 - c. I am bad once in a while.

6.
 - a. I think about bad things happening to me once in a while.
 - b. I worry that bad things will happen to me.
 - c. I am sure that terrible things will happen to me.

7.
 - a. I hate myself.
 - b. I do not like myself.
 - c. I like myself.

8.
 - a. All bad things are my fault.
 - b. Many bad things are my fault.
 - c. Bad things are not usually my fault.

9.
 - a. I do not think about hurting myself.
 - b. I think about hurting myself but I would not do it.
 - c. I want to hurt myself.

10.
 - a. I feel like crying everyday.
 - b. I feel like crying many days.
 - c. I feel like crying once in a while.

11.
 - a. Things bother me all the time.
 - b. Things bother me many times.
 - c. Things bother me once in a while.

12.
 - a. I like being with people.
 - b. I do not like being with people many times.
 - c. I do not want to be with people at all.

13.
 - a. I cannot make up my mind about things.
 - b. It is hard to make up my mind about things.
 - c. I make up my mind about things easily.

14.
 - a. I look O.K.
 - b. There are some bad things about my looks.
 - c. I look ugly.

15.
 - a. I have to push myself all the time to do my school work.
 - b. I have to push myself many times to do my school work.
 - c. Doing school work is not a big problem.

16.
 - a. I have trouble sleeping every night.
 - b. I have trouble sleeping many nights.
 - c. I sleep pretty well.

17.
 - a. I am tired once in a while.
 - b. I am tired many days.
 - c. I am tired all the time.

18.
 - a. Most days I do not feel like eating.
 - b. Many days I do not feel like eating.
 - c. I eat pretty well.

19.
 - a. I do not worry about aches and pains.
 - b. I worry about aches and pains many times.
 - c. I worry about aches and pains all the time.

20.
 - a. I do not feel alone.
 - b. I feel alone many times.
 - c. I feel alone all the time.

21.
 - a. I never have fun at school.
 - b. I have fun at school only once in a while.
 - c. I have fun at school many times.

22. a. I have plenty of friends.
b. I have some friends but I wish I had more.
c. I do not have any friends.
23. a. My school work is alright.
b. My school work is not as good as before.
c. I do very badly in subjects I used to be good in.
24. a. I can never be as good as other kids.
b. I can be as good as other kids if I want to.
c. I am just as good as other kids.
25. a. Nobody really loves me.
b. I am not sure if anybody loves me.
c. I am sure that somebody loves me.
26. a. I usually do what I am told.
b. I do not do what I am told most times.
c. I never do what I am told.
27. a. I get along with people.
b. I get into fights many times.
c. I get into fights all the time.

Appendix C

Record Sheet for Performance Task

RECORD SHEET

Name: _____ Code # _____

Date: _____ Adm: _____

PRACTICE PROBLEM

Correct OrderSs Order

1. SCALE

ABC

if repeated

PERFORMANCE PROBLEMS

1. FIRE

FIRE

2. PLANK

WALK

3. BENCH

77777

4. RAIN

77777

DEBRIEFING PROBLEM

1. BURGLAR

THUG

Comments (on back)

- about administration (i.e., any problems)

- about Ss behavior

Appendix D

Response Sheet for Appraisal Questions

RESPONSE SHEET

Name: _____ Code # _____

Date: _____ Adm: _____

1. How do you think you will do on these problems?

1	2	3	4	5	6	7	8	9	10
----	----	----	----	----	----	----	----	----	----
not very good								very very	
at all								good	

2. How do you think other kids your age will do on these problems?

1	2	3	4	5	6	7	8	9	10
----	----	----	----	----	----	----	----	----	----
not very good								very very	
at all								good	

3. How do you think you did on these problems?

1	2	3	4	5	6	7	8	9	10
----	----	----	----	----	----	----	----	----	----
not very good								very very	
at all								good	

4. How do you think other kids your age would have done on these problems?

1	2	3	4	5	6	7	8	9	10
----	----	----	----	----	----	----	----	----	----
not very good								very very	
at all								good	

5. If you had to do 10 more of the same kind of problems, how many do you think you would get right?

1	2	3	4	5	6	7	8	9	10
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6. How many do you think other kids your age would get right?

1 2 3 4 5 6 7 8 9 10

7. How many of the 4 problems do you think you got right?

0 1 2 3 4

Appendix E

Analysis of Variance Summary Tables

Table 1

Analysis of Variance for Gender X School on CDI Scores

Source	df	SS	F
Sex	1	0.74	1.68
School	2	3.22	3.63 *
Sex X School	2	2.66	3.00
Error	355	157.51	

* $p < .05$

Table 2

Multivariate Analysis of Variance for
 Depression X Self/Other Comparison X Gender X School
 on the Combined Appraisal Variables

Source	df	F	p
Depress	3,58	.83	.4816
Sex	3,58	1.78	.1608
School	6,118	2.10	.0585
Depress X Sex	3,58	2.24	.0934
Depress X School	6,118	.98	.4426
Sex X School	6,118	.72	.6314
Depress X Sex X School	6,118	.53	.7868
Self/Other	3,58	19.43	.0001
Self/Other X Depress	3,58	9.09	.0001
Self/Other X Sex	3,58	.85	.4741
Self/Other X School	6,118	1.76	.1124
Self/Other X Depress X Sex	3,58	1.00	.4007
Self/Other X Dep X School	6,118	1.01	.4223
Self/Other X Sex X School	6,118	1.00	.4246
S/O X Dep X Sex X School	6,118	.94	.4729

Table 3

Analysis of Variance for
 Depression X Self/Other Comparison X Gender X School
 on the Pre-Task Expectation Variable

Source	df	SS	F
Depress	1	3.54	1.38
Sex	1	6.98	2.72
School	2	3.21	.62
Depress X Sex	1	7.66	2.98
Depress X School	2	8.33	1.62
Sex X School	2	1.04	.20
Depress X Sex X School	2	5.55	1.08
Error	60	154.24	
Self/Other	1	11.86	14.11 **
Self/Other X Depress	1	7.15	8.50 *
Self/Other X Sex	1	.36	.43
Self/Other X School	2	4.14	2.46
Self/Other X Depress X Sex	1	.80	.95
Self/Other X Dep X School	2	.28	.16
Self/Other X Sex X School	2	.62	.37
S/O X Dep X Sex X School	2	1.26	.75
Error	60	50.45	

** $p < .001$ * $p < .01$

Table 4

Analysis of Variance for
Depression X Self/Other Comparison X Gender X School
on the Evaluation Variable

Source	df	SS	F
Depress	1	.17	.05
Sex	1	2.61	.75
School	2	24.38	3.52 *
Depress X Sex	1	.68	.20
Depress X School	2	4.91	.71
Sex X School	2	2.17	.31
Depress X Sex X School	2	.77	.11
Error	60	207.75	
Self/Other	1	34.64	52.43 ***
Self/Other X Depress	1	15.10	22.71 ***
Self/Other X Sex	1	.58	.88
Self/Other X School	2	1.88	1.42
Self/Other X Depress X Sex	1	1.83	2.77
Self/Other X Dep X School	2	1.56	1.18
Self/Other X Sex X School	2	1.68	1.27
S/O X Dep X Sex X School	2	.78	.59
Error	60	39.65	

*** $p < .0001$ * $p < .01$

Table 5

Analysis of Variance for
 Depression X Self/Other Comparison X Gender X School
 on the Future Expectation Variable

Source	df	SS	F
Depress	1	1.14	.61
Sex	1	.09	.05
School	2	9.46	2.54
Depress X Sex	1	4.26	2.29
Depress X School	2	4.29	1.15
Sex X School	2	3.98	1.07
Depress X Sex X School	2	2.43	.65
Error	60	111.56	
Self/Other	1	25.03	40.68 ***
Self/Other X Depress	1	13.45	21.85 ***
Self/Other X Sex	1	.05	.08
Self/Other X School	2	.78	.64
Self/Other X Depress X Sex	1	.32	.53
Self/Other X Dep X School	2	.35	.28
Self/Other X Sex X School	2	.34	.27
S/O X Dep X Sex X School	2	.75	.61
Error	60	36.93	

*** $p < .001$