A Reliability Study of the Peer Nomination Inventory of Depression when Used by Adults in Determining the Psychological Condition of Depression in Children

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A RELIABILITY STUDY OF THE PEER NOMINATION INVENTORY OF DEPRESSION WHEN USED BY ADULTS IN DETERMINING THE PSYCHOLOGICAL CONDITION OF DEPRESSION IN CHILDREN.

by

Jeffrey R. Glindmeyer

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
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Department of Counseling and Personnel

Western Michigan University
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In the present investigation, the reliability of a modified version of an inventory developed to assess the psychological condition of depression in children was undertaken. The Peer Nomination Inventory of Depression (PNID), an instrument designed to assess depression in children through having peers rate each other on a number of items, was modified to be used by adult raters for this same purpose. Staff members, including therapists, educators, and direct care professionals at the RiverView Hospital for Children, a psychiatric hospital in Middletown, Connecticut, completed ratings on eight boys ranging in age from seven to thirteen years of age. The subjects were selected by consecutive admissions to the hospital during a three month period. Ratings were completed as part of the routine involvement of staff members with the children. The rating process was conducted during the child's first 30 days in residence, a period during which each child also underwent a thorough multi-disciplinary diagnostic work-up as a part of the hospital program. A statistical analysis of the results of the ratings was conducted. Analysis procedures included the Kuder-Richardson #20, Odd-Even correlations, and Spearman-Brown corrections. The reliability coefficients for the modified PNID (MPNID) were significant. When the depression items only were analyzed for the MPNID, reliability coefficients were
found to be less stable for various raters. Thus, the depression items standing alone were not found to be significant for the MPNID. The findings suggest that the MPNID is a reliable instrument when used in a children's psychiatric hospital setting by professional staff members. Further, the MPNID has the potential to become a valuable tool for clinicians both in hospital and outpatient settings, providing a simple, rapid and accurate means for assessing depression in children.
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To my wife, Bette
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Jeffrey R. Glindmeyer
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CHAPTER I
INTRODUCTION

Depression has been recognized as a psychological disorder for over a century. Depression has also been documented in the writings of our predecessors long before it was formally recognized as a clinical disorder (Klerman, 1979). However, depression as a psychological disorder affecting children is a relatively new concept.

Early texts in psychiatry focused all, or nearly all, of their attention on adult psychiatric problems. Kraepelin (1913) in the third edition of his text, Clinical Psychiatry, expounded on a wealth of data and information derived from extensive work with adults. This work, representative of the time, acknowledges no such clinical problems with children. The text had a chapter devoted to the states of depression in adults.

Children have been grossly neglected in the psychological literature until recent years. Before Freud, a child could be physically ill and even naughty but not neurotic (Anthony, 1975, p. 252). Beginning with the early twentieth century, the study of children with psychiatric problems was gradually introduced into the literature. Clinicians working with the children began to recognize psychological problems affecting children. These problems were identified and in turn, discussed in popular texts such as those by Kanner (1937, 1940). While children experiencing psychological problems were gaining recognition in such texts, the specific problem of depressive illness affecting
children was markedly absent from these texts. Clearly, childhood depression was not recognized as a psychological disorder.

One of the earliest studies on childhood depressive illness was reported by Kasanin and Kaufman (1929). The study involved 6,000 patients seen at the Boston Psychiatric Hospital during a three year period, 1923 through 1925. In that study, only four cases of manic-depressive illness were diagnosed as having developed before the patients were sixteen years of age. More important, in each of the four cases the depressive illness had developed after the patient was fourteen years of age.

In 1937, Bradley stated that the psychiatric definition for the concept, childhood, had not been "standardized" (p. 33). He argued that many of the studies in the literature using the term "children" were in error because the investigators were indiscriminantly grouping males and females with ages ranging from birth to eighteen years into a single classification, children. He, therefore, proposed a division of that classification into two more representative and discriminating classifications. The first classification, children, would include males and females whose ages range from birth to puberty. The second classification, adolescence, would include males and females ranging in age from puberty to eighteen years. This standard for the classification of youth greatly limited, if not totally eliminated, the number of reported cases of diagnosed childhood depressive illness up to the year 1937.

Depressive illness specifically related to childhood received its greatest recognition when Spitz (1946) reported on what he titled
Anaclitic Depression in infants. However, childhood depression still received minimal attention as a diagnostic category. In 1952, Campbell reported finding eighteen cases of manic-depressive illness in children. Only seven of these cases involved youth under the age of fourteen.

Consistent with the low level of attention given childhood depressive illness in the literature, and as a consequence of this inattention, it would follow there has been a lack of diagnosed and subsequent treatment of the problem. The limited recognition of the childhood disorder has been contrary to the events taking place which involved adults and the depressive illness. The adult syndrome was fully accepted by the clinical community and reports of the adult depressive illness were readily available throughout the literature. Because of such acceptance, clinicians were able to diagnose and treat the adult illness offering patients relief from the illness's devastating effects. All the while depressed children continued to be neglected.

Fortunately depression, as a psychological disorder in children, is currently receiving increasing attention and recognition as a problem entity. Most recently, the last fifteen years, childhood depression has received vigorous consideration in the literature and in the clinical setting. While there has been an increase in the recognition and treatment of childhood depressive illness, there has been less than unanimity in the diagnosis and treatment strategies for this illness in children.

In 1975 a conference on childhood depression was held in Washington, D.C. (Schulterbrandt & Raskin, 1977). The information presented at this conference reflected two opposing viewpoints. The majority of
participants accepted childhood depression as a clinical diagnostic classification. At the same time a minority rejected such an endorsement. Those opposed to the diagnostic category offered an alternative explanation for the events being classified as depression. They argued that instead of a depression, what truly occurs is nothing more than a normal, transient, developmental stage which children typically go through and which dissipates over time.

A second conference on the topic of childhood depression was held in Berkeley, California during June 1976 (French & Berlin, 1979). Unlike the first conference held in Washington, the participants in the proceedings at the Berkeley conference were unanimous in their acceptance of the classification for a childhood depressive disorder. In 1978, Lefkowitz and Burton surveyed the literature on childhood depression and reported finding opposing viewpoints similar to those expressed at the Washington conference on the existence of childhood depression as a psychological disorder.

Lefkowitz and Burton (1978) further elaborated on another central issue which had been discussed during the Washington conference, the lack of agreement on the criteria used to diagnose childhood depression. The clinicians and researchers who support the concept of depression in children are not consistent in the measurement of this syndrome. The lack of uniformity in defining childhood depression and the subsequent assessment of the disorder has been repeatedly criticized (Nowels, 1977; Gittelman-Klein, 1977; Lewis & Lewis, 1980).

Frequently the diagnosis of childhood depression has been based on clinical judgment (Welner, 1978; Spitzer, Endicott & Robins, 1978;
It is a well known fact that clinical judgment is not consistent among clinicians and will vary greatly. In support of this contention, Rutter and Graham (1968) studied psychiatric interviews and found the least two reliable items as a part of clinical judgment were those dealing with affect.

Reports on the prevalence of childhood depression has varied from one percent (Poznanski and Zrull, 1970) to over sixty percent (Weinberg, Rutman, Sullivan, Renick & Deitz, 1973) of the population studied. The wide variation of incidents of childhood depression as reported in studies that appear in the literature, make the estimation of the true prevalence of the psychiatric problem, very difficult to judge. Positions for both over and under diagnosis of childhood depressive illness can be argued due to the wide variation of results cited in such studies. Thus, a clinician believing that childhood depression is common in the clinical setting has reason to so diagnosis and treat the illness just as a clinician believing in the lower rate of this disturbance has reason to be conservative in diagnosis and treatment of the childhood depressive illness.

Three very important, related, and disparate facts become clear when one examines the current literature on childhood depression. First, childhood depression is being diagnosed and treated clinically in all sectors of the mental health system including hospitals, clinics, and private offices by psychologists, psychiatrists, counselors and social workers. Second, there is no agreement by those diagnosing and treating the condition as to the definition to be used in the clinical
setting. Third, there is another segment of clinicians and researchers who argue that children cannot experience a clinical depression and that what is diagnosed by others as depression is merely a transient developmental phenomena.

The ambiguity in the area of assessment is potentially dangerous. Consequently there is a grave need to guard against iatrogenic effects of unnecessary treatment that could lead to future problems (Lefkowitz, 1980). At the same time children should be able to receive accurate diagnosis and treatment for their problems.

The need for accurate diagnosis precedes accurate and effective treatment strategies. Thus, emphasis initially must be on the diagnostic process. Greater validity and reliability of the diagnostic techniques will lead to more accurate diagnosis. Once the proper diagnosis is established, evaluation of treatment procedures can be carried out. Without accurate treatment strategies clinicians are left to do the best they can based on their interpretation of the knowledge at hand.

It is obvious that there is no consensus on the diagnosis, classification and treatment of childhood depression. Due to the ever increasing amount of clinical attention devoted to this condition with children, a strong need exists to resolve the following issues as soon as possible;

a) Is there such a clinical entity as childhood depression;
b) If it exists, what criteria should be used to measure and diagnose the disorder; and
c) How can it be treated effectively?

The resolution of these questions has implications for other research questions as well. For example, researchers dealing with the
adult depressive illness are interested in knowing if depressed adults were also depressed as children. Given a means to accurately diagnose childhood depression, researchers would then be able to identify those persons who were depressed both as children and adults.

Another area of research is attempting to define the relationship between frequently observed childhood behavior such as running away and aggression, to depressed children. The reliable diagnosis of childhood depression would be the necessary first step. Once accomplished the relationship of other behaviors to depressed children could be studied.

Purpose

Childhood depression is being diagnosed and treated using any number of differing criteria as the basis for the diagnosis and the subsequent therapy. Experts also continue to argue as to whether or not the condition exists as a psychological disorder. Furthermore, because of this fragmentation in the approach to dealing with the problem, the frequency of the disorder in the total population has not been established. The consequence is that children are vulnerable to misdiagnosis and mistreatment. This problem requires resolution. The need for developing a measurement procedure that can accurately measure the clinical syndrome is critical. Until such a procedure is developed, the existence of the disorder will be, and rightly so, challenged, and those children involved will continue to suffer.

The purpose of this study is to investigate the feasibility of modifying a valid and reliable measurement instrument for assessing symptoms of depression in children such that the instrument could be
used by adults who have accumulated knowledge about a child through interacting with the child. The definition of childhood depression is, "a state marked by reduction in both ebullence and in the capacity for pleasurable experience, involving four areas of functioning: (a) affective, by manifestations of dysphoria, (b) cognitive, by manifestations of self-deprecation, (c) motivational, by decreased performance and withdrawal, and (d) vegetative, by fatigue, sleep problems, and loss of appetite" (p. 44; Lefkowitz and Tesiny, 1980).

Specifically, the peer nomination inventory of depression (PNID; Lefkowitz and Tesiny, 1980) will be modified so it can be used as a rating scale by adults involved with children to be rated. The PNID has been used previously to assess childhood depression (Tesiny, Lefkowitz, and Gorden, 1980). However, the procedure used involved a group administration of the inventory by peers in a school classroom setting. This procedure is almost prohibitive for the clinician to use in trying to assess for depression in children. The present study investigates the inefficacy of a modification of the original procedure to allow adults to complete the inventory on those children with whom they are working, rather than having the inventory completed by the peers of such children.

The study will examine the reliability coefficients to be obtained for various subsets of adults using the PNID as a modified procedure in rating children regarding the psychological condition of depression. The consistency and stability of the measures of reliability over these subsets of raters will be analyzed and reported. While assessing the stability among the measures of reliability over the
subsets of raters is a primary goal of this research project, analysis of the subsets of adult raters to find which sets achieve those stable reliabilities is a secondary goal.

This research project is not experimental in design, but rather a reliability study. Therefore, this investigator elected not to state hypotheses believing that such statements would offer nothing to benefit the research itself. Additionally, the study has broader implications concerning the study of childhood depression. Identification and measurement questions concerning the disorder will be directly affected by the outcome of this study.

The potential usefulness of the modified procedure for using the PNID lies in its utility as a diagnostic tool for clinicians. If the results of this research are positive and the procedure can be used reliably, support for the existence of a childhood depression disorder as a clinical entity would be reinforced. Further, criteria for measuring the disorder would again be confirmed. Finally, there would be a tool for assessing the disorder.
CHAPTER II

REVIEW OF SELECTED LITERATURE

Introduction

The literature on childhood depression is presently very fragmented. There has yet to be a synthesis of this complex body of knowledge. The present literature review has been organized to reflect the complexity as well as the fragmentation found in the study of childhood depression. For that purpose, this chapter has been divided into three major topical areas: ideology, symptoms, and assessment. The section on etiology has been subdivided into three categories representing the major ideological viewpoints found in the research on childhood depression. These categories are psychological, genetic, and biochemical.

Etiological Factors in Childhood Depression

Psychological

The concept of loss has frequently been considered as central to the dynamics of depression (Poznanski, 1979). The majority of the non-biological models of depression postulate some type of loss, such as loss of self-esteem, object loss, loss of reinforcement or loss of role status (p. 51). Spitz (1946) was one of the first to relate loss to depression in children. He described the course of development hospitalized infants follow when deprived of their parents. He called the phenomena anaclitic depression.
A number of changes in the concept of loss have taken place since Spitz's contribution. The concept of object loss has been greatly expanded and now includes distortions in object relations (Malmquist, 1977). Sandler and Joffe (1965) included loss of the feeling of well being, which had been previously experienced, with loss of the object, in their discussion of depression.

Research has also been focused on the relationship of loss and childhood depression. Tolin (1962) reviewed a number of cases involving childhood depression and found object loss, real or imagined, to be a significant variable. Dennehy (1966) studied a group of depressed male and female patients and found an excessively high frequency of loss in their histories. The males had lost mothers and the females had lost fathers during their youthful years. Hill and Price (1967) compared non-depressed inpatients with depressed inpatients and found the depressed females had a higher frequency of father loss occurring between the ages of ten and fourteen years.

Caplan and Douglas (1969) studied the incidents of parental loss experienced by children displaying depressed moods and found these children had experienced more separation from parents than is usual including death, foster placement, divorce, illness and desertion. Wallerstein and Kelly (1976) studied the effects of divorce on children. While they did not use the term depression, their description was clearly one indication of the psychological condition of depression. The results demonstrated a significant relationship between parental loss and the psychological condition of depression appearing in children.

The studies listed so far would seem to link the loss of the object,
in most cases the parent, with childhood depression. However, there are additional studies that refute such a linkage. Pitts (1965) found no significant differences when comparing depressed and non-depressed adults concerning loss of parents. Likewise Gregory (1966) reviewed records of depressed and non-depressed adults and found parental loss during childhood to be insignificant in differentiating the two groups.

Jacobsen, Fasman, and DiMascio (1975) studied 461 depressed women, eighteen to sixty years of age, and compared them with a control group of 198 normal women of the same age range. They found no significant association between adult depression and overt childhood loss events. The loss events experienced included death and separation from parents.

Consistent with these four studies, Malmquist (1977) cautioned that claims indicated all deficits of object loss leading to depression are without adequate foundation (p. 54). Poznanski (1979) also emphasized that divorce does not always produce depression in children.

Genetic

Another area of focus in research on the ideology of childhood depression is the genetic factor. Again, the research results are not consistent. Rutter (1966) reported a lack of evidence relating adult depression to any disorder in children or vice versa. Frommer, Mendalson, and Reid (1972) found seventy-two percent of the mothers of depressed, pre-school age children were mentally ill and displayed some depression. They posited the possibility of a genetic vulnerability to depression in these children. Poznanski (1979) reports that the parents of depressed children are themselves frequently depressed, but that it is as yet
unclear as to what this relationship means. He states a frequently found attitude on the part of parents of depressed children is overt rejection which may lead to the child's loss of self-esteem.

Grunbaum, Cohler, Kauffman, and Gallant (1978) studied the children of depressed and schizophrenic mothers. They found that children of depressed mothers received negative effect which affects their ability to concentrate. The authors also stated that research had neglected the area of high risk to be found in children of depressed parents.

In 1980, Cytryn, McKnew, and Bunney estimated the lifetime risk for a child to become depressed was 10 percent if the parents suffered bi-polar depression. The risk was 15 percent for children of parents with unipolar depression.

Conners (1979) put forth a tentative theory on the effects of adult depression upon children. Parents with a unipolar depressive disorder affect their children's development only when the illness adversely effects the child's environment. Children of parents with bi-polar depression appear to be more likely to have a genetic reaction of depression occurring later in their lives.

Rutter (1966) found that physical and psychiatric illness in parents had adverse effects on the psychological well-being of their children. Lewis and Lewis (1979) observed that many depressed children have experienced a history of apparent insufficient human contact. Further, in families where there is no history of depression to account for possible genetic effects, they question if cognitive, emotional, or sensory deprivation at a particular time of development might not lead to childhood depression.
Bible and French (1979) discuss how they perceive childhood depression results from child abuse. Blumberg (1981) also cites neglect and physical and sexual abuse as the most significant causes of childhood depression, second only to separation from the maternal figure. He states that adverse psychological factors, including deficient parental nurturing, resulting from abuse and neglect, are precursors of childhood depression.

Biochemical

The third area of research studies on the ideology of childhood depression is biochemical (Lewis and Lewis, 1979). In one of the most recent studies, Puig-Antich, Perel, Lupatkin, Chambers, Shea & Tabrizi (1979) demonstrated the existence of a biochemical relationship for children diagnosed as depressed. The authors reported the depressed children had a hyper secretion of cortisol. This finding is consistent with the results from studies on adult depressions.

Mandell (1976) has hypothesized that a psychologically induced, altered biochemical state is present in some cases of depression. He suggests that the organism might be vulnerable, at infancy, for example, to impingement on its biochemical system, and that the result is an altered state that could be permanent for the individual throughout life. Thus, normal receptivity to certain stimuli may not be available to such a person. McKnew, Cytryn, and White (1974) conducted a number of studies on a young boy who was manic at eight years of age and demonstrated a depression when he approached his adolescence. They reported findings of biochemical changes that were inconsistent with results from studies of adults with the same dysfunction.
Lewis and Lewis (1979; 1981) argued that there are too few studies in the area of biopsychosocial development to do more than speculation on its impact in the area of childhood depression. However, they do support the possibility that psychological experiences such as loss may precipitate biochemical changes.

The research from psychopharmacology also has been contributory to understanding childhood depression. The need for more research, in both quality and quantity, concerning drugs and their effects on depressed children has been emphasized (Conners, 1972; Frommer, 1967; Lucus, Lockett, & Gruin, 1965). Rapoport (1979) commented on the research and related areas and called for more direct study of depressed children and pharmacology.

In 1967, Conners, Eisenberg, and Barcai studied the effects of amphetamines on test-taking behavior of children. They reported an increase in optimism by the children who received the drug. Eisenberg (1972) failed to find an increase in the euphoric moods of children given stimulants and Rapoport, Quinn, and Bradbard (1974) also found no change in moods of a group of hyperactive boys given stimulant drugs. Weinberg, et al. (1973) recommended 19 depressed children be treated with anti-depressant drugs. They reported 18 of the children showed marked to moderate improvement of the depression, while a group of untreated depressed children remained unchanged. In 1979 Puig-Andich et al. reported depressed children treated with Imipramine and Desmethylmipramine achieved a favorable clinical response similar to that found in adults treated in the same manner.

Lewis and Lewis (1979; 1981) offered the following summary of research concerning the ideology of childhood depression. There is strong evidence
that psychological loss is an important factor; there is insufficient
evidence to form any conclusions centering on the genetic factor; and,
tentative research results support the presence of a biochemical disturbance
in depressed children. The authors surmised that psychotherapy, as long
as genuine caring was involved, and psychotropic drugs may act to change
the biochemical state of the person, either temporarily or permanently.

Symptoms

There has been great disagreement over the presenting symptoms
necessary for diagnosing the child who is depressed. While not as popular
as in past years, some professionals have held, as did Rie (1966), that
children are not able to experience a depression. However, the overwhelming
opinion to be found in the literature is that children can and are
experiencing depression.

Contributions to the literature are mainly of two viewpoints. The
first holds that depression in children has many similarities with the
adult depressive illness as well as a number of characteristics unique
to children and not found in the adult disorder. A second group presents
the argument that childhood depression is manifested in behavior that is
totally unique to children and is in fact different from the above
depressive disorder.

Research supporting the first position include the offering of:
Ling, Oftedal, and Weinberg (1970) who took established characteristics
for diagnosing adult depression and added readily observable behavior of
children in an attempt to identify and define childhood depression. A
combination of behaviors resulted in the following list of 10 symptoms:
significant mood changes, social withdrawal, increasingly poor school performance, sleep disturbances, aggressive behavior not previously present, self-deprecation and beliefs of persecution, lack of energy, somatic complaints other than headaches, school phobia, weight loss, and anorexia. A child was considered depressed if he met any four of these criteria, and was without any other clear cut psychiatric illness. In a sample of 25 children whose ages ranged from four to 16 years, who were seen for neurologic services due to severe headaches, 10 had a depressive disorder. Mood change, social withdrawal, and self deprecation were the most common symptoms reported.

Frommer (1968) compared 74 children with neurotic disorders to 190 depressed youngsters. She found five significant symptoms used to differentiate childhood depression from other disorders. The symptoms were: irritability, weepiness, complaints of depression, tension and explosiveness, and moodiness. She later added anueresis and ancoprisis to the list, making a total of seven.

Poznanski and Zrull (1970) examined the charts of 1,788 children who had been involved at an outpatient clinic for children. All of the subjects were under 13 years of age. The following criteria were used to assess depression: sad, unhappy or depressed, excessive self-criticism, feelings of inadequacy, difficulty sleeping, and excessive concerns about death. Using their own conception of depression, each rater reviewed the individual chart and then rated the child using a six point scale. The scale range was from "none" to "predominant" with a rating included for "unknown". Fourteen children, 11 boys and three girls, were found to be depressed. The most frequent symptoms in the 66 children who had
significant depression ratings were: negative self-image, difficulty handling aggression, and long standing family problems. Aggression was the most frequent presenting problem. The authors concluded childhood depression is present as an effect of depression and has overt symptomotology similar to the adult depressive illness.

Connell (1972) reported on 20 cases involving mood disturbances referred to at a children's hospital by pediatricians. These children, ages seven to 14 years, had been accepted for the study after the parents confirmed persistent unhappiness or depression in their children. The major presenting problems were physical symptoms and school behavior problems. The assessment process included a psychiatric interview of the parents, psychological assessment of the children, and psychiatric interview of the children for one or more sessions. Those children classified as being depressed suffered from the mood disturbance similar to adult depression, but also exhibited certain characteristics different than adult symptoms, such as somatic and anti-social behavior. The authors felt the latter behaviors to be commonly ignored by many clinicians when assessing children.

Weinberg, Rutman, Sullivan, Penick, and Deitz (1973) studied depression using a group of children, ages 6 to 12, referred to an educational diagnostic center. Their criteria was essentially the same as that used by Ling et al. (1970). These symptoms had to represent a change in the child's usual behavior and be present for more than a month. A pediatric neurologist determines the diagnosis after a structured interview with both parent and child. While no reliability measures were reported, 37 children were re-examined by a different physician during a follow-up.
examination. There was unanimity between the two assessment findings. Of the 72 children in the first assessment study, 42 met the criteria for a diagnosis of depression. All of these children presented school and/or behavior problems. The most common manifestations were agitated behavior, crying, moodiness, sleep disturbance, and somatic complaints. Activity levels of the depressed children range from decreased activity to hyperactivity. There were no differences found concerning age, sex, or intelligence.

Brumback and Weinberg (1977) studied the relationship between hyperactivity and depression in children. To be diagnosed as depressed, a child had to have both mood and self-deprecatory ideation, plus at least two of the following symptoms: aggressive behavior, sleep disturbance, change in school performance, diminished socialization, change in attitude toward school, somatic complaints, loss of usual energy, loss of usual non-school interests, and unusual change in appetite or weight. The data were collected by interviews of the children and questionnaires given to the parents. The results showed 74 percent of the hyperactive children were also depressed. The authors questioned whether hyperactivity is a symptom of other behavior disorders rather than a disorder itself.

Using the same criteria and methodology, Brumback, Jackoway, and Weinberg (1980) reported finding 62 percent of 100 children studied meeting the criteria for depression. The results revealed a high rate of psychiatric involvement by the families of the depressed children. Aneuresis and hyperactivity were also frequent in the depressed group of children. Kashani and Simonds (1979) assessed children for depression using interviews as the means for assessment. Criteria for diagnosing a
child as depressed was taken from the Diagnostic and Statistical Manual III (DSM-III) (APA, 1980). These criteria include a distoric mood and disturbance of appetite or weight, sleep disturbances, fatigue, psychomotor agitation or retardation. Of the 103 children in the study, half from a psychiatric population and half from a non-psychiatric population, less than two percent met the criteria for depression.

Carlson and Cantwell (1980) also used the DSM-III (APA, 1980) criteria in a study of masking behaviors and childhood depression. Using interviews of the children and their parents, plus the Child Depression Inventory (Kovacs & Beck, 1977), 28 of the 102 children, ages 7 to 17, were found to be suffering from affective disorders. Some of the depressed children also met criteria for other childhood disorders such as hyperactivity. In the depressed group, a high rate of aggressive, undersocialized and adjustment disorders were also present. The author suggested these behaviors as possible masking behaviors. They concluded that while these behaviors are sometimes present, an alert clinician using an interview, will not be misled in diagnosing childhood depression.

One of the early proponents of the viewpoint that childhood depression differs from its adult counterpart was Toolin (1962). After a review of clinical cases he argued for the inclusion of depressive equivalents when assessing for childhood depression. His argument holds that overt depressive symptoms found in adult depressions are seldom seen in children, in that depressive feelings experienced behaviors he puts forth as depressive equivalents are: temper tantrums, disobedience, truancy, running away from home, accident proneness, masochism, self-destructive behavior, boredom, restlessness, and sexual acting out. The effect of loss in the child's life was also considered to be an important variable.
Glasser (1967, 1968) has also been a strong advocate for the masked depressive symptomology when assessing children. Based on a review of case reports, he concluded that the following symptoms concealed depressive features not often suspected in children: temper tantrums, disobedience, truancy, running away, delinquent behavior, school phobia, and failure to achieve in school.

Burks and Harrison (1962) studied the relationship between aggression and depression and concluded that aggression was used as a means to avoid depressive feelings by children. This was reported as especially true for the children who had early histories of rejection or deprivation. These children were found to have poor self-concepts and feelings of worthlessness.

Cytryn and McKnew (1974) studied childhood depression at a children's hospital and found masked depressive symptoms were the most common symptoms in the children considered depressed. They also stated that the overt depressive affect found with adults is not common for children. The masking symptoms they listed were: hyperactivity, aggressiveness, school failure, and delinquency. Further, they suggested the primary manifestation of the depression is the child's fantasy and dream content, much as elicited through projective assessment.

Renshaw (1974) included fire setting and phobias in her list of masking behaviors. Other symptoms included school avoidance, running away, physical complaints, and whimpering and whining. Recent contributions to the literature on masking and equivalent symptoms continued to support the earlier studies that offer little new information or evidence. (Conners, 1979; Fisher, 1979; Phillips, 1979; Malmquist, 1977).
Cytryn, McKnew, and Bunney (1980) reassessed the records they had used in their earlier work (Cytryn & McKnew, 1974). In addition to their original criteria, the authors added feelings of despair, helplessness, eating patterns, sleeping patterns, psychomotor retardation, and occasional suicidal plots or attempts. The authors state the results of this work clearly point to the similarities between child and adult depressions. They concluded that child depression and adult depression are very similar and supported the need to bring the two disorders more in line with each other. They suggested the DSM-III (APA, 1980) criteria offered a valid means for achieving this goal.

Assessment

There have been a variety of methods used in assessing depression in children. The overwhelming number of studies that assess depression have used clinical interviews as a means of collecting the data. Welner (1978) has harshly criticized this method of investigation in diagnosis. She states childhood depression is diagnosed on the basis of clinical impressions "using arbitrarily selected criteria or favorable response to treatment with anti-depressant drugs" (p. 588). Rutter and Graham (1968) have also questioned the desirability of the interview method for assessing childhood depression. They studied the reliability and validity of the psychiatric interview with children and found that depression was difficult to rate reliably when using the interview as the source of data collection.

Spitzer and Fleiss (1974) cited the "obvious" vulnerability of the psychiatric diagnosis when based on the psychiatric interview, but stated
there is evidence for sensitivity to and agreement upon major psychiatric problems. The effective disorders were again said to be the least reliable. The authors suggested that structuring the interview and using specified criteria would improve both validity and reliability.

Feighner, Robins, Guge, Woodruff, Winokur and Munoz (1972) presented specific diagnostic criteria for 14 illnesses. Depression was one of the categories. The criteria were not considered to be complete but to be a beginning and expected to change as various disorders were studied in future research. Spitzer, Endicott and Robins (1978) reinforced the work of Feighner et al (1972) when they examined the rationale and the reliability methods used in selecting the various criteria for assessment of disorders. Much of the criteria was still based on clinical experience lacking strong research support. They proposed the goal for diagnostic criteria should be to offer a means of diagnosing disorders in a way that is acceptable to both clinicians and researchers.

More recent efforts to improve assessment include Brumbak (1979) who proposed a set of criteria to be used with an interview of the trial. Both dysphoric mood and self-deprecatory ideation must be present as well as two additional symptoms from a list of eight symptoms ranging from loss of energy to aggression. He argues that with such specific diagnostic criteria a uniform assessment process can be used resulting in more accurate diagnoses.

Poznanski, Cook and Carroll (1979) also address the problem of accurate diagnosis. They developed the Child Depression Rating Scale (CDRS). The CDRS instrument has the interviewer rate the child on a list of 15 items ranging from hyperactivity to depressed mood. Information is

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also gathered from multiple sources such as the parents and teachers.

In addition to the interview method of assessment, there are also alternative methods that have recently been developed for measuring childhood depression. Kovacks and Beck (1977) developed the Child Depression Inventory (CDI). This instrument is an adaptation of the Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock & Erbaugh, 1961) used frequently with adults. Like the BDI, the CDI contains 21 factors. The subject self-rates each item and a score is derived from a total rating. In addition to the CDI, a questionnaire is given to the parents which, when completed, adds to the diagnostic data base.

Wirt, Laschar, Kliendienst and Seat (1977) developed the Personality Inventory for Children (PIC) which includes a 46 item depression scale. The PIC was conceived as a type of Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway & McKinley, 1967) instrument for children. Whereas the subject rates each item on the MMPI, parents of the subjects rate the items on the PIC.

Petti (1978) reviewed a number of scales and other methods of measurement used to assess childhood depression. The wide range of assessment techniques was discussed. One measurement reported was the Koch test, a draw-a-tree test used in conjunction with a clinical examination. Another scale, the Bellvue Index of Depression was developed based on a modification of the criteria set forth by Weinberg et al (1973). The author concluded that even with such a wide variety of techniques being developed and used, such efforts lead to ever promising avenues to better understand the complex entity, childhood depression.
While efforts to develop a homogeneous means for assessing childhood depression are on-going, efforts in another related area of assessment have also been influencing this field of study. Lefkowitz and Burton (1978) emphasized that because the overwhelming majority of research on childhood depression had been conducted with clinical populations, clinicians really have no standard for comparison of their findings with the normal population. The authors suggested more research using non-clinical populations should be conducted. Results from such work would be critical for establishing effective diagnostic criteria, they argue.

There have been no epidemiological studies directly concerned with childhood depression; however, many of the symptoms classified as indicators of childhood depression have been included in epidemiological studies on deviant behavior of children. Lapouse (1966) studied 482 children, ages 6 to 12. The subjects were randomly selected and their mother and teachers were interviewed. Results showed that such behavior as fears and worries, aneuresis, and overactivity were found in 20% or more of the population study. The author also reported findings that the incidence of symptoms was greater with younger children and decreased with increased age. It was concluded that what has been identified as deviations in behavior and also used as indicators of psychiatric disorder might just be "transient developmental phenomenon" essentially normal in children.

Werry and Quay (1971) conducted another pertinent epidemiological study on the prevalence of behavior symptoms in young children. They used the Quay-Peterson Behavior Problem Checklist, a 55 item rating scale that includes behaviors such as feelings of inferiority, sadness, lack of emotional reactivity, each of which is a behavior commonly used in the

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assessment of childhood depression. The results show a high prevalence of behaviors frequently found in child guidance clinic populations in the five to eight year old range. Thus, they concluded the diagnostic value of such behavior was low.

Achenbach & Edelbrock (1981) conducted an epidemiological study in order to provide data on behavior problems as well as competencies in children that would be useful to both clinicians and researchers. They used the Child Behavior Checklist (Achenbach, 1978) with 1,300 children from 28 outpatient mental health settings and 1,300 children who had not been referred for mental health services. The results demonstrate that clinical status had the most numerous and strongest relationships to behavior problems and social competence.

The authors reported that data analysis confirmed that clinical status had the most numerous as well as strongest relationships to behavior problems and social competency. They also reported the largest relationship was between clinical status, referred vs. non-referred, and the problems of unhappy, sad, or depressed and poor school work. Higher rates of these two behavior problems were reported to be found in the sample of referred children while smaller rates were found in the sample of non-referred children.

Masking Behaviors

The introduction of masking behaviors and depressive equivalents led to a great deal of criticism concerning the number of behaviors that should be included in assessing childhood depression. Kovacs and Beck (1977) argue that "masked depression" cannot be diagnosed without proof.
of depression and, therefore, cautioned against the inclusion of these items in assessment tools. Lefkowitz & Burton (1978) cautioned that if masked depressive symptoms or depressive equivalents are used in assessing children, childhood depression will rise to a state of omnipresence. Welner (1978) supported Gittelman-Klein's (1977) criticism of having too many masked or equivalent symptoms resulting in depression being inferred from widely disparate behavior when depression itself is not clearly manifested.

The value of increasing the number of symptoms when assessing children has also been argued (Peterson, 1964; Leon, Kendall & Garber, 1980). In 1954 Argus used a depressive constellation to study the relationship between school phobia and child depression. His constellation included a psychohistory of the parents, school behavior and performance, and list of behaviors including aneueries and headaches. Glidwell, Mensch & Glider (1957) reported a clear and positive relationship between "degree of sickness" and the number, frequency and severity of the symptoms reported by mothers. Werry & Quay (1971) argue that the total numbers of symptoms, rather than the kind of symptoms, is most indicative of emotional disturbance. Since behavior symptoms used in the diagnosis of childhood problems are common in all children, they developed a 55 item behavior checklist for use in the development of various constellations of behaviors that would be useful in diagnosing childhood disorders. Quay (1972) argued for a statistical approach to assessing children and assigning them to a clinical category. He pointed out the need for constellations of behaviors that can be reliably observed and which, therefore, would enhance clinical assessment and increase meaningful statements about a child. Lefkowitz

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(1980) supports a statistical approach rather than a clinical prediction in the assessment of childhood disorders and states that a scientific study in this area has yet to be conducted.

Costello (1980) also argues for the use of constellations of symptoms. He suggests that the prevalence of any single symptom could be high at any particular age, however, the overall prevalence of a constellation of symptoms might be low at that time. A study by Leon, Kendall and Garber (1980) lends support to this position. They used the PIC (Wert et al., 1977), a parent rating scale, and found the children identified as depressed had significantly higher scores in the areas of conduct problems, anxiety, impulsiveness and hyperactivity.

The sources of data collection have also been emphasized. Lefkowitz (1977) argued for data from parents, schools and peers as a means to attempt to balance the bias that occurs when a parent or a teacher refers a child for assessment. He noted that behavior which might lead one person to refer a child for services might not be considered problematic by another person. Poznanski (1979) also recommended multiple data sources and in fact collected information from the children, their parents and their teachers using the CDRS. Leon, Kendall and Garber (1980) conducted a study on childhood depression from the perspective of the parent, teacher and child. They reported little consistency with the parents' and teachers' combined ratings, and called for a continued need for gathering information from more than one source.

The purpose of this discussion was to demonstrate the complexity as well as the fragmentation that is found in the literature on childhood depression. Clearly, there has not been a synthesis of the various sub-
groupings of knowledge and the result has been a fragmented body of knowledge to be found in the literature.
CHAPTER III

METHODOLOGY

The Setting

The study was conducted at Riverview Hospital for Children (RVH) in Middletown, Connecticut. RVH is the only state operated psychiatric hospital for children and serves the entire children's population in Connecticut.

RVH is a 64 bed facility serving children 6 through 13 years of age. The children are assigned to living units according to age upon admission. There are two admission units. The unit for the older children has boys and girls, mostly 12 years of age and older. The unit for the younger children has mostly boys and girls 11 years of age and younger. In addition to the admission units, there are three cottages designed to meet the needs of three different age and/or functional levels. Children are transferred from the admission units to one of the cottages based on a decision by the clinical team assigned to the child at the time of admission.

The child upon admission is assigned to a clinical evaluation team. The team is composed of a psychologist, a psychiatrist, a social worker, a nurse or child care worker from the child's living unit, an educational diagnostician, and a recreation therapist. The clinical team for each child conducts an in-depth evaluation of the child. The process is completed during the initial 30 day period following the
child's admission to RVH. Once the evaluation has been completed, a clinical evaluation conference is held. During the clinical evaluation conference all members of the clinical team present their reports. As a result of the evaluation conference, the child's treatment needs are defined and services to meet those needs are recommended. The recommendations range from continued services in the hospital to returning the child home with or without continued outpatient services. During the initial 30 day evaluation period, the child does not receive psychotherapy, nor is the child given an individual treatment plan. However, the child is involved in the unit program and participates in the education and recreation programs.

**Procedure**

To examine the reliability of the PNID when used by adults in the child's life, this investigator used the repeated ratings design. All members of the RVH staff involved in the clinical programs of the hospital were solicited to participate in the study. The staff members were given an explanation of the purpose of the study and the procedure was explained. Of those staff members who volunteered, 73 staff members participated in the study. Each of the four major components was represented in the study: clinical staff, living unit staff, education staff, and recreation staff.

The children admitted to RVH during the three month period, June through August, 1981, were eligible for inclusion in the study. Eight children, all boys, were admitted to RVH during the specified period and included in the study.
The ratings on these children took place during the initial thirty day evaluation period. Each child was to be rated by those staff members working with the child. The study design called for three ratings of each child by the staff members working with that child. The first rating was to be completed within 24 hours of the first working contact made with the child. The first rating had to be completed within the first seven days of the child's stay in RVH. The first rating by staff members of the receiving unit when a child was transferred from the admissions unit was to be completed within 72 hours of the time of transfer to the new unit. The second rating was completed on the fourteenth day of the child's stay in the hospital. The third and final rating was completed on the twenty-eighth day of hospitalization or at the time of the evaluation conference, whichever came first. With the exception of the rating, all raters completed their ratings within a 72 hour time band, allowing for those staff members not being present at work on days 14 or 28, to rate the child either one day early or one day after the specified date. If the rater was absent for the entire 72 hour period, or unable to complete a rating during the specified time frame, no rating was accepted. The rater did not have to observe the child on the day of the rating during the second or third rating periods. The staff member did, however, have to be working with the child. When a child was transferred to another unit, the staff members of the sending unit completed a final rating of the child within 72 hours of the transfer date.

Raters were instructed to complete their ratings individually and not to make the rating of the child a joint project. Further, the
staff members were told to rate the child based on their total knowledge of the child.

Rating Instrument

The instrument used in this study was the Peer Nomination Inventory of Depression (PNID; Lefkowitz and Tesiny, 1980). The PNID is a 20 item questionnaire which was developed to operationalize the concept of childhood depression. The PNID consists of 14 items selected from the clinical literature for measuring childhood depression, 4 items measuring ebullience or happiness and 2 items concerned with popularity. The standard procedure for using the PNID consists of having the 20 items read to a group of children who in turn select, from a given list of names of their peers, those names for which the item is true.

The PNID was modified for use in the present study. All 20 items were used. Items 4, 19, and 20 were altered in the following ways. Item 4 had the words "cottage" and "activity" added and reads "who often sleeps in class/cottage/activity?" Item 19 was changed in a like manner and reads "who others would like to be next to in class/cottage/activities?" Item 20 was changed to read "who has many friends?" The original item reads "who are the children you would like to have for your best friends?"

The administration of the instrument was also altered. Instead of having peers names listed for the rater to select those names for which the item was true, each rater was given the 20 items on a separate sheet. Next to each item was a scale allowing for three choices: Yes, No, and Don't Know. The rater selected the choice which best fit the child. (Appendix A)
Reliability of the PNID was reported by Lefkowitz and Tesiny (1980), from a study of 944 fourth and fifth grade children in classrooms from ten New York City elementary schools. The authors reported Item 2 did not fare well in the item analysis and was omitted from further computation except for the test/re-test analysis. Analysis of internal consistency for the other 13 depression items by means of coefficient alpha produced a reliability coefficient of .85. Item total correlations coefficients ranged from .34 to .71. The test/re-test reliability was assessed using a 35% random sample from the 506 children in the first six schools used in the study. The test/re-test coefficients were significant for all of the 14 depression items and ranged from .39 to .76. The test/re-test coefficients for the total depression score were reported acceptable indices for this form of reliability $r(177) = .79$ ($p < .001$).

Validity was established using content, concurrent and construct methods. Content validity was judged by nine experts who selected 13 depression items from 29 items gleaned from the clinical literature as manifestations of childhood depression. Concurrent validity was established by comparisons of the PNID with two other tests designed to measure depression and with a teacher rated depression. The first test of depression, a modification of the child depression inventory (CDI; Kovacs and Beck, 1977), had a significant correlation coefficient of $r = .23; p < .001$. The second test, a modification of the Self-Rating Depression Scale (MZUNG); Zung, 1965, also had a significant correlation coefficient of $r = .14; p < .001$. Similarly, the teacher-rated depression was significantly correlated with the PNID, $r = .41; p < .001$. The
construct validity of the PNID was established by confirming predictions made from the variables related to the construct of childhood depression. Results confirmed predictions that children having high PNID scores, (1) had depressed intellectual functioning, (2) have adversely affected social behavior, (3) have low self-esteem and are unhappy, (4) view control over events to be external, (5) have adversely affected school attendance, and (6) are more frequently represented in the lower socio-economic category.

The Peer Nomination technique has been successfully used to measure childhood behavior. Wiggins and Winder (1961) studied the psychometric properties of the Peer Nomination Inventory (PNI), a socio-metric adjustment for elementary boys and reported the results in detail. The study used the PNI in an exploratory manner to evaluate a depression scale. Based on the factor analysis, the authors were not able to clearly differentiate depression items as a group from the social isolation scale. Ten of the twelve depression items used in the PNI had significant loadings on the social isolation factor. The utility of using a combination of PNI items for research on depression was supported.

Seigelman (1966) completed a factor analysis of the PNI and compared the results with the results of the Wiggins and Winder (1961) study on the PNI. The product-moment correlations among the original five scales of the first study and for the second study range from .82 to .96. The coefficient for the depression scale was .82.
Statistical Analysis

Statistical procedures used in this study were selected for the purpose of assessing the reliability of measurement provided by the PNID. Three procedures, Kuder-Richardson #20 (KR-20), odd-even correlation, and Spearman-Brown correction, were used in computing reliability coefficients.

These statistical procedures were used to analyze data appropriate to the purposes of the study. The data were analyzed to evaluate the reliability of the PNID when used in modified form by adult raters working with children in a children's psychiatric hospital setting. Further, the data were analyzed to identify subsets of the rater's contributions to a predetermined level of significance.

The KR-20 is an internal consistency measure of reliability considered to be an average of all possible splits that can be arranged with any set of items. The KR-20 is an acceptable measure of reliability when a single factor is being measured (Downie & Starry, 1977, p. 259). The split-half method of obtaining reliability coefficients breaks each test score into two parts. Using the odd-even split, one of the possible split-half alternatives, one part has a score based on the odd-numbered items marked correctly according to an answer key, and the second part has a score based on the even-numbered items marked correctly using the same key. The Pearson r procedure is then used with the odd and even scores to obtain a reliability coefficient. Since reliability of measurement is related to the length of the measurement instrument, the division of the instrument into two equal parts, each half the length
of the original instrument, the reliability coefficient is automatically lowered. To correct this problem the Spearman-Brown procedure obtains a reliability coefficient for a measurement instrument equal to the length of the original instrument.

The data obtained in the study were analyzed in the following ways: first, all observations on all children, and all observations on each child were analyzed; second, all observations by child care workers and nurses on all children as well as on each individual child were analyzed; finally, all observations by clinical staff members, teachers and recreation therapists on all children as well as on each individual child were analyzed. The division of observations into the child care workers and nurses grouping and the rest-of-the-staff grouping was arbitrarily determined by this investigator based on the increased amount of time the child care workers and nurses spend with the children.

An arbitrary level of significance was established by this investigator, whereby two thirds of the subset correlation coefficients must meet or exceed the $r = .70$ level. The .70 level is based on the shared variance of interpretation of correlation. This level produces a minimum of 50% shared variance. The greater the shared variance, the greater the correlation.

An important objective of this study was to establish the efficacy of having adult raters use the PNID, as a modified procedure, in rating children regarding the psychological condition of depression. The selected statistical procedures, specifically the KR-20, the odd-even correlations, and the Spearman-Brown corrections, were used to accomplish this objective.
CHAPTER IV

ANALYSIS

The purpose of this chapter is to present the statistical results obtained from the use of the Peer Nomination Inventory of Depression (PNID) when modified (MPNID) for use with adult raters, by hospital staff members working with children residing in a children's psychiatric hospital. The data were analyzed by measures of central tendency using the Kuder-Richardson #20 (KR 20), Odd-even correlation, and Spearman-Brown correction procedures. Seventy-three staff members participated in the study.

Table 1 shows the reliability coefficients for all ratings on all children both for the total 20 item MPNID and the 14 depression items extracted from the original 20 items. The table also shows the correlation coefficients for all ratings on each child, both for the 20 MPNID items and for the depression items.

The KR 20 reliability coefficients for all items ranged from .76 to .93 for total ratings on each child. The application of the KR 20 procedure to the total 254 ratings resulted in a reliability coefficient of .91. Reliability coefficients determined by the KR 20 when used with the 14 depression items ranged from .66 to .89 for the individual children. The KR 20 used with the 14 depression items for all 254 ratings produced a reliability coefficient of .87.

The Odd-even procedure produced reliability coefficients for all items with all ratings for individual children ranging from .65 to .88.

38

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Utilization of the Odd-even procedure with all items for 254 ratings resulted in a reliability coefficient of .85. The application of the Odd-even procedure to the 14 depression items derived reliability coefficients ranging from .57 to .86 for all ratings on individual children. The Odd-even procedure used with the 14 depression items for all 254 ratings produced a reliability coefficient of .80.

The Spearman-Brown procedure used as a correction for the odd-even coefficients resulted in reliability coefficients ranging from .79 to .94 for all items with all ratings on individual children. The application of the Spearman-Brown correction procedure to all items with all 254 ratings produced a reliability coefficient of .92. When the Spearman-Brown procedure was used with the 14 depression items, the range of reliability coefficients for individual children was .73 to .93. A reliability coefficient of .89 resulted from the use of the Spearman-Brown procedure with the 14 depression items for all 254 ratings.

Table 2 shows the reliability coefficients for ratings made by child care workers and nurses. The application of the KR 20 procedure to all ratings on individual children and using all 20 items produced a range of reliability coefficients from .67 to .92. The KR 20 when applied to all items for all 172 ratings had a resultant reliability coefficient of .90. The KR 20 procedure used for determining reliability coefficients on the 14 depression items for all ratings on individual children produced a range of coefficients from .60 to .88. A reliability coefficient of .86 was obtained using the KR 20 procedure for the 14 depression items with all 172 ratings.
Table 2

RATINGS BY CHILD CARE WORKERS AND NURSES

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<td>.92</td>
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</tr>
</tbody>
</table>
The Odd-even correlation procedure when used with all items for all ratings on individual children produced reliability coefficients ranging from .64 to .87. The Odd-even procedure resulted in a reliability coefficient of .83 with all the items and the total of 172 ratings. The application of the Odd-even procedure to the 14 depressed items with all ratings on individual children produced a range of reliability coefficients from .43 to .85. The Odd-even procedure used with the 14 depression items resulted in a coefficient of .76 for the 172 ratings.

Spearman-Brown corrections of the Odd-Even correlations produced reliability coefficients ranging from .78 to .93 for all items with all ratings on individual children. A .91 reliability coefficient was obtained when the Spearman-Brown procedure was used with all items and the 172 ratings. The application of the Spearman-Brown procedure to the 14 depression items for all ratings on individual children produced a range of reliability coefficients from .60 to .92. The Spearman-Brown procedure resulted in a reliability coefficient of .86 for the depression items with all 172 ratings.

The reliability coefficients for the clinical staff members, teachers, and recreation therapists are shown in Table 3. For all 20 items and all ratings on the individual children, the KR 20 procedure produced reliability coefficients ranging from .76 to .96. The KR 20 procedure resulted in a reliability coefficient of .92 for all items with all 82 ratings. When the KR 20 procedure was used with the 14 depression items and all ratings on individual children, the resultant range of reliability coefficients was .79 to 1.00. The reliability coefficient produced by the KR 20 procedure for depression items using all 82 ratings was .89.
### Table 3

RATINGS BY CLINICIANS, TEACHERS, AND RECREATION THERAPISTS

<table>
<thead>
<tr>
<th>Procedure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>All Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>24</td>
<td>12</td>
<td>8</td>
<td>16</td>
<td>5</td>
<td>15</td>
<td>1</td>
<td>1</td>
<td>82</td>
</tr>
<tr>
<td>Kuder-Richardson #20</td>
<td>.93</td>
<td>.95</td>
<td>.83</td>
<td>.90</td>
<td>.96</td>
<td>.76</td>
<td>-</td>
<td>-</td>
<td>.92</td>
</tr>
<tr>
<td>Odd-even</td>
<td>.90</td>
<td>.87</td>
<td>.84</td>
<td>.93</td>
<td>1.00</td>
<td>.59</td>
<td>-</td>
<td>-</td>
<td>.87</td>
</tr>
<tr>
<td>Spearman-Brown Correction</td>
<td>.95</td>
<td>.93</td>
<td>.91</td>
<td>.96</td>
<td>1.00</td>
<td>.74</td>
<td>-</td>
<td>-</td>
<td>.93</td>
</tr>
<tr>
<td><strong>Depression Items</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuder-Richardson</td>
<td>.88</td>
<td>.92</td>
<td>.76</td>
<td>.90</td>
<td>.93</td>
<td>.77</td>
<td>-</td>
<td>-</td>
<td>.89</td>
</tr>
<tr>
<td>Odd-even</td>
<td>.87</td>
<td>.82</td>
<td>.74</td>
<td>.83</td>
<td>.99</td>
<td>.66</td>
<td>-</td>
<td>-</td>
<td>.83</td>
</tr>
<tr>
<td>Spearman-Brown Correction</td>
<td>.93</td>
<td>.90</td>
<td>.85</td>
<td>.91</td>
<td>1.00</td>
<td>.79</td>
<td>-</td>
<td>-</td>
<td>.91</td>
</tr>
</tbody>
</table>
The Odd-even correlation procedure, when used with all items for all ratings on individual children, produced a range of reliability coefficients from .59 to 1.00. The use of the Odd-even procedure with all items for all 82 ratings resulted in a reliability coefficient of .87. The application of the Odd-even procedure to the 14 depression items for all ratings on individual children produced reliability coefficients ranging from .66 to .99. The use of the Odd-even procedure with the depression items for all ratings derived a reliability coefficient of .83.

The Spearman-Brown procedure resulted in reliability coefficients ranging from .74 to 1.00 for all items with all ratings on individual children. A reliability coefficient of .93 was produced by applying the Spearman-Brown procedure to all items for all 82 ratings. When the Spearman-Brown procedure was used to determine reliabilities for the 14 depression items with all ratings on individual children, correlation coefficients ranged from .79 to 1.00. The Spearman-Brown procedure with the depression items for all ratings resulted in a reliability coefficient of .91.

The objective of this study was to assess the reliability of the PNID when modified for use by adult raters. The level of significance was arbitrarily set at $r = .70$ and two-thirds or 67% of the reliability coefficients must meet or exceed that value in order for the instrument to be considered reliable as used in this study.

Table 4 shows the percent of coefficients that meet or exceed the $r = .70$ value for all observations on each child. The 20 item or full MPNID exceeded the criterion for all reliability procedures. The depression
Table 4
Percentage of coefficients for all children that meet or exceed $r = .70$, based on all ratings.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>All Items</th>
<th>Depression Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuder-Richardson #20</td>
<td>100</td>
<td>75</td>
</tr>
<tr>
<td>Odd-even</td>
<td>88</td>
<td>63</td>
</tr>
<tr>
<td>Spearman-Brown Correction</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: Criterion value = 57%

Items exceeded the criterion value for 2 of the 3 procedures. The KR 20 and Spearman-Brown correction of the Odd-even correlations both exceeded the 67% criterion level. The odd-even percentage of coefficients failed to meet the criterion with a value of 63%.

Table 5 shows the percent of coefficients based on the observations by child care workers and nurses on each child which meet or exceed the criterion value of 67%. For the full MPNID, the KR 20 and the Spearman-Brown corrections both exceeded the 67% level of significance.

Table 5
Percentage of coefficients for all children that meet or exceed $r = .70$, based on ratings by child care workers and nurses.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>All Items</th>
<th>Depression Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuder-Richardson #20</td>
<td>88</td>
<td>63</td>
</tr>
<tr>
<td>Odd-even</td>
<td>63</td>
<td>38</td>
</tr>
<tr>
<td>Spearman-Brown Correction</td>
<td>100</td>
<td>63</td>
</tr>
</tbody>
</table>

Note: Criterion value = 67%
The 63% value for the Odd-even correlations was below the criterion level. All three percentage values failed to meet the criterion level for the depression items. Two procedures, the KR 20 and the Spearman-Brown, resulted in values of 63% each while the Odd-even value was 38%.

Table 6 shows the percentage of coefficients on all children which meet or exceed \( r = .70 \) value based on all ratings by clinicians, teachers, and recreation therapists. For both the full MPNID and the depression items, all three procedures had percentage values that exceeded criterion.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>All Items</th>
<th>Depression Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuder-Richardson #20</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Odd-even</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>Spearman-Brown Correction</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: Criterion value = 67%

The primary research question was whether or not the PNID, when modified to be used by adult raters, is a reliable instrument for assessing depression in children. The analysis of the correlation coefficients for the full 20 item MPNID clearly reveals the instrument met or exceeded the criterion level for significance in all but one instance. The odd-even procedure for establishing reliability failed to meet the criterion level for ratings by child care workers and...
nurses. The value obtained was 63%, or 4 points below the necessary 67% level. The Spearman-Brown corrections for the Odd-even procedure resulted in all of the coefficients exceeding the \( r = .70 \) value. Thus, when the odd-even procedure was corrected using the Spearman-Brown procedure the percentage of coefficients meeting or exceeding the level of significance changed from 63% to 100%. Therefore, the PNID was found to be a reliable instrument when modified for use by adult raters for assessing depression in children.

The second research question was whether or not the reliability of the MPNID differed according to which group of raters used the instrument. Analysis of the three groups of ratings (see Tables 4, 5, and 6) reveals all three have high percentages of coefficients that meet or exceed the \( r = .70 \) level. While the Odd-even percentage value for ratings by child care workers and nurses was below the desired 67% level by 4 points, the Spearman-Brown correction procedure for this same group resulted in a value of 100%. Thus, no difference in the results concerning reliability was found when the MPNID was used by the specified groups of raters.

While not a specific research question in the study, the outcome of a comparison of the full 20 items in the MPNID to the 14 depression items within the MPNID was examined. As shown in Table 4, the percentage of coefficients for depression items for all 254 ratings exceeded the 67% level for both the KR 20 procedure, which had a value of 75% and the Spearman-Brown procedure, which had a value of 100%. The Odd-even coefficients failed to meet the criterion with a value of 63%. Table 5
shows the depression items coefficients for ratings by child care workers and nurses failed to meet the 67% criterion for any of the three procedures. The KR 20 value was 63% while the Odd-even value was 38% and the Spearman-Brown procedure had a value of 63%. Table 6 shows the percentage values of the depression items for coefficients based on ratings by clinicians, teachers, and recreation therapists. All three procedures had percentage values greater than the 67% criterion level. The KR 20 procedure had a value of 100%. The Odd-even procedure had a value of 83%. The Spearman-Brown procedure had a value of 100%.

The purpose of this chapter was to present the results of the data analysis concerning the reliability of the MPNID. Data were reported for both total ratings as well as all ratings on individual children. Data were also presented on the full 20 items of the MPNID as well as on the 14 depression items found within the PNID. Both the primary and secondary research questions were addressed, and a comparison of the full 20 items of the MPNID with the 14 depression items found within the MPNID was addressed.
CHAPTER V

SUMMARY, CONCLUSIONS & RECOMMENDATIONS

Summary

The subject of this study was the psychological condition of depression in children. There are differing views in the existence as well as the ideology of this proposed disorder in children. This study examined the reliability of the Peer Nomination Inventory of Depression (PNID) when the instrument was modified (MPNID) for use by adult raters.

To accomplish this purpose, adult staff members of the children's psychiatric hospital rated children using the MPNID. The children were in their initial 30-day evaluation phase of the hospital program. In addition to assessing the reliability of the MPNID, selected groups of raters were analyzed in order to determine if reliability coefficients varied from the coefficients representing the total number of ratings on all children. Three reliability procedures were used: The Kuder-Richardson #20, Odd-even correlation, and the Spearman-Brown correction for the split-half procedure.

The reliability coefficients for all ratings on all children were well above the significant level of \( r = .70 \). The Kuder-Richardson #20 (KR 20) procedure produced a reliability coefficient of .91. The Odd-even correlation method resulted in a coefficient of .85 and the Spearman-Brown correction of the Odd-even correlation had a coefficient of .92. These coefficients were obtained using all 20 MPNID items.
The coefficients for the 14 depression items ranged from .80 to .89, also well above the .70 criterion level.

The reliability coefficients for all items as well as the depression items using all ratings on individual children had to meet or exceed the .70 level 67% of the time to be considered significant. The KR 20 procedure had a value of 100%, and the Odd-even correlation had a value of 88%. The Spearman-Brown procedure, which corrects the split-half correlation coefficients, had a value of 100%. These values were obtained utilizing the entire 20 items of the MPNID.

Statistical analysis used with the 14 depression items produced values of 75% for the KR 20, 63% for the Odd-even correlation, and 100% for the Spearman-Brown corrections. Since the Spearman-Brown procedure is considered a correction procedure for the split-half correlation coefficients, the value of the KR 20 in the Spearman-Brown procedures should be used in determining the significance of the instruments. Therefore, both the entire 20 MPNID items and the 14 depression items prove to be reliable in assessing depression in children.

The percentage values for ratings by child care workers and nurses prove to be significant for the 20 items of the MPNID but not significant for the 14 depression items. Ratings by clinicians, teachers, and recreation therapists had percentage values that were significant for both the full MPNID and the depression items.

The reliability coefficients for the different groups of raters were analyzed. All were found to be significant for the MPNID, thus indicating the instrument is reliable with both sets of raters.
Coefficients for the depression items were found to be significant for the ratings by clinicians, teachers and recreation therapists. The reliability coefficients for the child care workers and nurses were not found to be significant.

Based on the above data analysis, the MPNID was found to be a reliable instrument for assessing depression in children. While the MPNID seems unaffected by the persons doing the ratings, the depression items taken alone seem to be less stable across different groups of raters. Therefore, the strength of the MPNID lies in the use of the full 20 items, and not just the depression items.

Limitations

While the modifications of the PNID which resulted in the MPNID seem to be minor in their appearance, the change of wording for items in 4, 19 and 20 may have disturbed the stability of the instrument resulting in a less effective assessment instrument. The PNID was validated and checked for reliability using the original 20 items, and this validation was accepted for the MPNID. If the changes did in fact alter the stability of the instrument, the assumption that the MPNID is a valid instrument may be inaccurate.

The present study used only boys as the subjects for the rating process. While girls were acceptable for inclusion in the study, none qualified. In using only boys, significant data may have been omitted allowing for the possibility that the conclusions may be in error.

The division of the raters into the selected two groupings may be problematic in design. The groups were divided according to the amount
of time the raters spent with the children. Child care workers and nurses were assigned to one group because their work schedules assigned them to be with the children for longer periods of time than the rest of the staff members. However, the level of formal professional training was highest with the clinicians and lowest with the child care workers and recreation therapists. Thus, professional training might be an important variable that needs to be addressed in order to determine whether or not the level of training by the raters had any affects on and were consistent with the results of the data analysis for the two selected groups as well as the results from the data analysis for all 254 observations.

The present study was conducted in a children's psychiatric hospital. Thus, the setting was one with a high degree of control. The children were restricted in their movements and activities due to the structure and the limitations of the setting. The confined nature of the hospital made observing the children very simple. It also allowed for intensive observation of the children. The raters, therefore, were able to gather a great deal of knowledge through observation of the children before completing their ratings on the children. This capability is not present in many settings and may have influenced the results of the study.

Another possible limitation of the study revolves around the issue of staff ratings. All raters who participated in the study were professionals in the field of working with children. The raters also had easy access to the children for observation and interviews. In addition, they had easy access to reports and other information concerning the
children being rated. Thus, the raters had opportunities to obtain information on the children being rated which may not be available in many other settings.

While not necessarily a limitation of the present study, the fact that the children involved in the study were living in a highly structured and therapeutic environment needs further comment. Although no individual treatment plan was developed for a child, his involvement in the living unit, recreation and education programs may have had a significant effect on the child's internal experiences in a way that would fail to be reflected in his overt behavior. Such experiences could affect the diagnostic process outcome. Whether or not the 30-day evaluation period affected the results of the present study cannot be determined.

**Conclusions**

The purpose of this study was to determine the reliability of the PNID (when modified, MPNID), for adult raters. The findings of the study were positive. The reliability coefficients were significant and, therefore, the MPNID was accepted as a reliable instrument for assessing depression in children in the hospital setting.

These findings are encouraging. The potential usefulness of the MPNID lies in its ability to help clinicians in the diagnostic process when working with children. Thus, the concern of many experts that the majority of children with characteristics of an effective illness are not properly diagnosed would be open to dispute based on the research undertaken using a modified version of the PNID.
The MPNID also has great potential in the joining of clinical work with epidemiological research findings. Lefkowitz and Tesiny (1980) developed the PNID as an instrument for epidemiological research. Since the MPNID is derived from the PNID, the use of both allows sampling of the normal as well as the clinical populations with virtually the same instrument. Such a capability would further strengthen the ability of the clinician to properly differentiate children with a depressive illness from normal children not experiencing a depressive illness.

The MPNID offers the clinician an instrument for assessing childhood depression which is short in length, easy to complete, and offers an accurate job of diagnosing depression in children. With only 20 items, each rater can quickly and easily complete the MPNID. The wording of each item is simply done and easy to understand making the MPNID an instrument that will make sense to adults, both professionals and non-professionals, who are asked to rate a child using the MPNID. The MPNID is also an instrument designed for use with children only and, therefore, avoids the problems usually encountered when trying to deal with too wide a range of ages and developmental issues.

Whereas the PNID was designed to be used solely by children, the present study reworded and developed that instrument into the MPNID, an instrument that is used by adults such as parents, teachers and clinicians for rating children. The modification has proven to be a vast improvement over the PNID as far as clinical utility is concerned. The use of the MPNID by adults has broadened the amount of input which can be collected in the assessment process. With ratings by parents and teachers, the clinician has more knowledge than would be collected.
in a clinical interview. In using the MPNID, a clinician's assessment
of childhood depression does not rely solely on the interpretation or
observations by the clinician. In other words, the MPNID offers an
accurate means to assess depression in children which is superior to
the clinical interview, a method proven to be unscientific and unreliable.

The analysis of ratings by child care workers and nurses, when
compared with the rest of the ratings by other treatment staff, indicates
that the differing amounts of time spent with the children by these two
groups did not affect the reliability of the instrument. This suggests
that the amount of time needed to be spent with a child by a rater is
not a significant variable in using the MPNID.

Thus, the MPNID offers the clinician a means of gathering information
from other adults and of making a rapid and accurate diagnosis of
depression in children. The MPNID can reduce the need for multiple
interviews in assessing childhood depression. Such an instrument has
not been available before. In the past, the problems of no diagnosis
for children who were depressed, and of misdiagnosis for non-depressed
children, have directed the course of therapy for those children. Now
with the necessity for obtaining only a few ratings, the clinician
would be able to use the MPNID to promptly and properly identify
childhood depression when present and provide the necessary therapy
based on such a diagnosis.

The MPNID ultimately has the potential to be employed as a standard
intake procedure for children at child mental health facilities. When
the agency seeks information from the parents or school personnel, part
of that process could include the completion of the MPNID by those adults.
As previously mentioned, the MPNID offers a quick, easy, and accurate diagnosis of childhood depression.

The MPNID is an easy to use instrument for assessing depression in children and, therefore, is attractive as a means for re-evaluating a child during the course of therapy. If a therapist is interested in verifying or checking the status of depression in a child, the MPNID could be used quickly to assess or re-assess the child and make any necessary changes in the treatment strategy.

Clearly the ease and flexibility of its use makes the MPNID an attractive assessment tool. However, it is also important to remember the foundation on which the MPNID was developed. Unlike other instruments for assessing depression in children, the MPNID evolved from a carefully developed definition of childhood depression by Lefkowitz and Tesiny (1980).

There are many strong critics of research on childhood depression. Studies of childhood depression have been criticized for including too many descriptors of behavior in order to identify depression in children. These critics have cautioned that in order to identify childhood depression, researchers needed to develop a definition that was not all-inclusive and that focused on a child's inability to respond appropriately to pleasurable events. The definition developed by Lefkowitz and Tesiny (1980) noticeably reflects the recommendations by these critics and focuses on the child's ability to experience pleasure. It also avoids including too many descriptors.

Thus, maintaining item content, which does not violate the definition of depression as it is stated by Lefkowitz and Tesiny (1980) provides a strong foundation for the MPNID. Because of the consistency among the
items in fitting with the definition of childhood depression, the use of the MPNID strengthens the position that childhood depression does exist and can be measured.

Recommendations

The findings of the present study, while encouraging, suggest research questions that need to be addressed. Continued research would further strengthen the value and utility of the MPNID.

One of the most important aspects of a measurement instrument is the validity of that instrument. The wording changes for items 4, 19 and 20 of the MPNID, which differ from the original PNID items, need to be evaluated to determine whether or not these changes altered the construct validity of the MPNID. One possible design for dealing with this problem would be to take a population of children and administer the PNID according to the original administration procedure. Next, the same population could be rated by adults such as teachers, parents, or clinicians using the MPNID and a statistical analysis made to compare results obtained from distinctly different raters.

The present study omitted female children, not by design but by circumstance. Therefore, research which replicates the procedure of the present study but uses only female children as subjects is warranted. Further, a replication of the present study which includes both boys and girls as subjects is necessary.

The MPNID was standardized in a children's psychiatric hospital. The need exists for a study to be conducted in an outpatient setting to ascertain if the stability of the instrument significantly varies when used in a non-hospital setting.
Another worthwhile study involves assessing the reliability of the MPNID when used solely by parents and other nonprofessional adults. The results of ratings by such adults could then be compared to results of ratings by professionally trained personnel.

Before the MPNID is ready for clinical use, a means for determining a specific score based on the MPNID ratings which indicates depression must be developed. The ratings need to be quantified in order to produce a score. Also the number of ratings necessary for diagnosing depression must be determined. Finally, research that evaluates the validity of the MPNID when compared with other measures of childhood depression is recommended. Studies might use psychiatric rating scales like the one developed by Poznanski, Cook and Carroll (1979) or Child Depression Inventory (Kovacs & Beck; 1977) or even the Personality Inventory for Children (Wirt et al; 1977) for comparison with the MPNID.
APPENDIX A

Modified Peer Nomination Inventory of Depression
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Who often plays alone?</td>
<td>1.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>2. Who thinks they are bad?</td>
<td>2.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>3. Who doesn't try again when they lose?</td>
<td>3.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>5. Who often looks lonely?</td>
<td>5.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>6. Who often says they don't feel well?</td>
<td>6.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>7. Who says they can't do things?</td>
<td>7.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>8. Who often cries?</td>
<td>8.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>10. Who likes to do a lot of things?</td>
<td>10.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>15. Who doesn't have much fun?</td>
<td>15.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>16. Who is often cheerful?</td>
<td>16.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>17. Who thinks others don't like them?</td>
<td>17.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>18. Who often looks sad?</td>
<td>18.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>19. Who others would like to be next to in class/cottage/activities?</td>
<td>19.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
<tr>
<td>20. Who has many friends?</td>
<td>20.</td>
<td>Y</td>
<td>N</td>
<td>DK</td>
</tr>
</tbody>
</table>
APPENDIX B

Peer Nomination Inventory of Depression
Peer Nomination Items: Depression (D), Happiness (H), and Popularity (P)

Who are you? (Identification item)
Who often plays alone? (D)
Who thinks they are bad? (D)
Who doesn't try again when they lose? (D)
Who often sleeps in class? (D)
Who often looks lonely? (D)
Who often says they don't feel well? (D)
Who says they can't do things? (D)
Who often cries? (D)
Who often looks happy? (H)
Who likes to do a lot of things? (H)
Who worries a lot? (D)
Who doesn't play? (D)
Who often smiles? (H)
Who doesn't like to take part in things? (D)
Who doesn't have much fun? (D)
Who is often cheerful? (H)
Who thinks others don't like them? (D)
Who often looks sad? (D)
Who would you like to sit next to in class? (P)
Who are the children you would like to have for your best friends? (P)
BIBLIOGRAPHY


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Siegelman, M. *Psychometric properties of the Wiggins and Winder Peer Nomination Inventory.* *Journal of Psychology,* 1966, 64, 143-149.


