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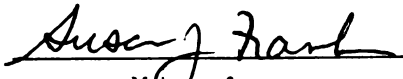
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**A MODEL OF INPATIENT CHILD AND ADOLESCENT BEHAVIORS:
VALIDATION OF THE CHILD BEHAVIOR RATING FORM--REVISED**

By

Laurie Anne Van Egeren

A THESIS

**Submitted to
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ABSTRACT

A MODEL OF INPATIENT CHILD AND ADOLESCENT BEHAVIORS: VALIDATION OF THE CHILD BEHAVIOR RATING FORM--REVISED

By

Laurie Anne Van Egeren

The psychometric properties of a measure of inpatient child and adolescent behavior problems and adaptive behaviors, the Child Behavior Rating Form--Revised (CBRF-R), were investigated using a sample of 387 inpatients and their mothers. Confirmatory factor analyses were conducted on alternative models of Maladaptive and Adaptive Coping dimensions. Although support was not found for the predicted models, post hoc exploratory analyses using confirmatory procedures identified five Maladaptive Coping and two Adaptive Coping dimensions, as well as an Externalizing dimension. Investigation of the scales' psychometric properties revealed that they are conceptually sound, internally consistent, can be rated reliably, show expected age and sex differences, and are stable over one- and two-week intervals. Although the scales were unable to discriminate among diagnostic groups, evidence was found for their concurrent and predictive validity. The CBRF-R appears to be a potentially important tool for assessing treatment and medication effects over the hospital stay.

For Mike,
whose unflagging support, sacrifice, tolerance, and humor
are unmatched in the history of husbands.

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Introduction

The purpose of this study is to evaluate the psychometric properties of the Child Behavior Rating Form-Revised, a behavior rating scale designed for repeated measures of behaviors of psychiatrically hospitalized children and adolescents. Although behavior rating scales are commonly used in outpatient clinics for both research and clinical purposes, they have been underutilized in hospital settings. However, recent changes in the inpatient treatment component of the mental health care delivery system, including an increased emphasis on the integration of empirical findings with clinical casework, suggest that corresponding alterations in assessment methods are necessary. The development of behavior rating scales that are completed on a regular basis to monitor patients' progress is one fruitful area of exploration.

Treatment goals for hospitalized children and adolescents have changed dramatically during the past 20 years. Inpatient therapy formerly focused upon intense, protracted exploration of the child's psychic conflicts and defenses in order to "cure" the disorder by effecting a complete restructuring of the patient's personality (Jemerin & Philips, 1988; Nurcombe, 1989). Currently, however, two major factors preclude the use of traditional long-term, psychoanalytically based treatment. First, severe economic constraints resulting from pressure by third-party payers in the face of escalating hospital costs has led to shorter stays and reduced staffing (Jemerin & Philips, 1988; Nurcombe, 1989). Second, children and adolescents are being admitted to psychiatric hospitals at increasingly rapid rates. Compared to two decades ago, more than twice as many children and adolescents are placed in residential treatment centers (Taube & Barrett, 1985), leaving fewer beds available for long-term care. In response to these issues, individuals are

generally eligible for admission to a psychiatric hospital only if they meet one of four criteria: 1) the individual is a danger to self; 2) the individual is a danger to others; 3) outpatient treatment has failed to successfully treat the problems; or 4) the individual is unable to manage activities of daily living (e.g., Blue Cross/Blue Shield of Michigan Blue Chip Criteria, 1994).

These stringent admission criteria have resulted in only the most severely behaviorally disturbed youth being placed in inpatient units. The combination of severe presenting problems and increasingly shorter stays has modified the overriding goal of hospitalization from amelioration to stabilization of problems through trained clinical observation and problem-focused and goal-oriented assessment, crisis intervention, behavioral management, brief focused therapy, medication management, and aftercare planning to ensure continuity of care through links to outpatient treatment networks (Blinder, Young, Fineman, & Miller, 1978; Hersov & Bentovim, 1985; Jemerin & Phillips, 1988; Nurcombe, 1989).

In an effort to maximize treatment effects under the above constraints, implementation of structured, goal-oriented treatment planning has become a priority (Harper, 1989; Nurcombe, 1989). Immediately upon admission, specific problem behaviors, such as aggression or self-harm, are targeted for intervention and change. When the frequency and severity of the target behaviors has decreased sufficiently for the patient to function without continual care, the patient is considered stabilized and ready to begin outpatient treatment. The cornerstone of successful problem-directed treatment planning is ongoing monitoring and evaluation of the target problems. Indeed, “the treatment team should design an evaluation plan coordinated with the objectives, whenever possible

involving measurement rather than qualitative judgment” (Nurcombe, 1989, p. 29). Thus, identification of a standardized and psychometrically sound method of repeatedly assessing target problems is essential.

Two additional factors support the need for a standardized method of tracking inpatient behaviors. First, in response to the high costs of hospitalization, third-party payers are requiring inpatient facilities to justify the necessity for intensive treatment (Jemerin & Philips, 1988; Nurcombe, 1989). The vast majority of hospitals currently provide justification based on the review of unstandardized narrative case notes. Given increasing pressure on outpatient providers to use objective measures to defend treatment need, it seems likely that the same will soon also be required of inpatient facilities.

In a related vein, the psychiatric hospital system has been called upon to demonstrate treatment effectiveness in response to concerns that this expensive form of treatment may be unhelpful and even detrimental. A review of child and adolescent inpatient treatment outcome studies by Pfeiffer and Strzelecki (1990) was able to demonstrate that inpatient treatment often results in successful outcomes. However, the authors also noted that the majority of the studies they reviewed lacked a “recognizable research design” (p. 852) and recommended that researchers concentrate on developing well-controlled studies. Studies that utilize repeated measurements of patient behaviors would be a sophisticated addition to the process and outcome literature.

The remainder of this chapter critically reviews the literature regarding child and adolescent behavior rating scales, with special attention to scales developed for use on inpatient units. The chapter begins with a discussion of the uses and advantages of behavior rating scales, particularly with inpatient populations. After a review and critique

of the existing literature on rating scales for psychiatrically hospitalized children and adolescents, the development of an instrument (a revision of an existing measure) that is intended to address the weakness of its predecessors is described. The chapter concludes with a discussion of conceptual and methodological issues inherent in the psychometric evaluation of inpatient rating scales, and the specific hypotheses suggested by the review and examined in this thesis.

Behavior Rating Scales

Behavior rating scales are one of the most prevalent methods of assessment for children and adolescents in both clinical and research settings. They have been implemented in such diverse projects as epidemiological research, comparisons of different age and gender groups, development of a taxonomy of disorders, evaluations of the utility of continuously distributed syndromes versus criterion-based diagnoses, etiological research, outcome research, cross-cultural comparisons, and treatment sensitivity research (Achenbach, 1991a).

Barkley (1988) outlines several advantages of behavior rating scales for the study of child psychopathology: 1) they can gather information about the child's behavior from well-informed reporters from multiple contexts; 2) they allow information to be collected on behaviors that may occur infrequently; 3) they are generally cost- and time-efficient; 4) many scales have normative data from representative populations so that individuals or groups can be evaluated according to cutoff scores that indicate normality or deviance; 5) a wide variety of scales are available that focus on either one specific problem dimension or on multiple problem areas; and 6) they provide access to information from those most

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responsible for the child's behavior and well-being.

Rating scales completed by caregivers or teachers are particularly important to the assessment of youthful populations because evidence suggests that children and adolescents are less reliable reporters of their own behavior, assuming that they are sufficiently literate to complete the measure. While children and adolescents do report behavior problems, they have generally been found to report significantly fewer and milder problems than do adult reporters (Kazdin, Esveltd-Dawson, Unis, & Rancurello, 1983; Kazdin, French, & Unis, 1983; Kolko & Kazdin, 1993; Loeber, Green, Lahey, & Stouthamer-Loeber, 1990), although this may be more true for nonreferred children than for clinical samples (Mokros, Poznanski, Grossman, & Freeman, 1987) and for externalizing than for internalizing behaviors (Edelbrock, Costello, Dulcan, Conover, & Kalas, 1986; Herjanic & Reich, 1982; Reich & Earls, 1987; Reich, Herjanic, Welner, & Gandhi, 1982). Reliability appears to increase as children grow older, but continues to be less reliable than parent report in some areas (Edelbrock et al., 1986).

Although numerous adolescent and child behavior rating scales exist, few meet the specialized needs of the inpatient unit (Conners & Barkley, 1985; Orvaschel, Sholomskas, & Weissman, 1983; Riddle, 1989). The following section presents a discussion of the requirements, uses, and advantages of rating scales designed expressly for use with psychiatrically hospitalized youth.

Inpatient Behavior Rating Scales

To be useful on an inpatient unit, behavior rating scales require items that cover a wide range of psychopathology, including externalizing, internalizing, and psychotic

behaviors (Conners & Barkley, 1985). On the other hand, some behaviors that may be noted on general behavior rating scales, such as sexual intercourse or substance use, are unlikely to occur in the hospital and can be eliminated from inpatient measures. In addition, increasing attention is being focused on the observation of positive behaviors. Outcomes that are evaluated simply by measuring the decrease in deviant behaviors may be too narrowly defined (Conners & Barkley, 1985; Pfeiffer & Strzelecki, 1990). For example, one suggestion for “normality” is that both negative and positive behaviors should be in the normative range (Edelbrock, personal communication; cited in Conners & Barkley, 1985). A final essential requirement is that the instrument must be relatively brief, easy to use, and concretely worded, since hectic schedules, frequent emergencies, and ever-decreasing staff support severely limit the amount of time available for training and documentation. These apparently diametrically opposed requirements for both range and brevity have impeded the development of an acceptable inpatient rating scale.

Nonetheless, the potential benefits make the endeavor well worthwhile.

Psychiatrically hospitalized children and adolescents provide unique research opportunities for the study of developmental psychopathology, treatment process, and outcome effects (Riddle, 1989). Because inpatients are available for round-the-clock observation, frequent repeated measurement is possible as in no other setting, opening a myriad of potential applications. For example, decreases in mean level of problem behaviors and/or increases in positive behaviors might assist in determining both discharge readiness and medication effects. In addition, in the manner of Edelbrock and Achenbach (1980), cluster analysis could be used to identify profile patterns that characterize groups of inpatients. Finally, growth curve analysis might examine systematic changes that take place during the course

of treatment.

An additional advantage of utilizing behavior rating scales on psychiatric units is that standardized information on problem behaviors may be difficult to obtain in other ways. Children and adolescents rarely volunteer for hospitalization and may underreport to a greater extent than even normal children in an effort to avoid admission or hasten discharge. Many parents may choose not to complete assessment information after admitting their child (Williams, Ben-Porath, Uchiyama, Weed, & Archer, 1990). Furthermore, admitting staff are sometimes reluctant to request parents to complete additional forms (Williams et al., 1990). Thus, a rating scale whose completion does not depend on cooperation from the patient or his/her family is far more likely to be of use for inpatient assessment.

Traditionally, inpatient observations have been documented by psychiatrists and/or clinicians in a format based on a mental status exam wherein based on a one-time interview, the patient is rated in the areas of psychomotor functioning, verbal expression, affective expression, thought association and content, and sensorium (Kinon & Gershon, 1982; Raskin, 1982). However, while psychiatrists, psychologists, and social workers are specifically trained to identify and treat problem behaviors, they have relatively limited contact with the patient and, therefore, are unsuitable raters for repeated behavioral assessment. In contrast, the primary duty of unit staff such as nurses and mental health workers (also titled mental health counselors, psychiatric aides, or psychiatric technicians) is to conduct 24-hour observation of the patients. Unit staff are responsible for monitoring the patients' whereabouts, escorting patients to meals, intervening when patients are at risk of harming themselves or others, and conducting group and milieu therapy. In fact,

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Hargreaves (1968) contends that only unit staff have sufficient contact with patients to be able to provide valid ratings on a daily basis. Furthermore, patients may be more likely to exhibit a representative sample of behavior to unit staff than to psychiatrists and therapists, for whom they may be on their best behavior in the hopes of speeding discharge. Thus, behavior ratings by unit staff may be more valid measures of the patient's actual level of functioning than psychiatrist and clinician ratings (Raskin, 1982).

Nonetheless, the observations of nurses and mental health workers have rarely, except for isolated research studies, been incorporated into standardized assessment procedures. Typically, unit staff convey their observations of the patients' behavior to the treatment team via narrative chart notes that follow a standard format, such as "D.A.P.I.E." (Data, Assessment, Plan, Intervention, Evaluation), "S.O.A.P." (Subject, Observation, Assessment, Plan), "P.O.I.R.E." (Plan, Observation, Intervention, Response, Evaluation), and "B.I.R." (Behavior, Intervention, Response). Despite these attempts to standardize the information by providing an acronymal outline, chart notes are highly subjective and extremely sensitive to the rater's clinical training and judgment, resulting in tremendous variability in the quality and quantity of the information provided. Furthermore, narrative notes are often uninformative, since they tend to produce formulaic responses (i.e., "Plan: Continue to monitor patient's behavior") rather than observations specific to a particular patient. Standardized behavior ratings by unit staff would, therefore, not only yield a significant database, but would also provide structure for information-gathering.

With the above considerations in mind, the following section reviews the development and psychometric properties of several existing rating scales that have been

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used to rate the behavior of psychiatrically hospitalized children and adolescents.

Subsequently, the literature will be summarized and critiqued as a whole, and recommendations made for future directions for this line of work.

Prior Studies of Inpatient Behavior Rating Scales

Numerous staff-rated instruments have been developed for use with psychiatric patients. The vast majority, however, have targeted chronically mentally ill adults (e.g., Hall, 1977; Hargreaves, 1968; Honigfeld, Gillis, & Klett, 1966; Honigfeld & Klett, 1965). This review will address only staff-completed inpatient behavior rating scales that are available for use with children and adolescents.

The first inpatient child behavior rating scales were unwieldy and lacked sufficient empirical validation. The earliest published inpatient child behavior rating scale is Burdock and Hardesty's (1964) Children's Behavior Diagnostic Inventory (CBDI), developed in order to monitor the effects of psychopharmacological interventions on children 12 and under via standardized nursing observations. Each of 137 symptoms, rated present or absent, were screened to determine whether their occurrence was deviant for children ages 1 to 12. This system resulted in varying numbers of items for different age groups, ranging from 11 items for 1- to 2-year-olds to 137 items for 11- to 12-year-olds. Based on the content of the items, the items were classified into six subscales: Vegetative Functioning, Appearance and Mannerisms, Speech and Voice, Emotional Display, Socialization, and Thought Processes. Because the number of items differ for each age group, not all age groups are rated on all scales. The authors provided initial psychometric data: interrater reliability as measured by the intraclass correlation was .64, and test-retest measurements

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over a four-month interval with five inpatient children showed little change in the mean scores, while the children retained the same rank order at the both observations. The CBDI was able to discriminate between 145 normal children and a nonnormal sample comprised of 22 psychiatrically hospitalized children, 14 autistic children, and 11 mentally retarded children.

Although the CBDI is noteworthy in its attention to developmental differences in the display of problem behaviors, it has numerous problems. The item content and optimal length of observation period are unclear. Cross-age comparisons are impossible since each age group is rated on a varying number of items and scales. The content of the subscales was determined by subjective decisions rather than by empirical analysis. Perhaps most salient given the purpose of the measure, the considerable stability (albeit on an extremely small sample) suggests that the measure may lack sensitivity to medication or other treatment effects; it should be noted, however, that it is unclear whether the children in the test-retest sample were taking medication.

Another early attempt to create a behavior scale for psychiatrically hospitalized children and adolescents is the Wisconsin Diagnostic Center Ward Adjustment and Behavior Rating Form (WABRF; Weiss, 1969). This measure was developed with the goal of identifying objective behaviors that would minimize inference and that are readily observed by nursing staff. The inventory has two forms, one for children and one for adolescents (no specific age ranges are described), which are identical except for one item that asks about relations with the opposite sex. Each form has 36 items rated on 3- to 9-point scales, with each point representing a descriptive statement. Ratings are interpreted through the use of an accompanying codebook that provides a key for each

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numerical rating under each behavior. In addition, there is a 12-item adjective checklist. No reliability data is available for this measure. All validity data are based on frequency counts rather than tests of statistical significance. The items appear to discriminate between pre-DSM diagnoses in theoretically consistent ways. In addition, items on the WABRF distinguished 30 adolescent boys with abnormal EEGs from 136 adolescent boys with normal EEGs.

In general, the WABRF is cumbersome and difficult to use. Because the scale points are not anchored in polar opposites (i.e., for the "Persistence" item, 1 = "Gives up easily," 6 = "Changeable," and 7 = "Unratable"), no simple index of behavior severity is available. In addition, despite the goal of generating objective, concrete items, most of the items require a great deal of inference. Finally, the WABRF does not have a clearly delimited age range or observation period and lacks adequate reliability and validity data.

A third early rating scale which has received considerable attention in recent years is the Devereux Adolescent Behavior Rating Scale (DAB; Spivack & Spotts, 1967). Based on initial studies examining the factor structure of behavior problems in latency-age children (Spivack & Levine, 1964; Spivack & Spotts, 1965), the DAB was developed using a combined sample of 640 normal, emotionally disturbed (including psychotic), and mentally retarded adolescents, ages 13 to 18. The original version of the DAB consisted of 172 items, described in specific behavioral terms and spanning a wide range of problems, that were rated for frequency or severity for the past two weeks. At the time, computer packages were unable to process large numbers of items, so that items that had extremely high or low correlations with other items were not analyzed. Principal factor analysis with equalmax rotation was therefore performed on only 125 items, resulting in 18 factors. The

remaining items were grouped into four additional scales after qualitative review of their intercorrelations. However, the acceptability of the final factor structure is questionable. The majority of the factors were comprised of five or fewer items, many items had factor loadings less than .40, and several factors had moderately high intercorrelations, suggesting that the final factor structure is unstable and might benefit by retaining fewer factors. Although the DAB was tested on a sample of visually impaired residential students (Ross and Gallagher, 1976) and as an outcome measure of outpatient group and family therapy effectiveness (Fine, Knight-Webb, & Breau, 1976; Garrigan & Bambrick, 1977), no reliability or validity data is available for the original DAB scales in an inpatient sample.

Williams and colleagues have addressed the methodological shortcomings of the original DAB scales in a series of factor-analytic studies. First, in a study of 404 adolescents, ages 12 to 18, who were admitted to inpatient substance abuse treatment programs, principal components analysis was performed on 15 of the original scales based on 84 items (Williams, Ben-Porath, & Weed, 1990); the DAB had been shortened prior to this study, for reasons which are unclear. Four broad-band components emerged that were labeled Acting Out Behaviors, Psychotic Behaviors, Attention-Seeking/Expressive Behaviors, and Inner Turmoil/Frailty. However, the latter two components did not replicate in a sample of 737 day treatment and hospitalized patients (Ben-Porath, Williams, & Uchiyama, 1989). The lack of replication may stem from the differences in samples (substance abusing vs day-treatment and inpatient adolescents) and/or from the lack of internal consistency of the original scales.

Subsequently, an item-level principal components analysis with varimax rotation

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was conducted, resulting in five components that assessed acting out behaviors, withdrawn/timid behaviors, psychotic behaviors, neurotic/dependent behaviors, and heterosexual interests (Ben-Porath et al., 1989). No interrater or stability data is available, but some support for the validity of the DAB scales was found in studies relating the scales to the Child Behavior Checklist and items recorded from chart records (Williams, Ben-Porath, Uchiyama et al., 1990), and to the MMPI (Williams & Butcher, 1989).

The Overt Aggression Scale (OAS; Yudofsky, Silver, Jackson, Endicott, & Williams, 1986) is designed to assess observable aggressive behaviors in both children and adults on a daily basis. This is in contrast to the previous inpatient behavior rating scales, which target a wide variety of child and adolescent problems and are rated over longer time periods. The OAS consists of four categories of aggressive behavior (verbal aggression, physical aggression against objects, physical aggression against self, and physical aggression against other people), each containing four items of increasing severity. The scale is rated each shift for the presence or absence of each behavior and, if present, for the types of intervention. Tested on a sample of 16 children and 29 adult inpatients of unspecified ages, the OAS evidenced good interrater reliability (intraclass coefficients generally greater than .80). In addition, children were observed in far more aggressive episodes than adults, as might be expected. The sensitivity of the OAS to treatment and medication effects remains to be demonstrated.

In recent years, a greater focus has been placed on the development of rating scales that tap a wide range of behavior problems and can be rated frequently. The Emotional Disorders Rating Scale (EDRS; Kammerer, Feinstein, Seifer, Stevens, & Barrett, 1990) is a measure of affective symptomatology designed to be used for repeated

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longitudinal assessment. Initially developed on a sample of developmentally delayed children and adolescents (Feinstein, Kaminer, Barrett, & Tylenda, 1988), the EDRS has 59 items that comprise nine qualitatively derived subscales (depressive mood verbal, depressive mood nonverbal, anxiety, irritability, psychomotor retardation, hostility-anger, somatic-vegetative, elated manic mood, and sleep disturbance). Each subscale is rated on a four-point scale for frequency and severity.

The psychometric properties of the EDRS were examined in a sample of 13 inpatients and 26 day treatment patients, ages 7 to 17; psychotic and mentally retarded patients were excluded from the study. Internal consistency coefficients ranged from .00 (somatic/vegetative) to .86 (hostility/anger). Interrater reliability, using the average of two observation periods to reduce variability, had kappas ranging from .62 to .82, indicating fair to good reliability. Stability coefficients over a one-week interval ranged from -.14 to .84, with ratings of verbal indications of depressed mood showing the least stability and ratings of hostility/anger and manic/elated mood showing the most stability, suggesting that the measure may be sensitive to treatment effects or spontaneous improvement. In addition, children diagnosed with depression (based on a record review) had higher scores on nonverbal depressed mood and lower scores on manic/elated mood, while verbal expression of depressed mood was positively related to interviews using the Children's Depression Rating Scale conducted within one hour of EDRS ratings. Overall, some support exists for the reliability and validity of the EDRS. However, some scales show unacceptable internal reliability and interrater reliability, and further research is necessary to test the predictive power of EDRS scale scores. In addition, the item content was not specified in the article so that their adequacy could not be evaluated.

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In their 1985 review of rating scales that can be used to evaluate medication effects, Conners and Barkley noted that they were unable to find “a scale which is sufficiently comprehensive to cover the range of psychopathology in hospital settings and also sufficiently easy to use for relatively untrained inpatient staff” (p. 811). In response, Conners presented the Inpatient Global Rating Scale (IGRS; see Conners & Barkley, 1985). The IGRS has 62 problem and positive behavior items that are rated by staff members each shift and then averaged to provide a single daily rating. As behaviors are observed, their frequency is rated on a three-point scale from “occasionally” to “very frequently.” Very little data is available to review, but preliminary factor analyses on “approximately 90 children” (p. 832) has resulted in seven factors: conduct problem, euphoric-active, inattentive (on task), emotional (anxious), overactive, conceptual dysfunction, and somatic. A computer program that plots scale scores over time is available, making feedback immediately available to the treatment team. Both the utility of the computer scoring program and the simplicity and content of the items suggest that published studies of the IGRS with acceptable sample sizes would be an asset to this literature.

Finally, the Child Behavior Report Form (CBRF; Edelbrock, 1985) is a particularly promising instrument that is similar in form and content to the IGRS (and also has a computer scoring program), but has demonstrated psychometric properties (Kolko, 1988, 1989, 1993). At the end of each shift, two staff members each rate 55 problem behavior items and 10 social competence items on a three-point scale (0 = behavior was not observed, 3 = behavior was observed very often). The problem behavior items of the CBRF were taken directly or modified from items on the Child Behavior Checklist

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(CBCL; Achenbach & Edelbrock, 1983). Thus, the CBRF is an attractive counterpart to the CBCL and its corollary measures, the Youth Self-Report (YSR; Achenbach, 1991c; Achenbach & Edelbrock, 1987) for adolescents aged 11 to 18 and the Teacher Report Form (TRF; Achenbach, 1991b; Achenbach & Edelbrock, 1986). No age limits have been specified for the CBRF. It should be noted as well that the CBRF contains no items addressing psychotic or obsessive-compulsive behavior.

Kolko (1988) examined the CBRF's psychometric properties in a sample of 155 male and 45 female inpatients ages 6 to 12; patients diagnosed as psychotic or mentally retarded were excluded. Separate principal components analyses with varimax rotation were conducted on the behavior problem items and the social competency items. For the behavior problems items, five components were extracted, accounting for 80% of the variance. The first (Antisocial Behavior/ Defiance) describes physical and verbal aggression, oppositional behaviors, and hostile moods. The second (Hyperactivity/ Inattention) reflects psychomotor agitation and difficulties in concentration. The third (Withdrawal/Depression) taps isolative behaviors and dysphoric moods. The fourth (Negative Self-Image/Self-Injury) describes suicidal ideation and threats, as well as feelings of worthlessness. The final behavior problems component (Anxiety) reflects feelings of nervousness and self-consciousness. For the social competence items, two components, accounting for 100% of the variance, emerged. The first (Compliance/Self Control) addresses the ability to follow directives and exhibit patience and tolerance. The second (Positive/Adaptive Social) taps positive interactions and moods. Internal reliabilities were high (.88 to .95) for all scales except Negative Self-Image/Self-Injury (.50) and Anxiety (.56). Using Pearson correlations, moderate to high agreement between

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pairs of trained undergraduate raters was found for all scales except Antisocial Behavior/Defiance (.27) and Negative Self-Image/Self-Injury (.37). In a separate study, Kolko (1993) found that interrater agreement between pairs of unit nurses was in the low to moderate range, with the least agreement found for Anxiety (.22) and Negative Self-Image/Self-Injury (-.09).

Evidence for the discriminant validity of the CBRF was demonstrated as children diagnosed with “externalizing” diagnoses (e.g., conduct disorder, oppositional defiant disorder, attention deficit disorder) received significantly higher scores on the Hyperactivity/Inattention factor and significantly lower scores on the Withdrawal/Depression, Negative Self-Image/Self-Injury, and Compliance/Self-Control factors than did children diagnosed with “internalizing” diagnoses (e.g., major depressive disorder, bipolar affective disorder, anxiety disorder). Mixed support for the convergent validity of the CBRF was found. The Withdrawal/Depression, Negative Self-Image/Self-Injury, Anxiety, and Compliance/Self-Control factors showed significant negative relationships with the parent-completed CBCL externalizing scale; however, no CBRF factor scores were significantly correlated with the CBCL internalizing scale. This may simply mean that parents and/or staff are poor observers of internalizing behaviors (Achenbach, McConaughy, & Howell, 1987).

To summarize, a number of rating scales have been designed for use with inpatient children and adolescents. All but one, the Overt Aggression Scale, cover a wide range of behavior problems, and two, the Inpatient Global Rating Scale and the Child Behavior Rating Form, also target positive behaviors. Unfortunately, most of the scales suffer from cumbersome rating procedures, infrequent rating periods, and/or vague item content. In

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addition, only one, the Child Behavior Rating Form, has well-demonstrated psychometric properties, including information about factor structure and various forms of reliability and validity. Nonetheless, the CBRF is not ideal. Psychotic, obsessive-compulsive, and sexual behaviors are not included among the items, nor has the utility of the CBRF been demonstrated with adolescent, as opposed to child, inpatients. In addition, the principal components analyses were conducted on a rather small sample size ($N=200$) given the number of items, so that the solution may be unstable. Clearly, further work is necessary to develop an instrument that 1) covers the full range of problem behaviors exhibited in the hospital setting; 2) can be used with both younger children and adolescents; 3) is brief enough to be rated daily; 4) has items that are concrete and objective so that relatively untrained staff can rate reliably; 5) includes items that focus on positive behaviors; 6) is sensitive to treatment and medication effects; and 7) is psychometrically sound; and 8) can provide immediate feedback to the treatment team via computer graphing or other means.

Barkley (1988) proposes that, given the large number of child and adolescent rating scales, future efforts be directed toward investigating existing measures rather than creating additional instruments. In accordance with this recommendation, the strengths and weaknesses of available measures were reviewed to evaluate which would be most appropriate for further study. The Child Behavior Rating Form met more of the eight criteria listed above than any other measure: it covers a wide range of problem behaviors as well as competencies, is relatively brief and objective, and has some evidence of reliability and validity. In addition, the item content generally appears applicable to adolescents as well as children. The purpose of this study is to examine the psychometric properties of a somewhat revised version of the CBRF in a sample comprised of both

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children and adolescents. Briefly, changes included adding items that address psychosis and other behaviors that are likely to occur in an inpatient setting, as well as modifying the instructions and scaling to simplify the rating process and maximize the objectivity of the item content. The validation of an inpatient rating scale is a complex task that encompasses a variety of difficult issues. The remainder of the chapter is devoted to a discussion of the issues inherent in the psychometric evaluation of the revised CBRF (CBRF-R).

Dimensions of Child Behavior Problems

The identification and development of a descriptive taxonomy of child behavior syndromes, or behaviors that statistically tend to occur together, has been a predominant focus of child psychopathology researchers, particularly Achenbach and colleagues. One method proposed to accomplish this task is the derivation of empirical prototypes using exploratory multivariate techniques, such as factor analysis, to identify stable syndromes in large, representative samples (Achenbach, 1985). In a landmark review of 27 studies of clinically referred children that used multivariate analyses, Achenbach and Edelbrock (1978) identified several common dimensions of behavior problems that were reported by parents, teachers, mental health professionals such as psychologists, psychiatrists, social workers, mental health workers, and the youth themselves. Using the criteria that a syndrome must appear in at least two studies to be considered present, the reviewers identified thirteen narrow-band syndromes, which describe specific problem areas somewhat comparable to diagnostic categories (e.g., aggression and depression), and four broad-band syndromes, which describe more general problem areas and are comprised of

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at least two narrow-band syndromes. The most robust dimensions were the narrow-band Aggressive, Delinquent, Hyperactive, Schizoid, Anxious, Depressed, Somatic, and Withdrawn syndromes and the broad-band Undercontrolled and Overcontrolled syndromes. An additional broad-band syndrome, labeled Pathological Detachment, was most prevalent in studies that used ratings by mental health professionals. Since this dimension is characterized by bizarre behaviors, confusion, withdrawal, daydreaming, and inattentiveness, it appears that clinicians may be especially sensitive to thought-disordered or psychotic behaviors. In examining the results of this review, however, it must be noted that the methods used to rate behaviors varied greatly, ranging from standardized questionnaires to clinical chart reviews, and covered different observation periods, and so are not directly comparable.

In an effort to address this problem, Achenbach and Edelbrock created the Child Behavior Checklist (CBCL; 1983), the Youth Self-Report (YSR; 1987), and the Teacher's Report Form (TRF; 1986). These three measures, created expressly to serve as tools for empirical research on the classification of child psychopathology (Achenbach, 1991a), are particularly useful because of the strong degree of overlap between their items, enabling reliable comparisons to be made between reports obtained from parents, teachers, and children. Initial research with the CBCL was designed not only to identify dimensions of child behavior problems, but also to determine whether and what types of age and gender differences exist in the expression of those dimensions (Achenbach, 1978; Achenbach & Edelbrock, 1979).

Principal components analyses of 1,400 clinically referred children grouped by age (6 to 11 and 12 to 16) and sex produced three narrow-band syndromes that were common

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to all four groups: Somatic Complaints, Aggressive, and Delinquent. Three additional narrow-band syndromes were identified in three groups and were present in the fourth group in combination with another syndrome (in parentheses): Schizoid (Schizoid Obsessive), Depressed (Depressed Withdrawal), and Hyperactive (Immature Hyperactive). Three narrow-band syndromes were specific to a particular sex for both age groups: Uncommunicative and Obsessive Compulsive (boys) and Cruel (girls). All age groups evidenced a withdrawal syndrome, although in different forms: Social Withdrawal (younger children, regardless of sex), Depressed Withdrawal (older girls), and Hostile Withdrawal (older boys). Older children also showed some form of immaturity: a pure Immature syndrome (boys) and a mixed Immature-Hyperactive syndrome (girls). Finally, two syndromes were identified in only one group: Anxious-Obsessive (older girls) and Sex Problems (younger girls). To summarize, similar to the findings of Achenbach and Edelbrock (1978), narrow-band syndromes common across most age/sex groups were Aggressive, Delinquent, Hyperactive, Schizoid, Somatic Complaints, and Depressed. The Withdrawal syndrome was also found, although there were some developmental and gender differences. Only anxiety symptoms did not form a distinct syndrome; rather, they tended to load on the Depression factor or cluster with obsessive symptoms. Furthermore, while many syndromes were common to most groups, several variations according to age and/or sex were apparent. In contrast, two broad-band syndromes labeled Externalizing and Internalizing, corresponding to Undercontrolled and Overcontrolled respectively, emerged in every group, although they were necessarily comprised of different narrow-band syndromes for each group. Attempts to identify behavior dimensions from adolescent and teacher reports using the YSR and the TRF resulted in similar findings;

although Externalizing and Internalizing dimensions always emerged, the narrow-band syndromes, while often similar across groups, also had sex and/or age variations.

The development of the CBCL and its corollary measures was an important step in the identification of dimensions of child behavior problems. However, because of sex- and age-related differences in narrow-band syndromes, their most valuable characteristic, similar item content, was compromised by the difficulty in making comparisons of the resulting scale scores in longitudinal research, between the two sexes, and between different informants. Recent work, therefore, has moved toward identifying those syndromes that are most similar across the age span and in both sexes (Achenbach, 1991a). To accomplish this goal, eight “core syndromes” were identified that were common to nearly all age and sex groups and to the three types of informants (Achenbach, 1991a, 1991b, 1991c; Achenbach, Conners, Quay, Verhulst, & Howell, 1989). The resulting core syndromes are labeled Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior. In addition, the Internalizing and Externalizing factors are now comparable across groups. For each group and each informant, the Internalizing factor is comprised of the narrow-band Withdrawn, Somatic Complaints, and Anxious/Depressed scales, while the Externalizing factor is comprised of the narrow-band Delinquent Behavior and Aggressive Behavior scales.

Models of Child Maladaptive and Adaptive Coping

As described above, several common dimensions of child behavior problems have been found to be relatively stable across different measures and types of informants

(Achenbach, 1991a, 1991b, 1991c). These results, combined with the recent movement toward consolidating syndromes rather than identifying developmental and gender differences, suggest that the construct validity of the CBRF-R might best be demonstrated through a priori hypothesis testing of similar models of child behavior problems using confirmatory factor analysis. Three alternative models of child behavior problems were developed in accordance with the previous literature. Special attention was given to the results of the principal components analysis conducted by Kolko (1988) on the original CBRF, as well as to the core constructs identified by Achenbach (1991a, 1991b, 1991c) since they have been replicated across different measures and because the CBRF is a modification of the Child Behavior Checklist. In addition, the particular needs of the child and adolescent inpatient unit were considered in deriving the latent variables.

The three models differ primarily in level of specificity and differentiation. The most differentiated model will be described first. The Maladaptive Coping Model 1 (shown in Figure 1) hypothesizes that the problem behavior items form a number of narrow-band factors. Narrow-band syndromes are essential not only to further taxonomic and classification research efforts, but also to enable the clinical treatment team to evaluate the progress of relatively specific problems addressed in the treatment plan. Eight narrow-band dimensions are hypothesized: Two hypothesized dimensions were derived from both the Kolko and the Achenbach factor analyses: 1) Aggression, which addresses only overtly physically aggressive behaviors; and 2) Oppositionalism, which focuses on defiant, disobedient, and argumentative behaviors. For this model, even though the Kolko and Achenbach studies found these dimensions to form one factor, Oppositionalism and Aggression are hypothesized to comprise correlated but distinct factors. This is because

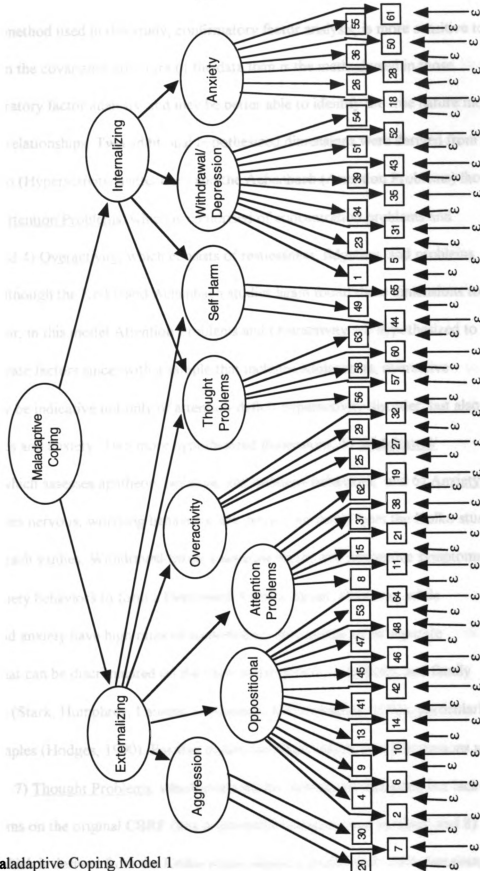


Figure 1. Maladaptive Coping Model 1

the statistical method used in this study, confirmatory factor analysis, is more sensitive to relationships in the covariance structure of the data than is the method used in those studies, exploratory factor analysis, and may be better able to identify the true nature more differentiated relationships. Two additional hypothesized dimensions were derived from both the Kolko (Hyperactivity/Inattention) and the Achenbach (Attention Problems) factor analyses: 3) Attention Problems, which is comprised of concentration problems and inattention; and 4) Overactivity, which consists of restlessness, fidgeting, and problems sitting still. Although the Kolko and Achenbach studies again found these dimensions to form one factor, in this model Attention Problems and Overactivity are hypothesized to make up separate factors since, with a sample that includes adolescents, overactive behaviors may be indicative not only of attention-deficit-hyperactivity disorder, but also manic episodes and anxiety. Two more hypothesized dimensions, 5) Withdrawal/Depression, which assesses apathetic, isolative, and unhappy behaviors, and 6) Anxiety, which addresses nervous, worrying behaviors, are derived primarily from the Kolko study. In the Achenbach studies, Withdrawal forms a separate factor and depressive symptoms load with anxiety behaviors to form a Depressed/Anxious factor. However, while depression and anxiety have high rates of comorbidity, they appear to be separate dimensions that can be discriminated on the basis of symptoms, cognitions, and family environments (Stark, Humphrey, Laurent, Livingston, & Christopher, 1993), particularly in clinical samples (Hodges, 1990). For this model, two final narrow-band dimensions are hypothesized: 7) Thought Problems, which exists on the Achenbach measures, but lacked applicable items on the original CBRF (this is corrected on the current version); and 8) Self Harm, which is derived from the Kolko study, where it loaded with items pertaining

to poor self-image and worthlessness. Only the items that directly address self-injury have been retained, since perceptions of worthlessness are difficult to observe and are not likely to respond to brief focused inpatient treatment, but should rather be a focus for outpatient therapy. Although similar items exist on the Achenbach measures, they did not load on any of the core constructs. This may be a result of the characteristics of the sample, which was much less severely disturbed than the Kolko sample.

Two broad-band dimensions are hypothesized to form pathways to the narrow-band syndromes: 1) Externalizing, comprised of the Aggression, Oppositionalism, Attention Problems, Overactivity, Thought Problems, and Self-Harm factors; and 2) Internalizing, comprised of the Withdrawal/Depression, Anxiety, Thought Problems, and Self Harm factors. The Achenbach analyses excluded Attention Problems from the broad-band Externalizing scale because it loaded somewhat less than the other Externalizing scales (.62 for Attention Problems versus .79 for Aggressive Behavior and .78 for Delinquent Behavior). However, given the severity of the attentional problems evidenced by many child inpatients and the high correlation the Hyperactivity/Inattention factor showed with the Antisocial Behavior/Defiant factor in Kolko (1988), it is hypothesized here that Attention Problems will contribute to the Externalizing dimension. Prior research indicates that the Thought Problems and Self Harm syndromes do not appear to be specific to either externalizing or internalizing dimensions (Achenbach, 1991a; Kolko, 1988), but are likely to be related to both.

As with narrow-band syndromes, the value of identifying broad-band syndromes to replicate and extend previous research is obvious. However, clinical applications of the externalizing and internalizing dimensions are receiving increasing attention. Externalizing

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and internalizing can be conceptualized not simply as groups of objective behavioral symptoms, but also as more general coping or defensive styles (Beutler & Clarkin, 1990). In this line of thought, two primary coping styles are manifested through various behaviors and symptoms. The externalizing coping style is marked by the need to locate conflict outside of the self; individuals who rely on the externalizing coping style “reduce or avoid anxiety by transmitting responsibility for their discomfort to external objects, to others, or to symptoms for which they cannot be blamed” (p. 78). In contrast, individuals who have an internalizing coping style locate the source of conflict within the self, so that “sources of anxiety are redirected to one’s own failures, sins, or inabilities” (p. 77). Some evidence exists to suggest that individuals who use more externalizing or more internalizing coping styles respond differentially to particular treatment foci and interventions (Beutler, 1979; Beutler, Engle et al., 1991; Beutler, Machado, Engle, & Mohr, 1993; Beutler & Mitchell, 1981; Beutler, Mohr, Grawe, Engle, & MacDonald, 1991). However, this question has not yet been addressed in the child and adolescent treatment literature. Thus, the externalizing/internalizing distinction may be a particularly promising avenue for the integration of clinical and research needs.

In the final level of the model, a general Maladaptive Coping dimension is proposed to be comprised of the Externalizing and Internalizing syndromes, as well as all other behavior problem items that were not hypothesized to load on any of the narrow-band factors. This rationale for this factor is that behavior problem syndromes tend to be positively related to one another. For example, the externalizing and internalizing factors, which might be theoretically conceived as a single bipolar dimension, have produced positive correlations as high as .63; thus, individuals who exhibit

externalizing symptoms are likely to evidence internalizing symptoms as well. In short, there may be a g factor of general psychopathology, similar to Spearman's g factor of general ability, that underlies the expression of more specific behavioral syndromes (Achenbach et al., 1989).

Maladaptive Coping Model 2 (shown in Figure 2), is similar to Maladaptive Coping Model 1 but is somewhat less differentiated and more faithful to the Kolko and Achenbach factor analyses. In this model, six factors are hypothesized: 1) Oppositionalism/ Aggression, which, as described above, was found in both the Kolko and Achenbach factor analyses and appears to be a highly robust factor; 2) Attention Problems/ Overactivity, which was also found in both the earlier studies; and the final four dimensions, which are the same as in Maladaptive Coping Model 1: 3) Withdrawal/ Depression; 4) Anxiety; 5) Thought Problems; and 6) Self Harm. For the broad-band factors, Externalizing is hypothesized to be comprised of Oppositionalism/Aggression, Attention Problems/Hyperactivity, Thought Problems, and Self Harm, while Internalizing and Maladaptive Coping remain the same as in Maladaptive Coping Model 1.

For Maladaptive Coping Model 3 (shown in Figure 3), the least differentiated model, no narrow-band factors are hypothesized. Instead, all the items previously hypothesized to make up the narrow-band factors leading from Externalizing and/or Internalizing are proposed to have direct paths to their respective broad-band factors. Because children and adolescents admitted to psychiatric hospitals often present with extreme comorbidity of externalizing and internalizing problems, these syndromes may be difficult to model through narrow-band syndromes, and thus more accurately depicted simply through the broad-band syndromes.

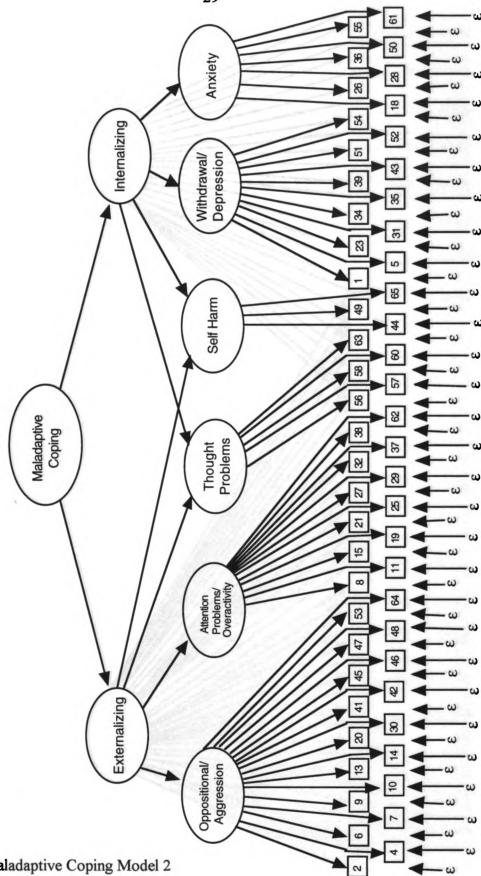


Figure 2. Maladaptive Coping Model 2

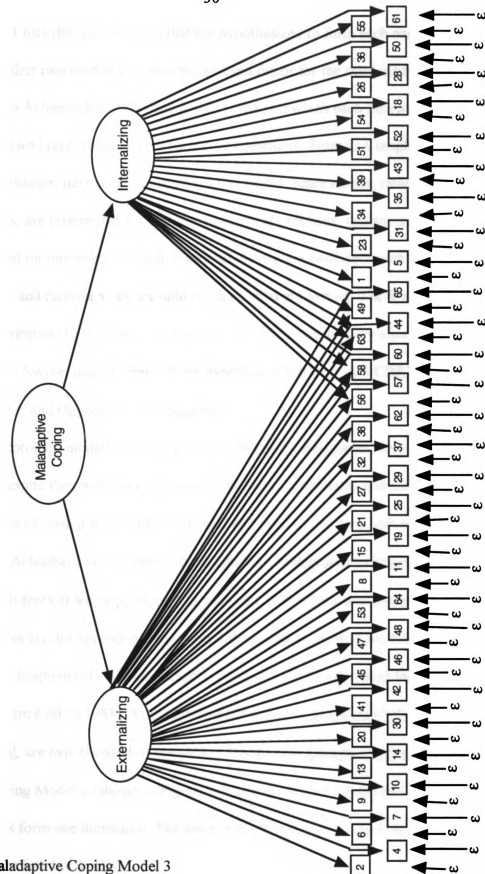


Figure 3. Maladaptive Coping Model 3

Table 1 lists the specific items that are hypothesized to form each narrow-band factor for the first two models and each broad-band factor for the third model, as well as the scales from Achenbach (1991a) and Kolko (1988) on which each item loads. It should be noted that two highly robust Achenbach core constructs, Somatic Complaints and Delinquent Behavior, have no counterparts in this model. Since nurses, rather than mental health workers, are responsible for monitoring physical problems, somatic symptoms are not represented on this inventory; and in general, delinquent behaviors such as smoking, substance use, and running away are unlikely in an inpatient setting. The few CBRF-R items that correspond to the Delinquent scale (e.g., “Didn’t seem sorry after misbehaving,” “Swore, used profanity”) are hypothesized to load with CBRF-R Oppositionalism and Oppositionalism/Aggression.

Two corollary models examining positive behavior dimensions were also developed. Despite the recent focus on identifying existing strengths and monitoring the implementation of coping skills, little work has been done in this area with inpatient children. The Achenbach inventories do have a social competence component that addresses such areas as social participation, activities, and school achievement; however, these categories are not appropriate for repeatedly assessing the positive behaviors of psychiatrically hospitalized children. Adaptive Coping Model 1 (shown in Figure 4) is based directly on Kolko (1988). Two narrow-band factors, Compliance/Self Control and Positive/Social, are hypothesized to comprise a broad-band Adaptive Coping dimension. Adaptive Coping Model 2 (shown in Figure 5) is hypothesized to show that all the positive behavior items form one dimension. The items that are proposed to load on each factor for each model are listed in Table 2.

Table 1

Hypothesized CBRF-R Maladaptive Behavior Scales and Corresponding Scales for the Original CBRF and the CBCL

Item	Model 1	Model 2	Model 3	CBRF	CBCL
2. Argued	OPP	OPP/AGG	EXT	ANTISOC	AGG
4. Cruel or mean to others	OPP	OPP/AGG	EXT	ANTISOC	AGG
6. Defiant, challenged adult authority	OPP	OPP/AGG	EXT	ANTISOC	no item
9. Disobedient	OPP	OPP/AGG	EXT	ANTISOC HYPER	AGG
10. Didn't feel guilty after misbehaving	OPP	OPP/AGG	EXT	ANTISOC	DELINQ
13. Exaggerated abilities or achievements	OPP	OPP/AGG	EXT	ANTISOC	AGG
14. Explosive, easily angered	OPP	OPP/AGG	EXT	ANTISOC	AGG
41. Stubborn, had to do things own way	OPP	OPP/AGG	EXT	ANTISOC	AGG
42. Sudden changes of mood	OPP	OPP/AGG	EXT	ANTISOC	AGG
45. Talked back to staff	OPP	OPP/AGG	EXT	ANTISOC	no item
46. Talked too much or too loud	OPP	OPP/AGG	EXT	ANTISOC	AGG
47. Temper tantrums	OPP	OPP/AGG	EXT	ANTISOC	AGG
48. Threatened people	OPP	OPP/AGG	EXT	ANTISOC	AGG
53. Violated rules	OPP	OPP/AGG	EXT	ANTISOC	AGG
64. Swore/used profanity	OPP	OPP/AGG	EXT	no item	DELINQ
7. Destroyed property	AGG	OPP/AGG	EXT	no loading	AGG
20. Engaged in physical fights	AGG	OPP/AGG	EXT	ANTISOC	AGG
30. Physically attacked others	AGG	OPP/AGG	EXT	ANTISOC	AGG
8. Difficulty concentrating	ATTPRB	ATT/OVR	EXT	HYPER	ATTPRB
11. Easily distracted	ATTPRB	ATT/OVR	EXT	HYPER	no item

(Table continues)

Note. OPP = Oppositionalism; AGG = Aggression; OPP/AGG = Oppositionalism/Aggression; ANTISOC = Antisocial/Defiance; EXT = Externalizing; DELINQ = Delinquent; ATTPRB = Attention Problems; OVR = Overactivity; ATT/OVR = Attention Problems/Overactivity; HYPER = Hyperactivity/Inattention.

Table 1 (Cont.)

Item	Model 1	Model 2	Model 3	CBRF	CBCL
15. Failed to finish things he/she started	ATTPRB	ATT/OVR	EXT	HYPER	no item
21. Impulsive	ATTPRB	ATT/OVR	EXT	HYPER ANTISOC	ATTPRB
37. Shifted rapidly from topic to topic	ATTPRB	ATT/OVR	EXT	no loading	no item
38. Short attention span	ATTPRB	ATT/OVR	EXT	HYPER	no item
62. Easily led by peers	ATTPRB	ATT/OVR	EXT	no item	no item
19. Fidgeted	OVRACT	ATT/OVR	EXT	HYPER	ATTPRB
25. Nervous movements	OVRACT	ATT/OVR	EXT	no loading	ATTPRB
27. Overactive, doesn't sit still	OVRACT	ATT/OVR	EXT	HYPER	ATTPRB
29. Overly excited, exuberant	OVRACT	ATT/OVR	EXT	missing	no item
32. Restless, high energy level	OVRACT	ATT/OVR	EXT	HYPER	no item
1. Apathetic or unmotivated	WITHDEP	WITHDEP	INT	WITHDEP	no item
5. Crying, tearful episodes	WITHDEP	WITHDEP	INT	no loading	ANXDEP
23. Isolated self from others	WITHDEP	WITHDEP	INT	WITHDEP	WITH
31. Refused to talk	WITHDEP	WITHDEP	INT	WITHDEP	WITH
34. Said no one likes him/her	WITHDEP	WITHDEP	INT	NEGSELF	ANXDEP
35. Secretive, kept things to self	WITHDEP	WITHDEP	INT	WITHDEP	WITH
39. Shy or timid	WITHDEP	WITHDEP	INT	WITHDEP	WITH
43. Sulked, was silent or moody	WITHDEP	WITHDEP	INT	WITHDEP	WITH
51. Underactive, slow	WITHDEP	WITHDEP	INT	WITHDEP	WITH
52. Unhappy or sad	WITHDEP	WITHDEP	INT	WITHDEP	WITH ANXDEP
54. Withdrawn, uninvolved with others	WITHDEP	WITHDEP	INT	WITHDEP	WITH

(Table continues)

Note. ANTISOC = Antisocial/Defiance; EXT = Externalizing; ATTPRB = Attention Problems; OVRACT = Overactivity; ATT/OVR = Attention Problems/Overactivity; HYPER = Hyperactivity/Inattention; WITHDEP = Withdrawal/Depression; WITH = Withdrawn; INT = Internalizing; ANXDEP = Anxious/Depressed; NEGSELF = Negative Self Image/Self Injury.

Table 1 (Cont.)

Item	Model 1	Model 2	Model 3	CBRF	CBCL
18. Talked about feeling worthless/inferior	ANX	ANX	INT	NEGSELF	ANXDEP
26. Nervous or tense	ANX	ANX	INT	ANX	ANXDEP
28. Overly anxious to please others	ANX	ANX	INT	ANX	no item
36. Self conscious or easily embarrassed	ANX	ANX	INT	ANX	ANXDEP
50. Too fearful or anxious	ANX	ANX	INT	NEGSELF	ANXDEP
55. Worrying	ANX	ANX	INT	ANX	ANXDEP
61. Complained of physical problems	ANX	ANX	INT	no item	SOMAT
56. Saw/heard things others can't	THTPRB	THTPRB	EXT/INT	no item	THTPRB
57. Couldn't stop thinking certain thoughts	THTPRB	THTPRB	EXT/INT	no item	no item
58. Repeated certain acts over and over	THTPRB	THTPRB	EXT/INT	no item	THTPRB
60. Disoriented, out of contact with reality	THTPRB	THTPRB	EXT/INT	no item	no item
63. Laughed at odd times	THTPRB	THTPRB	EXT/INT	no item	no item
44. Talked about suicide	HARM	HARM	EXT/INT	NEGSELF	no loading
49. Threatened to harm self	HARM	HARM	EXT/INT	NEGSELF	no loading
65. Harmed self	HARM	HARM	EXT/INT	no item	no loading
3. Clung to adults, too dependent	Not hypothesized to be on any scale			HYPER	SOCPRB
12. Easily frustrated	Not hypothesized to be on any scale			ANTISOC	no item
16. Feelings easily hurt	Not hypothesized to be on any scale			NEGSELF	no item
17. Said others were against him/her	Not hypothesized to be on any scale			ANTISOC	ANXDEP
22. Irritable	Not hypothesized to be on any scale			ANTISOC	no item
24. Lied or cheated	Not hypothesized to be on any scale			HYPER	DELINQ

(Table continues)

Note. ANTISOC = Antisocial/Defiance; DELINQ = Delinquent; HYPER = Hyperactivity/Inattention; ANXDEP = Anxious/Depressed; INT = Internalizing; NEGSELF = Negative Self Image/Self Injury; SOMAT = Somatic Complaints; THTPRB = Thought Problems; HARM = Self Harm; SOCPRB = Social Problems; EXT/INT = Externalizing/Internalizing.

Table 1 (Cont.)

Item	Model 1	Model 2	Model 3	CBRF	CBCL
33. Ran away from staff	Not hypothesized to be on any scale			HYPER	no item
40. Stole	Not hypothesized to be on any scale			no loading	DELINQ
59. Flirtatious	Not hypothesized to be on any scale			no item	no item
66. Sexually inappropriate	Not hypothesized to be on any scale			no item	no loading

Note. DELINQ = Delinquent; HYPER = Hyperactivity/Inattention.

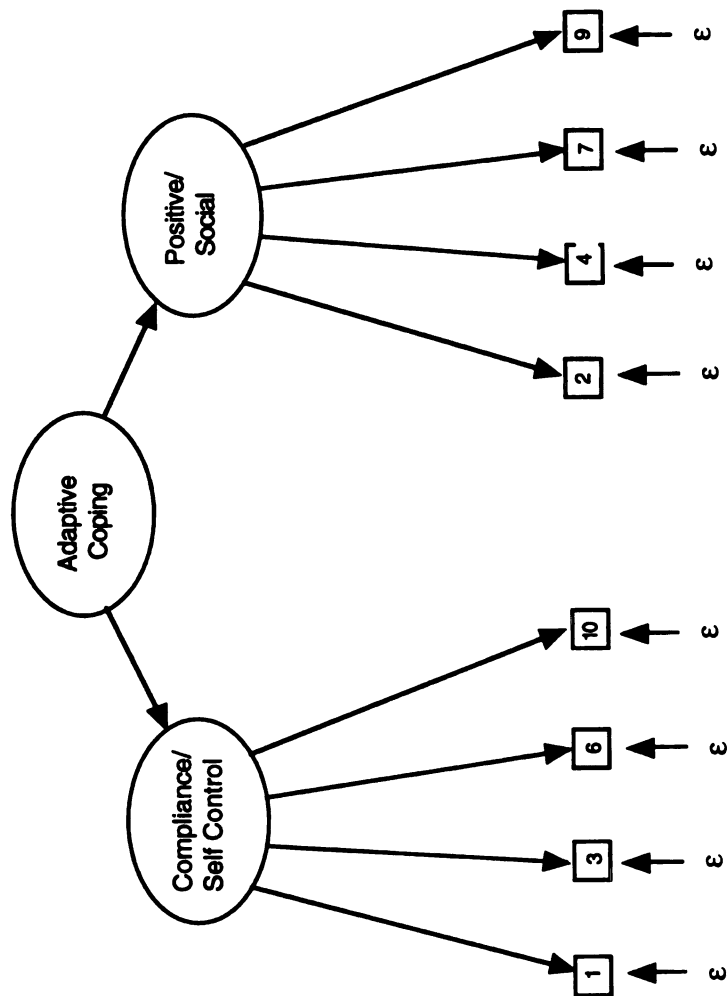


Figure 4. Adaptive Coping Model 1

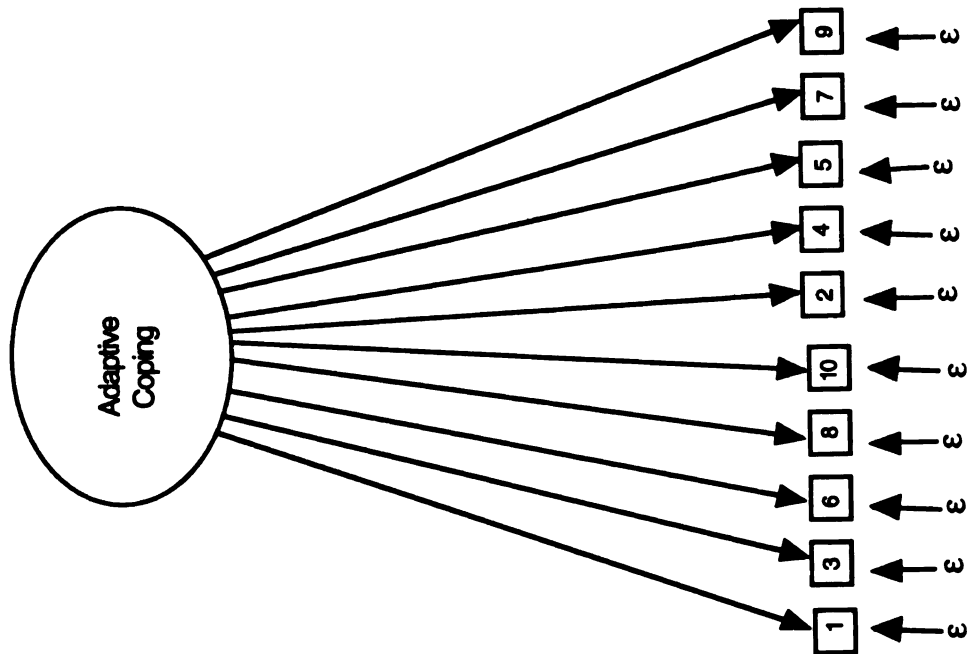


Figure 5. Adaptive Coping Model 2

Table 2

Hypothesized CBRF-R Adaptive Behavior Scales and Corresponding Scales for the Original CBRF

Item	Model 1	Model 2	CBRF
1. Accepted redirection	COMPLY	ADAPT	COMPLY
3. Followed rules	COMPLY	ADAPT	COMPLY
6. Resisted provocation, was tolerant	COMPLY	ADAPT	COMPLY
8. Stayed on task	COMPLY	ADAPT	COMPLY
10. Was patient, able to delay	COMPLY	ADAPT	COMPLY
2. Expressed ideas clearly	POSSOC	ADAPT	POSSOC
4. Initiated positive interactions	POSSOC	ADAPT	POSSOC
5. Participated in group activities	POSSOC	ADAPT	POSSOC
7. Shared with or helped others	POSSOC	ADAPT	POSSOC
9. Was cheerful or happy	POSSOC	ADAPT	POSSOC

Note. COMPLY = Compliance/Self Control; POSSOC = Positive/Social; ADAPT = Adaptive Coping.

In summary, five models of child behavior have been proposed, three for maladaptive coping and two for adaptive coping. These models will be tested for the appropriateness of the covariance structures for both boys and girls and for younger children and adolescents. In addition, the covariance structures of the models are hypothesized to be stable over three time periods, although levels of problem severity may change. The remainder of the chapter examines issues related to the validation of these models.

Psychometric Evaluation of the Model

The first question that must be addressed concerns the most appropriate type of validity to examine for this particular instrument. Two predominant forms of validity are construct validity, which evaluates whether the measure assesses a hypothesized unobservable variable, and criterion-related validity, which refers to the effectiveness of a measure in measuring or predicting some behavior as checked against an independent criterion (Englesmann, 1982). Three subtypes of validity are subsumed in the category of criterion-related validity: 1) concurrent validity, which examines the strength of the relationship between the measure and an alternative measure of a similar dimension obtained at approximately the same time; 2) discriminant validity, which examines the power of the measure to distinguish between theoretically predicted groups; and 3) predictive validity, which examines the ability of the measure to predict scores on another measure taken at a later point in time (Cronbach & Meehl, 1967). All types of criterion-related validity can be used to demonstrate construct validity (Spitzer & Endicott, 1975). Because behavior rating scales are designed to objectively assess

concrete behaviors with minimal inference, criterion-related validity, as opposed to construct validity, would appear to be most applicable. However, since the models hypothesize that latent behavioral tendencies and coping styles underlie the specific observed behaviors, an evaluation of construct validity is also in order. The three subtypes of validity, concurrent, discriminant, and predictive, will therefore be tested to provide a basis for both the criterion-related and construct validity of the models.

Concurrent validity. To establish concurrent validity, the CBRF-R syndromes must demonstrate strong positive relationships with scales that measure similar behaviors on other instruments. Thus, scales hypothesized to form externalizing syndromes (e.g., Oppositionalism/Aggression, Attention Problems/Overactivity, and Externalizing) should relate positively with other measures of aggression, attention problems, oppositionalism, delinquency, and global externalization; scales hypothesized to form internalizing syndromes (Withdrawal/Depression, Anxiety, and Internalizing) should relate positively to other measures of withdrawal, depression, anxiety, and global internalization; the Maladaptive Coping scale should relate positively to other measures of diffuse problems; and the adaptive behavior scales (Compliance/Self Control, Positive/Social, and Adaptive Coping) should relate positively to other measures of competency.

In some ways, it might appear that an observational coding system, wherein trained coders note the frequency or intensity of molecular behavioral categories over several brief time periods, would be an optimal criterion measure, providing an alternative measure of aggressive or depressive behaviors while avoiding method effects. However, while several coding methods have been implemented on child inpatient units (e.g., Horn, Conners, Wells, & Shaw, 1986; Kazdin, Esveltd-Dawson, & Loar, 1983; Kazdin, Esveltd-Dawson,

Sherick, & Colbus, 1985; Kazdin, Sherick, Esveldt-Dawson, & Rancurello, 1985), they are not the best criterion against which to validate a global behavior scale (Ebel, 1967). Behavior coding systems generally focus on a single narrow dimension, such as hyperactivity, and would be inadequate in assessing a wide range of symptoms. They have more concrete, molecular rating categories than a rating scale, cover briefer time periods, and, unless observation rooms are available, coders can be obtrusive and may influence the behavior of patients that they are coding (Reid, Baldwin, Patterson, & Dishion, 1982). Furthermore, although coders are generally trained to levels of agreement of at least .80, reliability declines markedly if the coder is not aware he/she is being checked, making the criterion measure itself unreliable and therefore invalid (Weinrott & Jones, 1984).

Instead, three alternative methods will be used to evaluate the concurrent validity of the CBRF-R. First, the CBRF-R maladaptive and adaptive behavior scales will be examined in relation to the corresponding problem and competency scales on the Child Behavior Checklist and the Youth Self-Report (for adolescents only), thus comparing observations of the child's behavior on the unit to parent and self perceptions of the child's behavior outside the hospital.

The severity and intensity of the problems presented by psychiatrically hospitalized children intuitively suggests behavior problems reported by different informants should evidence considerable consistency. Interinformant reliability, however, is a complex issue. Even if the items are identical on analogous subscales, research has revealed that only moderate correlations are likely to be obtained at best. To illustrate, Achenbach, McConaughy, and Howell (1987) conducted a meta-analysis of 119 studies to ascertain the degree of agreement between pairs of informants reporting on child and adolescent

problems. Mean reliability coefficients for mental health workers (including clinicians) were .24 with parents, .34 with teachers, .27 with children, and .54 with a fellow mental health worker. One interpretation of the low correlations is that at least one informant is unreliable and attenuates the correlation (Garrison & Earls, 1985). A more probable explanation, however, is that situational specificity is responsible for much of the variation (Achenbach et al., 1987). In the above meta-analysis, informants of the same type (e.g., two parents or two teachers) consistently had significantly higher correlations with each other's reports than with reports from informants of another type (e.g., a parent with a teacher). Three factors probably contribute to this finding. First, same-type informants are likely to have comparable levels of exposure to and familiarity with the child. Second, same-type informants are attuned to similar behaviors. For example, research has shown that unit staff are attuned to different behaviors than are other mental health professionals. They may focus on behaviors that have a direct impact on behavioral management of the unit, such as oppositionalism ("refusal to work or obey," "late for medication"), or lack of self-care rather than withdrawal and social isolation (Gericke, 1967; Hogarty, 1966; Stoffelmayr, 1973). Third, different situations are likely to elicit different sets of behaviors. Nonetheless, while correlations between analogous scales are not likely to be high, they are expected to be positive and significant.

Given the evident importance of the situational effects on ratings by different types of informants, a second method for establishing concurrent validity is to examine reliability coefficients between raters with equivalent exposure to the patient (i.e., interrater reliability). In effect, this method would allow the CBRF-R to function as its own criterion measure. Maximum estimates of interrater reliability are most likely to be obtained from

raters of the same type, since they tend to be exposed to similar amounts of training and to be sensitive to similar environmental cues (Achenbach et al., 1987). Optimally, therefore, interrater reliability coefficients would be obtained from pairs of mental health workers. In this study, unfortunately, time and staffing constraints preclude assigning two mental health workers to rate a single patient. Trained pairs of undergraduate raters, therefore, will be used to test interrater reliability and get the highest possible coefficients. However, undergraduate raters will also be paired with mental health workers in order to get an estimate of the reliability of staff ratings. In a similar study using the original CBRF, Kolko (1993) found that the interrater reliability coefficients between staff nurses and trained undergraduates ranged from .19 to .40, with the majority of coefficients at the higher end, while reliability coefficients between pairs of undergraduates ranged from .60 to .78. Based on these findings, the CBRF-R scales are hypothesized to demonstrate low to moderate interrater reliability for pairs comprised of one undergraduate rater and one mental health worker, and moderate to high interrater reliability for trained undergraduate rater pairs.

The above methods examine the validity of the CBRF-R symptom patterns. Alternatively, the concurrent validity of the Externalizing and Internalizing dimensions as underlying coping styles can be examined by relating the scales to another measure of coping style. To that end, the CBRF-R Externalizing and Internalizing scales will be correlated with scales from the Defense Mechanisms Inventory (DMI; Gleser & Ihilevich, 1969; Ihilevich & Gleser, 1986). The DMI taps five defensive styles, including Turning Against Object (TAO), which consists of direct or indirect hostility or aggression against the perceived perpetrator of the conflict; Projection (PRO), which is the tendency to

attribute negative characteristics to a perceived offending object in order to justify an angry and hostile reaction, regardless of objective evidence; Principalization (PRN), in which emotions are dissociated from threatening content; 4) Reversal (REV), which is the tendency to deny or minimize the presence of and affect related to a conflictual situation; and 5) Turning Against Self (TAS), which consists of negative thoughts that are directed at one's self in response to conflict. One prior study examined the concurrent validity of the DMI with a measure of adolescent behavior problems. In a sample of 196 inpatient adolescents, aged 12 to 16, Noam and Recklitis (1990) found that the more externalizing defenses, TAO and PRO, were significantly related to the Externalizing scale of the Youth Self Report, while the more internalizing defense, TAS, was significantly related to the YSR Internalizing scale. REV and PRN were negatively correlated with all YSR scales except Somatic Complaints, suggesting that adolescents who use these defenses report fewer behavior problems; it remains to be seen whether this finding is a function of defensive styles which increase the likelihood of socially desirable responses, or whether these adolescents actually experience fewer symptoms. Correlations in the Noam and Recklitis (1990) study generally ranged from $-.20$ to $.40$.

The pattern of correlations that emerged in the Noam and Recklitis study also supports Juni's (1982) finding that the DMI tends to produce a two-factor solution that may be more discriminating than the original five scales. One factor is a bipolar variable with TAO and PRO at one end and REV and PRN at the other end (i.e., an externalizing/non-externalizing dimension), while TAS alone forms a separate factor (i.e., an internalizing dimension). It is hypothesized, therefore, that the CBRF-R Externalizing scale will relate positively to the DMI bipolar externalizing/non-externalizing dimension,

while the CBRF-R Internalizing scale will relate positively to the TAS scale.

Discriminant validity. The second type of validity that will be examined in this study is discriminant validity. Psychiatric diagnosis is the criterion most often used to test the discriminating power of behavior rating scales (Edelbrock & Costello, 1988; Gould, Bird, & Jaramillo, 1993; Kazdin & Heidish, 1984; Kolko, 1988; Weinstein, Noam, Grimes, Stone, & Schwab-Stone, 1990). Only Kolko (1988) has explored the ability of a staff-completed inpatient rating scale to discriminate between diagnoses. However, the diagnoses obtained in that study were not part of a standardized diagnostic protocol, but rather were generated through the notoriously unreliable unstructured and unstandardized clinical interview and case conference process. To address this weakness, the discriminating power of the CBRF-R scales will be tested using diagnoses generated from the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; Orvaschel & Puig-Antich, 1986). This study will be the first to explore the ability of an inpatient rating scale to discriminate between diagnoses based on a standardized assessment procedure. Two hypotheses will be examined: first, it is proposed that the CBRF-R broad-band Internalizing and Externalizing scales will discriminate between DSM-IV diagnoses classified as internalizing or externalizing; and second, the Thought Problems scale is hypothesized to discriminate between DSM-IV diagnoses classified as psychotic or non-psychotic.

Predictive validity. The final type of validity to be investigated in this study is predictive validity, using length of stay (LOS) as the criterion measure. Although LOS is determined by a multitude of variables, particularly insurance coverage (Patrick et al., 1993) and age (Browning, 1986), severity of behavior and lack of social competence have

also been shown to account for a significant proportion of the variance (Browning, 1986; Curran, Miller, Zwick, Monti, & Stout, 1980). A regression model will be tested using behavior problem and positive behavior scale scores obtained during the first week to predict LOS. It is hypothesized that both maladaptive and adaptive behaviors will contribute significantly to LOS, with maladaptive behaviors showing a positive relationship with LOS and adaptive behaviors showing a negative relationship with LOS.

Hypotheses

To conclude this chapter, a revision of an existing measure of inpatient child behaviors has been presented, and five models of child behaviors have been proposed to address dimensions of maladaptive and adaptive symptoms and coping styles. The purpose of this study is to test the goodness of fit of the hypothesized models and to evaluate the psychometric properties of the resulting scales by establishing concurrent, discriminant, and predictive validity, as well as internal consistency, stability and interrater reliability. A review of the literature has resulted in the following hypotheses, which will be tested in the remainder of this thesis:

1. The covariance structure of the hypothesized models of behavior problems and competencies will fit adequately for inpatient children and adolescents regardless of age and sex.
2. The CBRF-R scales will demonstrate moderate to high interrater reliability for trained undergraduate rater pairs, and lower but adequate interrater reliability for pairs comprised of one undergraduate rater and one mental health worker.
3. The CBRF-R scales will be stable both across the sample and over three time periods at one-week intervals.
4. The CBRF-R scales will demonstrate adequate concurrent validity as operationalized by the following hypotheses:
 - a. A positive relationship will be demonstrated between the CBRF-R narrow- and broad-band externalizing scales and other measures of externalizing behavior problems and defensive styles, i.e., the Child Behavior Checklist and Youth Self-Report externalizing scales, the Defense Mechanism Inventory bipolar

externalizing dimension, and K-SADS diagnoses classified as externalizing.

- b. A positive relationship will be demonstrated between the CBRF-R narrow- and broad-band internalizing scales and other measures of internalizing behavior problems and defensive styles i.e., the Child Behavior Checklist and Youth Self-Report internalizing scales, the Defense Mechanism Inventory Turning Against Self scale, the K-SADS-E psychosis rating, and DSM-IV diagnoses classified as internalizing.
 - c. A positive relationship will be demonstrated between the CBRF-R general psychopathology scale and other global measures of problem behaviors, i.e., the Child Behavior Checklist and Youth Self-Report total problems scales.
 - d. A positive relationship will be demonstrated between the CBRF-R narrow- and broad-band competency scales and other measures of competency, i.e., the Child Behavior Checklist and Youth Self-Report social competency scales.
 - e . A positive relationship will be demonstrated between the Self Harm scale and ratings of suicidal ideation or behavior on the K-SADS-E diagnostic interview.
5. The CBRF-R will demonstrate adequate discriminant validity as operationalized by the following hypotheses:
- a. The narrow- and broad-band internalizing and externalizing scales will discriminate between DSM-IV diagnoses classified as internalizing or externalizing.
 - b. The Thought Problems scale will discriminate between DSM-IV diagnoses classified as psychotic or non-psychotic.
6. The CBRF-R will demonstrate adequate predictive validity as operationalized by the following hypotheses:

- a. Behavior problem scale scores obtained during the first week will be positively related to length of stay and will account for a significant proportion of variance.
- b. Competency scale scores obtained during the first week will be negatively related to length of stay and will account for a significant proportion of variance.

Method

Sample

Participants were 387 children and adolescents (235 boys, 152 girls), ages 3 to 17, who were recruited from 407 consecutive admissions to a private Midwestern child and adolescent psychiatric hospital. Participants must have remained in the hospital for a minimum of eight days and must have had at least one CBRF rating form completed during days 4 through 7 to be included in the study. Participants' parents/guardians were included in the study if they had completed any of the parent measures. For the test of competing models, no restrictions were placed on intellectual capacity, presence of psychosis or organicity, or medication status in order to allow the findings from this study to be as generalizable as possible to the typical population of inpatient children and adolescents. Analyses that utilize adolescent self-report data were subject to the following inclusion criteria: 1) age 11 or older; 2) IQ of 70 or greater on the WISC-III or WAIS-R and/or no prior diagnosis of mental retardation; and 3) no evidence of chronic or severe psychosis or organicity. Patients who did not meet these criteria are generally not given self-report measures, so that no self-report data had to be excluded because of these criteria. The hospital has three treatment units: one for children under 11 years old and for developmentally delayed older children; one designed to treat more "internalizing" adolescents; and one designed to treat more "externalizing" adolescents.

Demographic information is presented in Table 3. For a number of analyses, patients were divided into two age groups: Agegroup 1 ($N = 100$), 3- to 11-year-olds ("children") and Agegroup 2 ($N = 287$), 12- to 17-year-olds ("adolescents"). While Agegroup 2 had approximately equal percentages of boys and girls (54% and 46% respectively), Agegroup

Table 3

Demographic Data: Means, Standard Deviations, and Frequencies of Family and Child Characteristics

Variable	Mean (S.D.)	Range
Child Age	13.00 (3.03)	3-17
Child Sex (Freq.)		
Boys	235 (61%)	
Girls	152 (39%)	
Agegroup 1 (3-11)		
Boys	80 (80%)	
Girls	20 (20%)	
Agegroup 2 (12-17)		
Boys	155 (54%)	
Girls	132 (46%)	
Father Occupation (Duncan scores) (<u>N</u> = 195)	341.13 (183.81)	145-896
Mother Occupation (Duncan scores) (<u>N</u> = 163)	338.02 (186.26)	18-942
Father Education (Freq.) (<u>N</u> = 276)		
Eighth or less	5 (1.8%)	
Completed junior high	8 (2.9%)	
Some high school	51 (18.5%)	
High school graduate	89 (32.2%)	
Some college/training school	87 (31.5%)	
College graduate	19 (6.9%)	
Graduate or professional school	17 (6.2%)	

Note. Unless otherwise indicated, N = 387.

(Table continues)

Table 3 (Cont.)

Variable	Frequency
Mother Education (<u>N</u> = 292)	
Eighth or less	3 (1.0%)
Completed junior high	6 (2.1%)
Some high school	52 (17.8%)
High school graduate	95 (32.5%)
Some college/training school	99 (33.9%)
College graduate	24 (8.2%)
Graduate or professional school	13 (4.5%)
Yearly Income (<u>N</u> = 284)	
Less than \$8,000	45 (15.8%)
\$8,000 - \$11,999	50 (17.6%)
\$12,000 - \$19,999	53 (18.7%)
\$20,000 - \$29,999	33 (11.6%)
\$30,000 - \$44,999	39 (13.7%)
\$45,000 - \$69,999	41 (14.4%)
\$70,000 - \$100,000	16 (5.6%)
Over \$100,000	7 (2.5%)
Medicaid Benefits	
Yes	203 (52.5%)
No	184 (47.5%)

Note. Unless otherwise indicated, N = 387.

(Table continues)

Table 3 (Cont.)

Variable	Frequency
Race (Freq.)	
Caucasian	336 (87%)
African-American	37 (10%)
Hispanic	9 (2%)
Native American	5 (1%)
Psychiatrist's Diagnosis	
Depressive Disorder	281 (73%)
Conduct-Type Disorder	244 (63%)
ADHD	167 (43%)
Anxiety Disorder	40 (10%)
Psychotic Disorder	7 (2%)
PTSD	51 (13%)
Substance Abuse Disorder	57 (15%)

Note. Unless otherwise indicated, N = 387.

1 was comprised of 80% boys. The sample was predominantly Caucasian (87%). Data on various indicators of socioeconomic status was not available for all the sample. Education data was available for 293 mothers and 276 fathers, and indicated that just over half of the sample had at least a high school degree, and another third had attended some college or a professional training school. Occupational data, measured by the revised Duncan Socioeconomic Index (Stevens & Featherman, 1981), was available for 163 mothers and 195 fathers and suggested that the average family was of working-class status. Income data was available for 284 families, and was fairly evenly distributed among income categories ranging from less than \$8000 to \$45,000-\$69,999. Just over half the sample was receiving Medicaid benefits. The frequency of discharge diagnoses made by hospital psychiatrists based on clinical interviews and hospital observations is also detailed in Table 3. The most common diagnoses were depressive disorder (73%; Major Depressive Disorder, Dysthymia, Depressive Disorder Not Otherwise Specified, Adjustment Disorder with Depressed Mood), conduct-type disorder (63%; Conduct Disorder, Oppositional Defiant Disorder, Intermittent Explosive Disorder, Impulse Control Disorder Not Otherwise Specified), and Attention-Deficit-Hyperactivity Disorder (43%).

Measures and Procedures

The Child Behavior Rating Form - Revised (CBRF-R). The CBRF-R is a modified version of the Child Behavior Rating Form (Edelbrock, 1985), a 65-item measure of child behavior problems and positive behaviors. Initially, this investigator revised the CBRF in order to incorporate items addressing psychosis and other thought disorders. In addition, the wording of some items was changed to reduce the amount of inference required to

make judgments (e.g., “Doesn’t feel guilty after misbehaving” was changed to “Didn’t seem sorry after misbehaving”; “Feels worthless or inferior” was changed to “Talked about feeling worthless or inferior”). Finally, while the original CBRF items are worded in the present tense (e.g., “Argues,” “Lies or cheats”), it seemed that this type of wording might encourage staff to rate their overall impressions of the patient based on multiple contacts, rather than rating only those behaviors observed during the eight-hour shift occurring immediately prior to completing the form. Therefore, items were reworded to reflect the past tense (e.g., “Argued,” “Lied or cheated”).

A pilot study was conducted over a four-month period in order to train all mental health workers and elicit staff feedback on the utility of the measure. A detailed training manual was developed for this study in an effort to increase reliability. Based on brief descriptions of the problem behavior items used in training raters on the original CBRF (provided to the investigator by Dr. A. Unis, February 1994), the training manual has specific behavioral criteria for each level of all 76 items. Expansion of the descriptors was considered necessary in light of research findings on the effects of vague descriptors. For example, Ross and Ross (1982) asked mothers to indicate the frequency of behavior over the past month that her child would have had to exhibit to receive a rating of “not at all,” “just a little,” “pretty much,” and “very much.” The frequencies endorsed by the mothers varied tremendously; for the category “very much,” mothers indicated that the child would have had to evidence that behavior anywhere from 5 to 300 times. Thus, the item descriptions were made as concrete and behavioral as possible. All staff received an individual 30-minute orientation to the measure and were given a training manual. Twice each week thereafter, for a four-month period, they were given feedback on their ratings

and encouraged to ask questions about the procedure. Each week, one staff member on each unit also received a “Rater of the Week” certificate and a small gift based on consistency and thoroughness in completing the form.

Based on staff feedback, other changes were made. First, staff requested the addition of a few behaviors that they felt were particularly important for treatment purposes. In addition, the staff felt that the ratings could not be completed in the limited time available for documentation, and so the directions and format were revised to accelerate the rating process. The original CBRF behavior problem items are rated on a 4-point scale (0 = did not occur or was not a problem; 1 = mild or moderate problem; 2 = severe problem; 3 = extremely severe problem). Staff feedback indicated that since most children do not exhibit a majority of the behaviors listed, a disproportionate amount of time was spent circling 0's. In the revised format, raters check off all problem behaviors observed during the shift, then rate the checked behaviors. Finally, because the staff had problems differentiating between “severe” and “extremely severe” problems and upon discussion of the cases felt that they were underrating many patients, scale descriptors were also changed (1 = mild problem; 2 = moderate problem; 3 = severe problem). The social competency items remain on a four-point scale (0 = not true; 1 = sometimes/somewhat true; 2 = very/often true; and 3 = completely/always true) because staff tended to forget to give patients credit for positive behaviors if they were not required to rate the item.

The final version of the CBRF-R is comprised of 76 items, 66 behavior problem items and 10 positive behavior items. It also has additional sections not relevant to this study, including areas for the evaluation of the patient’s appetite and self-care skills and for an abbreviated progress note (required by the state mental health code). The CBRF-R can be

found in Appendix A.

The CBRF-R rating procedure began immediately upon admission and continued until the patient was discharged. The CBRF-R was rated by mental health workers a minimum of once every 48 hours and typically once every 24 hours. Each rating period covered eight hours; the day shift was from 7:00 a.m. to 3:00 p.m. and the evening shift was from 3:00 to 11:00 p.m. Ratings were not completed from 11:00 p.m. to 7:00 a.m. due to the minimal patient contact during this shift. Staff members were instructed to only rate behaviors observed during the current eight-hour shift. To complete the ratings, the mental health workers carried the CBRF-R throughout the shift and marked off behaviors as they were observed. At the end of the shift, the mental health workers reviewed and updated their ratings and wrote a narrative progress note. Because mental health workers supervised the patients during psychotherapy groups, recreational therapy, free periods, and meals, they were able to observe the patients for the majority of the shift. Children were not in direct sight of the rater during private room-time, individual and family therapy, psychological testing, and the raters' breaks. In addition, as part of hospital policies, psychiatric nurses were required make a chart note on each patient every 24 hours. Since nurses did not complete the CBRF-R, patients did not have ratings for every shift because a nurse, rather than a mental health worker sometimes charted on the patient.

To assess interrater reliability, 14 undergraduate research assistants underwent 10 hours of training and practiced rating on the unit six to eight times prior to rating for purposes of analysis. The undergraduates were divided into pairs, and each pair was assigned to observe two children for a four-hour rating period, during which time the students assisted unit staff and acted in some capacity as staff members. They were

instructed to remain with the mental health worker who was also rating the target children so that the amount and type of exposure to the patient was comparable. Both members of the pair completed ratings on both children. Mental health worker ratings were photocopied at the end of the four-hour rating period and the originals returned to them so that they could continue to rate for their full eight-hour shift. Fifty-two different patients were observed to obtain interrater reliability estimates.

Child Behavior Checklist (CBCL; Achenbach, 1991a). The CBCL is a parent-completed rating scale for children ages 4 to 18. It contains 118 items describing a broad range of behavior problems and 20 items addressing social competence. The behavior problem items are rated on a 3-point scale of 0 (not true), 1 (somewhat or sometimes true), and 2 (very true or often true). Parents are instructed to rate behaviors that have occurred during the past six months. Based on principal components analyses, the CBCL is comprised of eight narrow-band syndromes and two broad-band syndromes. The narrow-band syndromes are labeled Withdrawn, Somatic Complaints, Anxious/Depressed, Attention Problems, Thought Problems, Social Problems, Delinquent Behavior, and Aggressive Behavior. The broad-band groupings are labeled Internalizing, which includes the narrow-band Withdrawn, Somatic Complaints, and Anxious/Depressed scales, and Externalizing, which includes the Delinquent Behavior and Aggressive Behavior syndromes. In addition, all reported behavior problems are combined to form a Total Behavior Problem score.

Social competence items require the parent to list the child's hobbies, activities, and jobs, and rate the child's involvement and skill in each compared to same-aged children. In addition, the parent reports on the child's ability to get along with others and his/her

academic achievement. Based on the item content, the social competence items form three scales, Activities, Social, and School. Scores from the three scales are summed into a Total Competence score.

The CBCL manual provides good evidence for the reliability of the CBCL. Reliability data for the normative sample is presented separately for girls and boys, and for ages 4 to 11 and 12 to 18. Internal reliability of the Behavior Problem narrow-band scales, as measured by Cronbach's alpha, ranges from .62 (Thought Problems for boys, ages 4-11) to .92 (Aggressive Behavior for the entire sample). Alphas for the Internalizing scale are .89 or greater and for the Externalizing scale are .93 for the entire sample. For the Social Competence scales, alphas range from .42 (Activities for boys ages 4-11) to .64 (Total Competence for boys 12-18). Mean short-term reliabilities (over a one-week interval) of the Behavior Problem scales for the combined sample was .89, and for the Social Competence scales was .87.

The 1991 version of the CBCL is a revision of a previous edition (Achenbach, 1983) and does not yet have the substantial literature of the original. Nonetheless, existing evidence attests to the convergent and discriminant validity of the CBCL. The CBCL scales have shown moderate to high correlations with similar scales generated from the Conners Parent Questionnaire (Conners, 1973), the Revised Behavior Checklist (Quay & Peterson, 1983), and the Werry-Weiss-Peters Activity Scale (Mash & Johnston, 1983). In addition, the CBCL effectively discriminates between referred and nonreferred children (Achenbach, 1991a). The author's description of the CBCL's development provides evidence for content validity.

In the present study, the CBCL was included as part of a set of measures used for

hospital treatment planning. The parents completed the packet after their child was admitted, either in the hospital waiting room or at home. Parents returned the packet upon their next visit to the hospital.

Youth Self-Report (YSR; Achenbach, 1991c). The YSR is a self-report measure for adolescents ages 11 to 18 that contains 103 specific behavior problem items and 17 social competence items. The YSR was developed to complement the CBCL, and the two measures have 89 items in common. The YSR behavior problems section has the same scoring and factor structure as the CBCL. The Social Competence items, however, form only two scales, Activities and Social.

The YSR manual provides sufficient evidence of reliability. Internal reliability of the Behavior Problem narrow-band scales, as measured by Cronbach's alpha, ranges from .59 (Withdrawn for both sexes) to .90 (Anxious/Depressed for girls). Alphas for the Internalizing scale were .89 or greater and for the Externalizing scale were .89 for the both sexes. For the Social Competence scales, alphas ranged from .32 (Activities for girls) to .60 (Social for girls). The mean short-term reliability of the Behavior Problem scales over a one-week interval was .72, and for the Social Competence scales was .76.

Like the CBCL, the current version of the YSR is based on a well-validated earlier edition (Achenbach, 1987), and validity studies are only recently appearing in the literature. The available studies do support the YSR's convergent and discriminant validity. The YSR scales have shown moderate correlations with similar constructs derived from the CBCL and the Teacher's Report Form (Stanger & Lewis, 1993). In addition, the YSR discriminates children referred for mental health services from nonreferred children (Achenbach, 1991c).

The YSR was completed by patients in this study who were 11 to 17 years old and admitted to one of the two adolescent units. It was given as part of a group testing situation by trained undergraduate psychology testers who were available to assist in reading and to answer questions.

Defense Mechanisms Inventory-Youth Version (DMI-Y; Ihilevich & Gleser, 1986).

The DMI-Y, based on the DMI for adults (Gleser & Ihilevich, 1969), is a paper-and-pencil measure which consists of 10 vignettes of conflictual situations. For each vignette, the participant chooses four statements that best describe what he/she would say, feel, think, and fantasize about doing in reaction to the hypothesized situation. Each question has a choice of five answers designed to tap five defensive styles: 1) Turning Against Object (TAO) consists of direct or indirect hostility or aggression against the perceived perpetrator of the conflict, and subsumes defenses such as identification with the aggressor and displacement; 2) Projection (PRO) is the tendency to attribute negative characteristics to a perceived offending object in order to justify an angry and hostile reaction, regardless of objective evidence; 3) Principalization (PRN) includes defenses that dissociate emotions from the threatening content, such as intellectualization, rationalization, and isolation of affect; 4) Reversal (REV) is the tendency to deny or minimize the presence of affect related to a conflictual situation, and includes defenses such as denial, repression, and reaction-formation; and 5) Turning Against Self (TAS) consists of negative thoughts that are directed at oneself in response to conflict, and encompasses masochistic defenses. The patient chooses one answer as his/her most likely response (scored as 2) and one answer as his/her least likely response (scored as 0). All other answers are scored as 1. Scale scores are created by summing all answers related to each defense to get a score between

0 and 80. However, since the sum of all answers must equal 200, the scales are nonindependent; the scores of one scale are determined by the scores on the other four scales. Therefore, for multivariate analyses, only four scales can be included in analyses.

Reliability data is not yet available for the adolescent version of the DMI. According to the manual for the adult DMI, mean internal consistency coefficients across four samples of college students (Juni, 1982; McKinstry, 1978; Wilson, 1977) range from .61 (PRO) to .80 (TAO). Short-term reliability in three other college student samples (Ritigstein, 1975; Weaver, 1983; Weissman, Ritter, & Gordon, 1971) averages from .62 (PRO) to .82 (TAO). In general, at least for the adult version of the DMI, PRO appears to be the least reliable scale, while TAO appears to be the most reliable scale.

The vast majority of research examining the validity of the DMI has been conducted with adults. However, partial support for construct validity of the DMI-Y comes from a cross-sectional study (Diehl, Coyle, & Labouvie-Vief, 1994) of 378 participants ranging in age from 10 to over 70. These investigators found, as theoretically expected, that younger individuals are more likely to use TAO and PRO and less likely to use PRN, REV, and TAS. Similarly, Levit (1993) found that increasing levels of ego development were related to less use of TAO and greater use of TAS. Support for the convergent validity of the DMI can be found in Noam and Recklitis (1990). They found that the more externalizing defenses, TAO and PRO, were significantly related to the Externalizing scale of the YSR, while the more internalizing defense, TAS was significantly related to the YSR Internalizing scale. REV and PRN were negatively correlated with all YSR scales except Somatic Complaints, suggesting that adolescents who use these defenses report fewer behavior problems, although it is unclear whether this finding is a function of socially

desirable reporting or an actual lack of perceived symptoms.

Like the YSR, the DMI was completed by patients between 11 and 17 years old who were admitted to one of the two adolescent units, and was given as part of a group testing situation by trained undergraduate psychology testers who were available to assist in reading and to answer questions.

The Schedule for Affective Disorders and Schizophrenia for School-Age Children--Epidemiologic Version, Fifth Revision (K-SADS-E; Orvaschel & Puig-Antich, 1986, 1994). A semistructured diagnostic interview, the K-SADS-E, was used to assign diagnoses to a subsample of 73 patients. The K-SADS-E is designed to derive diagnoses based on the Diagnostic and Statistical Manual--Fourth Edition (American Psychiatric Association, 1994). The K-SADS-E assesses the patient's functioning and symptoms for a variety of psychiatric disorders, including depressive disorders, anxiety disorders, conduct disorders, psychosis, and attention disorders. Although the K-SADS-E generates both current and lifetime diagnoses, only questions pertaining to current functioning were used in this study. An interview consisting of questions that address specific diagnostic criteria was first conducted with the parent, then the child, and rated for severity. The interviewer then reviewed the information obtained from both informants to arrive at a clinical diagnosis. The interview takes approximately one hour to complete with each informant, although children under age eight take slightly longer. Studies assessing the test-retest reliability of this version of the K-SADS are currently in progress. Past studies have revealed that test-retest coefficients are generally moderate to high, with the diagnosis of anxiety disorder showing the poorest reliability (Chambers et al., 1985).

At admission, the purpose of the study was explained to the parents by the hospital's

Assessment and Referral intake workers. Parents were asked to sign an informed consent form if they agreed to participate and the child was asked to sign an informed assent form. Families who agreed to participate received a token gift of \$10 after the interview was completed. Of the 354 parents who were recruited, 323 (91%) consented to participate. There were no significant differences on any of the demographic variables (i.e., education, occupational level) between parents who consented to be interviewed and those who did not. Because parents complete a lengthy protocol at the time of admission and post-admission scheduling is difficult, K-SADS-P interviews were conducted over the telephone within 48 hours of admission. Although no studies have expressly investigated the reliability of this procedure, Hammen (1988) also conducted telephone interviews for follow-up diagnoses, and found that subjects responded in a very similar manner as in face-to-face interviews. Child and adolescent interviews were conducted in person by a second interviewer within 48 hours of completion of the parent interview. Interviews were conducted by the author, another graduate student in clinical psychology, and a Bachelor's level research assistant. To determine summary diagnoses based on both parent and child report, the graduate student interviewers independently reviewed the scoring protocol and arrived at final diagnoses for each child. They then reviewed the diagnoses together and arrived at a consensus. Diagnoses were classified into three categories: 1) Externalizing Diagnoses included diagnoses of Conduct Disorder, Oppositional Defiant Disorder, Intermittent Explosive Disorder, Attention-Deficit Hyperactivity Disorder, and Impulse Control Disorder Not Otherwise Specified; 2) Internalizing Diagnoses included diagnoses of Major Depressive Disorder, Dysthymic Disorder, Depressive Disorder Not Otherwise Specified, Adjustment Disorder with Depressed Mood, Separation Anxiety Disorder,

Generalized Anxiety Disorder, and Overanxious Disorder; and 3) Psychotic Diagnoses included diagnoses of Schizophrenia, Schizophreniform Disorder, Schizoaffective Disorder, Delusional Disorder, and Psychotic Disorder NOS. Twenty parent and 20 child interviews were audiotaped and diagnosed by an interviewer blind to the original diagnosis to provide estimates of interrater agreement. For both Internalizing and Externalizing Diagnoses, kappa statistics were 1.00, indicating perfect agreement. None of the reliability sample received a diagnosis that was classified as a Psychotic Diagnosis, and so agreement could not be estimated, other than perfect agreement that there was no psychotic disorder.

Based on the K-SADS-E interviews, suicidality and psychotic symptoms were each rated on a four-point scale for severity. For suicidality, 0 indicated no suicidal ideation or behavior; 1 indicated mild or vague suicidal ideation; 2 indicated substantial suicidal ideation and/or mild to moderate suicidal gestures (e.g., scratching wrist, taking five aspirin); and 3 indicated strong suicidal intent and a potentially lethal attempt. For psychosis, 0 indicated no psychotic symptoms, 1 indicated vague or isolated psychotic symptoms (e.g., patient thought he saw something in the dark, saw a demon outside the window one time); 2 indicated psychotic symptoms of moderate severity and/or frequency (e.g., patient talks to an angel each night when going to sleep, is visited by recently deceased grandfather every few days for the past month); and 3 indicated consistent, severe psychotic symptoms (e.g., patient is unable to see other people at times because of hallucinations, patient often speaks back to hallucinations). Pearson correlations measuring interrater reliability were .92 for suicidality and .87 for psychotic symptoms.

Results

Study 1

Study 1 was conducted to test the models of Maladaptive and Adaptive Coping. Hypothesis 1 proposed that the covariance structure of the hypothesized models would fit adequately for children and adolescents regardless of age and sex. Clinical observation and data obtained during the pilot study suggest that the first few days of child and adolescent inpatient stays can be associated with a period of adjustment (i.e., a “honeymoon period”) and may not be representative of typical behavior. Ratings for the first three days, therefore, were not used in analyses. In addition, several researchers (Conners & Barkley, 1985; Hargreaves, 1968; Kolko, 1988) recommend that due to the unreliability of behavior ratings, the ratings be averaged across multiple observations. Therefore, all available ratings were averaged across days 4 through 7 for purposes of analysis.

The hypothesis was tested using confirmatory factor analysis (CFA) and structural equation modeling (SEM). LISREL 8 (Jöreskog & Sörbom, 1993) was used to obtain the maximum likelihood estimates of the model coefficients via analysis of covariance matrices. A number of indices were used to test for a well-fitting model. First, the chi square goodness of fit test was performed. A nonsignificant chi square is one indication of a good fit; however, the chi square goodness of fit test is highly sensitive to the influence of sample size, and may indicate a significant difference from the hypothesized model even when other indicators suggest a reasonable fit. Thus, additional indices were examined. For each of the following indices, values between .90 and 1.00 indicate adequate fit to the hypothesized model; the investigator looks for consistent indications of good fit across the indicators. The goodness of fit index (GFI; Jöreskog & Sörbom, 1989 [cf. Tanaka &

Huba, 1985]) does not depend on sample size explicitly and measures the degree to which the model fits compared to no model at all. The normative fit index (NFI; Bentler & Bonett, 1980), the comparative fit index (CFI; Bentler, 1990), and the incremental fit index (IFI; Bollen, 1989) measure how well the model fits compared to a baseline model, usually defined as the independence model (in which all observed variables are uncorrelated). These indicators vary in terms of whether they are population-based versus sample-based indicators, the extent to which they penalize heavily parameterized models, whether they are absolute fit indices versus estimates relative to a weighted function of the observed variances and covariances, whether they are estimation method-free versus estimation method-specific indices, and the extent to which they are sample size-independent.

Although Hypothesis 1 called for Agegroups 1 and 2 to be tested separately, the number of participants in Agegroup 1 ($N = 100$) was smaller than the number of parameters to be tested. CFA analyses were, therefore, performed on the combined sample. Means, standard deviations, and correlations for all CBRF-R items included in the analyses are shown in Appendix B (behavior problems items) and Appendix C (positive behavior items). Prior to analysis, three items with particularly low variance ($SD < .15$) were omitted. These items were Item 13 (“Exaggerated abilities or achievements”), Item 25 (“Nervous movements), and Item 34 (Said no one likes him/her).

Test of Maladaptive Coping Models. First, the measurement models were tested for the three hypothesized Maladaptive Coping models. Maladaptive Coping Model 1, the most differentiated model, did not result in an admissible solution for the measurement model. Inspection of the output indicated that the theta-delta matrix was not positive

definite (i.e., negative, and therefore impossible, error variances existed in the item covariance matrix). The preliminary solution provided for tracing the problem resulted in a significant chi-square [χ^2 (1297, $N = 387$) = 5515.60, $p < 0.0$], a goodness of fit index (GFI) of .62, a normed fit index (NFI) of .58, a comparative fit index (CFI) of .64, and an incremental fit index (IFI) of .64. It was concluded that Maladaptive Coping Model 1 did not provide a good fit to the data.

Similarly, Maladaptive Coping Model 2, the less differentiated model, did not result in an admissible solution for the measurement model. Inspection of the output indicated that the phi matrix was not positive definite (i.e., negative error variances existed in the covariance matrix of the latent variables). The preliminary solution provided for tracing the problem resulted in a significant chi-square [χ^2 (1310, $N = 387$) = 6152.96, $p < 0.0$], a GFI of .59, a NFI of .53, a CFI of .59, and an IFI of .59. It was concluded that Maladaptive Coping Model 2 did not provide a good fit to the data.

Maladaptive Coping Model 3, the two-factor model, resulted in an admissible but poor-fitting solution. This model resulted in a significant chi-square [χ^2 (944, $N = 387$) = 5716.87, $p < 0.0$], a NFI of .49, a GFI of .52, a CFI of .53, and an IFI of .54. It was concluded that Maladaptive Coping Model 3 did not provide a good fit to the data.

The above analyses indicate that Hypothesis 1 is not supported. Inspection of the each model's modification indices and the correlation matrix showed that many items were associated with multiple latent variables. The extensive item overlap is not surprising given the multiple problems and high degree of comorbidity with which inpatient children and adolescents present. Furthermore, criteria for admission to this acute inpatient hospital virtually guarantee that the majority of children and adolescents admitted will exhibit both

externalizing and internalizing problems because patients are not admitted for conduct problems without some accompanying psychiatric illness. This may contribute to the difficulty in identifying isolated dimensions of behavior problems when a large number of items is analyzed.

In an attempt to identify scales that better fit the data covariance structure with minimal item overlap, the nature of the LISREL analysis was changed from confirmatory to exploratory. Maladaptive Coping Model 1 was chosen as a starting point, both because it had slightly better fit indices and because it made the most conceptual sense given the goals of the study (i.e., to identify behavior problem dimensions that are sufficiently narrow to provide a focus for treatment planning). The measurement model for each latent variable (Oppositionalism, Aggression, Attention Problems, Overactivity, Withdrawal/Depression, Anxiety, Thought Problems, and Self Harm) was tested separately in order to determine the most salient items for each construct. Guided overall by content analysis, items were deleted on the basis of nonsignificant or low estimates relative to the other items on the factor and/or after examination of the correlation matrix to identify nondiscriminating items. No satisfactory measurement models were found for the Aggression, Thought Problems and Self Harm factors, and so no attempt was made to further examine these dimensions empirically (the Aggression items were tested in conjunction with the Oppositionalism items, but produced a poor-fitting model). After basic measurement models had been identified for the remaining five variables, the fit was analyzed with all factors modeled together. This model had 24 items and resulted in a significant chi-square [χ^2 (242, N = 387) = 704.75, p < 0.0], a GFI of .86, a NFI of .87, a CFI of .91, and an IFI of .91. Based on the modification indices, five additional items were

deleted. The final model resulted in a significant chi-square [χ^2 (142, N = 387) = 322.60, p < .00], but had a GFI of .92, a NFI of .91, a CFI of .95, and an IFI of .95. When considered as a whole, the fit indices provide evidence that this model adequately fits the data. The final measurement model (Figure 6) consists of Oppositionalism (four items), Attention Problems (three items), Overactivity (three items), Withdrawal/Depression (six items), and Anxiety (three items). Table 4 describes the items that correspond to each of the final scales.

Next, a model was run to test whether Oppositionalism, Attention Problems, and Overactivity comprised a latent variable of Externalizing. The model produced a good fit to the data and, while resulting in a significant chi-square [χ^2 (146, N = 387) = 332.20, p < .00], had a GFI of .92, a NFI of .91, a CFI of .95, and an IFI of .95. Because Withdrawal/Depression and Anxiety, initially hypothesized to form an Internalizing dimension, were uncorrelated, this model was not tested. A final model was tested to examine whether Externalizing, Withdrawal/Depression, and Anxiety comprised a general construct of Maladaptive Coping. The lambda-Y matrix for this model did not have full-column rank, indicating that the model was an extremely poor fit to the data. This suggests that for this sample of inpatient children and adolescents, behavior problems are best described by dimensions of Oppositionalism, Attention Problems, and Overactivity, which form a general Externalizing factor, as well as Withdrawal/Depression and Anxiety. The final Maladaptive Coping Model is shown in Figure 7.

Test of Adaptive Coping Models. The measurement model for Adaptive Coping Model 1 resulted in a significant chi-square [χ^2 (34, N = 381) = 241.01, p < 0.0], a GFI of .89, a NFI of .94, a CFI of .95, and an IFI of .95. The measurement model for Adaptive

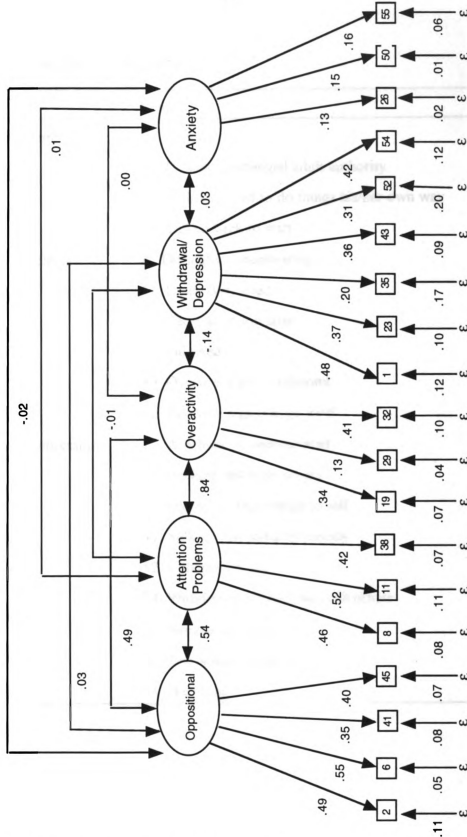


Figure 6. Final measurement model for Maladaptive Coping.

Table 4

Final Maladaptive Coping Scale Items

Scale	Item
Oppositionalism	2. Argued
	6. Defiant, challenged adult authority
	41. Stubborn, had to do things his/her own way
	45. Talked back to staff
Attention Problems	8. Difficulty concentrating
	11. Easily distracted
	38. Short attention span
Overactivity	19. Fidgeted
	29. Overly excited, exuberant
	32. Restless, high energy level
Withdrawal/Depression	1. Apathetic or unmotivated
	23. Isolated self from others
	35. Secretive, kept things to self
	43. Sulked, was silent or moody
	52. Unhappy or sad
	54. Withdrawn, uninvolved with others
Anxiety	26. Nervous or tense
	50. Too fearful or anxious
	55. Worrying

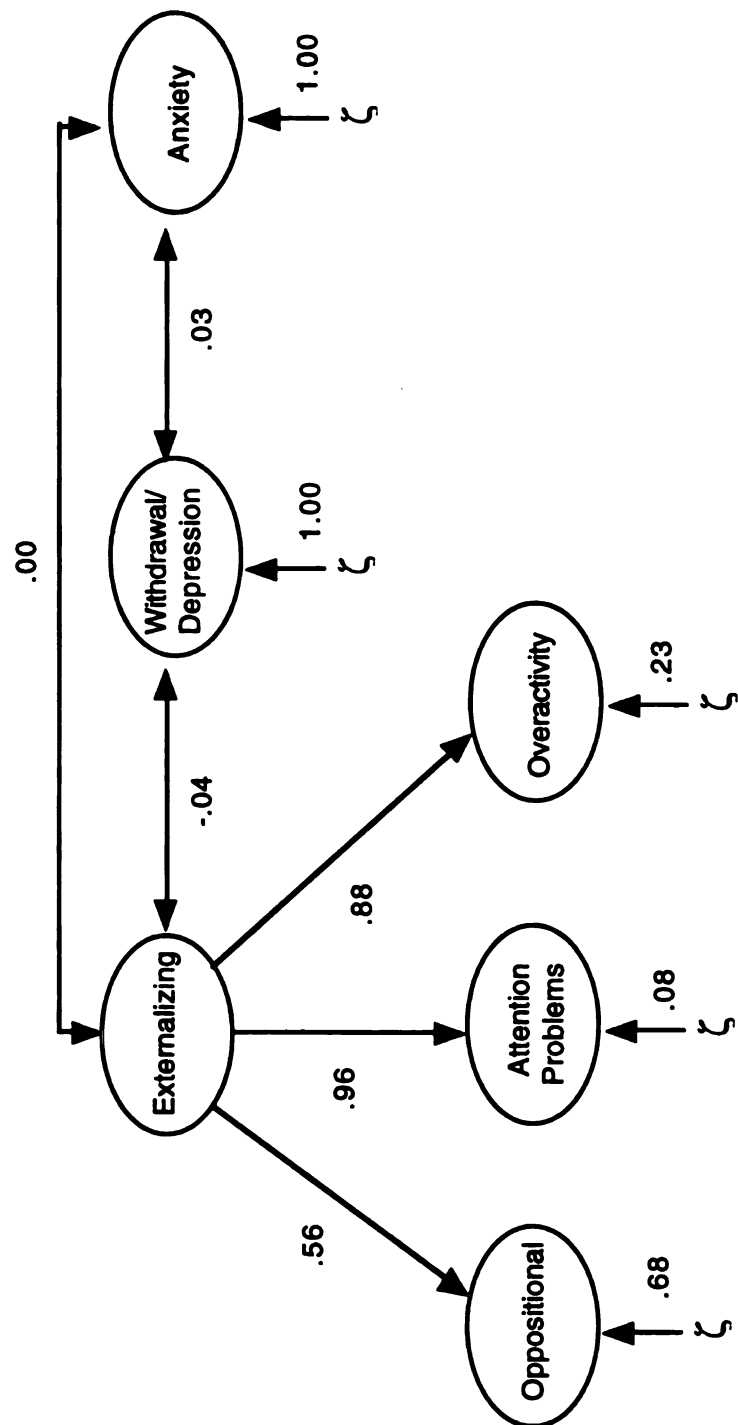


Figure 7. Final structural model for Maladaptive Coping.

Coping Model 2 resulted in a significant chi-square [χ^2 (35, N = 381) = 549.57, p < 0.0], a GFI of .66, a NFI of .84, a CFI of .85, and an IFI of .85. Although the fit indices indicated that Adaptive Coping Model 1 fit the data adequately, inspection of the modification indices indicated that the fit could be substantially improved by the deletion of two items. The resulting final model had a significant chi-square [χ^2 (19, N = 381) = 97.83, p < 0.00], but a GFI of .94, a NFI of .97, a CFI of .97, and an IFI of .97. It was concluded that this model fit the data very well. The final model (Figure 8) consists of Compliance/Self Control (four items) and Positive/Social (four items). Whether the Compliance/Self Control and Positive/Social are related to a general Adaptive Coping construct could not be formally tested since this model had only two indicators and SEM requires three. Therefore, the final measurement model of Adaptive Coping shown in Figure 8 is also the final model of Adaptive Coping for this study. The items which load on each scale are detailed in Table 5.

Scale intercorrelations, internal consistency, and age and sex differences. After establishing the measurement models, the psychometric properties of the final scales were examined. Scales scores were derived using unit weightings in order to maximize external validity, since actual usage in the hospital setting will almost certainly entail unit-weight scoring, as well as to increase generalizability to other settings.

Table 6 presents the intercorrelations among the eight scales. Externalizing, as would be expected, shows strong positive correlations with Oppositionalism, Attention Problems, and Overactivity, as well as negative correlations with the two Adaptive Coping scales. Oppositionalism and Attention Problems are also positively correlated with each other and Overactivity, and Oppositionalism is negatively correlated with both

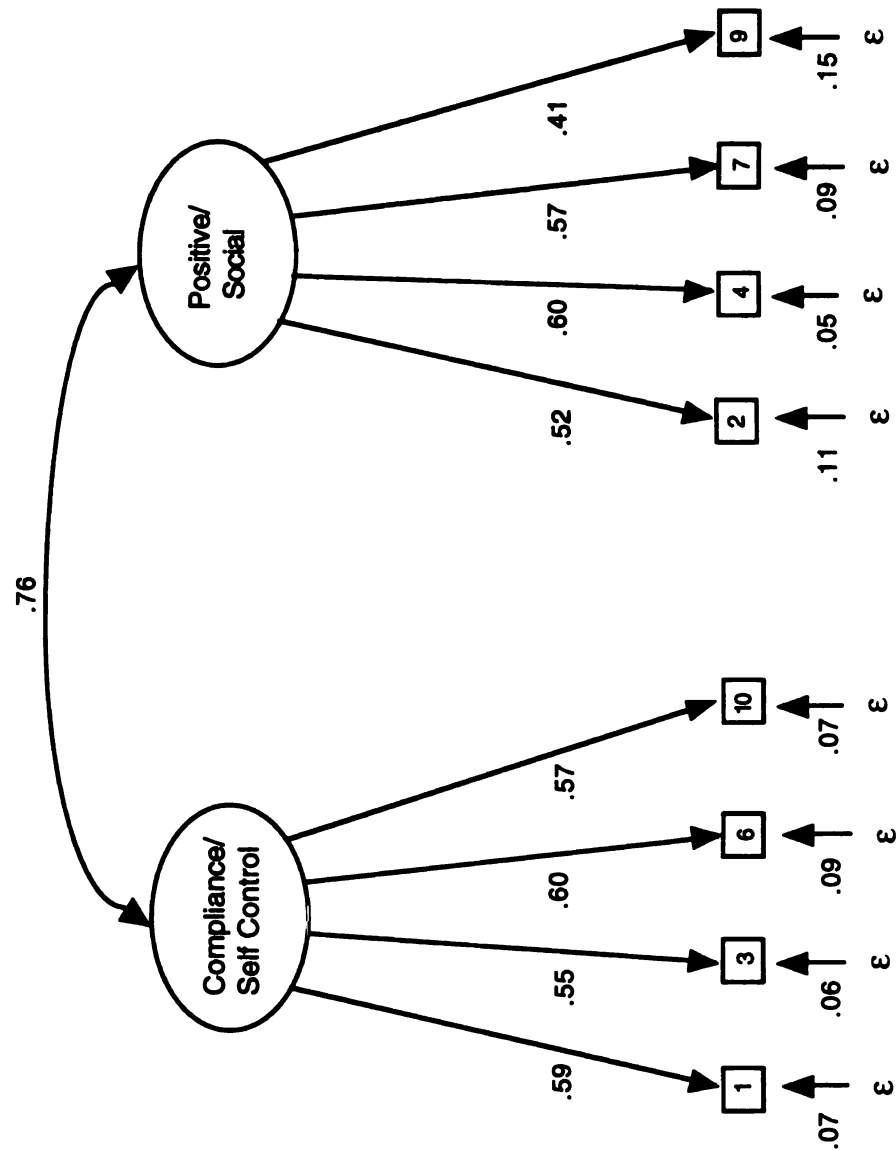


Figure 8. Final measurement model of Adaptive Coping.

Table 5

Final Adaptive Coping Scale Items

Scale	Item
Compliance/Self Control	1. Accepted redirection
	3. Followed rules
	6. Resisted provocation, was tolerant
	10. Was patient, able to delay
Positive/Social	2. Expressed ideas clearly
	4. Initiated positive interactions
	7. Shared with or helped others
	9. Was cheerful or happy

Table 6

Intercorrelation Matrix for CBRF-R Scales

Scale	1	2	3	4	5	6	7	8
1. Externalizing	--	.85***	.86***	.78***	-.06	-.05	-.59***	-.31***
2. Oppositionalism		--	.56***	.42***	-.02	-.07	-.61***	-.34***
3. Attention Problems			--	.69***	-.04	-.02	-.49***	.42***
4. Overactivity				--	-.14**	-.04	-.30***	-.08
5. Withdrawn/Depressed					--	.04	-.06	-.48***
6. Anxiety						--	-.01	-.03
7. Compliance/Self Control							--	.72***
8. Positive/Social								--

* $p < .05$; ** $p < .01$; *** $p < .001$.

Adaptive Coping scales. While both Attention Problems and Overactivity were negatively related to Compliance/Self-Control, Attention Problems was positively associated and Overactivity evidenced no correlation with with the Positive/Social scale. A negative relationship was found between Withdrawn/Depressed and Positive/Social, while no significant relationships were revealed for Anxiety. The two Adaptive Coping Scales showed a strong positive relationship with each other. In sum, intercorrelations generally were as expected, although the lack of a relationship between Withdrawal/ Depression and Anxiety does not support previous findings.

Internal reliability coefficients (Cronbach's alpha) are displayed in Table 7. The internal consistency of the scales appears quite high ($\bar{X} = .85$; range = .67 to .95). The alphas indicate that Overactivity (.72) and Anxiety (.67) are somewhat less homogenous than the other scales, but still acceptable.

Age and sex differences on the scales were examined through independent samples T-tests, shown in Table 8. Significant effects for age were found for seven of the eight scales. Agegroup 1, the younger children, showed higher levels of Externalizing, Oppositionalism, Attention Problems, and Overactivity, as well as Positive/Social behaviors. Alternatively, Agegroup 2, adolescents, had significantly higher levels of Withdrawal/Depression and Anxiety. No age differences were found for the Compliance/Self Control scale. Sex differences were also found for three scales; boys displayed significantly higher levels of Externalizing, Attention Problems, and Overactivity than did girls. Finally, a series of 2 X 2 ANOVAs were conducted to test for an agegroup by sex interaction for each scale. No significant interactions were found.

Table 7

Internal Consistency of CBRF-R Scales

Scale	Cronbach's Alpha
Externalizing	.89
Oppositionalism	.90
Attention Problems	.88
Overactivity	.72
Withdrawal/Depression	.84
Anxiety	.67
Compliance	.95
Positive/Social	.91

Note. For negative behavior scales, $N = 387$; for positive behavior scales, $N = 381$.

Table 8

Comparison of Means on CBRF-R Scales for Age Group and Sex: Independent T-Tests

	Means (SD)		<u>df</u>	<u>t</u>
	Agegroup 1	Agegroup 2		
Externalizing	.51 (.46)	.24 (.29)	127	5.45***
Oppositionalism	.47 (.52)	.25 (.39)	141	3.91***
Attention Problems	.63 (.64)	.33 (.41)	129	4.38***
Overactivity	.41 (.47)	.14 (.23)	116	5.52***
Withdrawal/Depression	.19 (.23)	.30 (.39)	291	-3.60***
Anxiety	.03 (.10)	.08 (.19)	323	-2.41**
Compliance	1.82 (.61)	1.81 (.59)	379	.14
Positive/Social	1.66 (.53)	1.47 (.55)	379	3.18**
	Boys	Girls	<u>df</u>	<u>t</u>
Externalizing	.35 (.39)	.24 (.31)	368	3.14**
Oppositionalism	.33 (.46)	.26 (.40)	350	1.79
Attention Problems	.47 (.52)	.31 (.44)	357	3.29**
Overactivity	.26 (.38)	.13 (.22)	379	4.14***
Withdrawal/Depression	.26 (.35)	.29 (.36)	385	-.66
Anxiety	.05 (.14)	.08 (.22)	230	-1.38
Compliance	1.79 (.57)	1.84 (.63)	379	-.71
Positive/Social	1.50 (.54)	1.54 (.56)	379	-.70

* $p < .05$; ** $p < .01$; *** $p < .001$.

Study 2

Study 2 was conducted to test Hypothesis 2, which stated that the CBRF-R scales would demonstrate moderate to high reliability for trained student pairs, and lower but adequate reliability for pairs comprised of one student rater and one mental health worker. Fifty-two patients were observed to test the hypothesis. Interrater reliability was examined using Pearson correlations of the unit-weight scale scores (shown in Table 9). Hypothesis 2 was generally supported. Student rater pairs demonstrated moderate to high interrater reliability ($\bar{X} = .68$; range = .41 to .84) except for Attention Problems (.41) and Anxiety, for which one set of raters observed none of the targeted behaviors, and so interrater reliability could not be estimated. Pairs consisting of one student rater and one mental health worker resulted in lower coefficients ($\bar{X} = .45$; range = .06 to .61). Here, too, the smallest reliability coefficient was found for Attention Problems (average across both mental health worker/student pairs = .16).

Study 3

Study 3 was conducted to test Hypothesis 3, which stated that the Maladaptive Coping and Adaptive Coping models would demonstrate adequate split-half and test-retest stability.

Stability within the sample. To test the split-half stability of the Maladaptive Coping model, the sample was randomly divided in half ($N = 193$ and $N = 194$) and simultaneous equation analyses were conducted. For the Maladaptive Coping model, results revealed a significant chi-square [$\chi^2 (308, N = 387) = 623.43, p < 0.0$], a GFI of .88, a NFI of .85, a CFI of .91, and an IFI of .92. These fit indices suggest that the model only approaches

Table 9

Interrater Reliability for CBRF-R Scales (N = 52)

Scale	MHW/SR1	MHW/SR2	SR1/SR2
Externalizing	.51***	.53***	.79***
Oppositionalism	.59***	.61***	.84***
Attention Problems	.06	.26*	.41**
Overactivity	.52***	.34**	.59***
Withdrawal/Depression	.39**	.51***	.84***
Anxiety	.58***	----	----
Compliance	.50***	.53***	.66***
Positive/Social	.30*	.48***	.60***

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note. MHW = Mental Health Worker; SR1 = Student Rater #1; SR2 = Student Rater #2. For negative behavior scales, $N = 57$; for positive behavior scales, $N = 56$. Student Rater #2 had no ratings for Anxiety; therefore, correlations could not be computed.

stability across the sample. To determine the source of the instability, separate simultaneous equation analyses were run for each scale (see Table 10). Results indicate that Oppositionalism, Attention Problems, and Overactivity have excellent stability, Externalizing has adequate stability, Withdrawal/Depression is less stable but approaches adequacy, and Anxiety is not stable across the sample.

For the Adaptive Coping model, the simultaneous equation modeling analysis resulted in a significant chi-square [χ^2 (55, N = 381) = 195.30, p < 0.0], but a GFI of .90, a NFI of .94, a CFI of .95, and an IFI of .95. It was concluded that the model was stable across the sample.

Stability over time. The stability of the models was also tested across two and three time points using SEM, which controls for correlated measurement errors across time. Ratings were averaged across days 4 through 7 (Time 1), days 11 through 14 (Time 2) and days 18 through 21 (Time 3). Of the original sample, for Maladaptive Coping, 302 patients had ratings for two timepoints and 160 patients had ratings for three timepoints, and for Adaptive Coping, 296 patients had ratings for two timepoints and 156 patients had ratings for three timepoints.

Table 11 presents fit indices and correlations for stability models at two timepoints for the full Adaptive Coping model and for each separate Maladaptive Coping and Adaptive Coping scale. The Maladaptive Coping analysis for two timepoints resulted in an inadmissible solution as both the psi and theta-epsilon matrices were not positive definite, indicating that the structural model fit poorly across time. However, as shown in Table 11, the individual scales appear to be quite stable, except for Anxiety. Thus, the relations between rather than within the scales are likely to account for the poor model fit. For the

Table 10

Split-Half Stability of Maladaptive Coping Dimensions (N = 387)

	χ^2	<u>df</u>	GFI	NFI	CFI	IFI
Maladaptive Coping Full Model	623.43***	308	.88	.85	.91	.92
Externalizing	248.10***	84	.90	.90	.93	.93
Oppositionalism	48.15***	12	.96	.95	.96	.96
Attention Problems	25.32***	6	.96	.96	.97	.97
Overactivity	25.22***	6	.96	.91	.93	.93
Withdrawal/ Depression	136.29***	30	.90	.86	.89	.89
Anxiety	142.96***	6	.89	.36	.37	.37

* $p < .05$; ** $p < .01$; *** $p < .001$

Note. GFI = Goodness of Fit Index; NFI = Normed Fit Index; CFI = Comparative Fit Index; IFI = Incremental Fit Index.

Table 11

Two-Week Stability of Maladaptive Coping and Adaptive Coping Scales (N = 302)

	χ^2	df	GFI	NFI	CFI	IFI	T1/T2 r
Externalizing	465.25***	155	.87	.90	.93	.93	.76***
Oppositionalism	49.30***	16	.96	.97	.98	.98	.62***
Attention Problems	14.13*	6	.99	.99	.99	.99	.66***
Overactivity	6.00	5	.99	.99	1.00	1.00	.75***
Withdrawal/ Depression	177.41***	47	.91	.88	.90	.91	.49***
Anxiety	5.42	5	.99	.98	1.00	1.00	.11*
Adaptive Coping Full Model	506.78***	93	.86	.91	.92	.92	N/A
Compliance/ Self Control	69.19***	15	.94	.97	.98	.98	.50***
Positive/Social	23.64	15	.98	.99	1.00	1.00	.48***

* $p < .05$; ** $p < .01$; *** $p < .001$

Note. GFI = Goodness of Fit Index; NFI = Normed Fit Index; CFI = Comparative Fit Index; IFI = Incremental Fit Index; T1 = Time 1; T2 = Time 2.

Adaptive Coping model at two timepoints, results revealed a significant chi-square [χ^2 (93, $N = 296$) = 506.78, $p < 0.0$], a GFI of .86, a NFI of .91, a CFI of .92, and an IFI of .92, indicating fair stability after one week. The individual scales also appear highly stable.

For the test of stability over three timepoints, the full Maladaptive Coping and the Externalizing models could not be examined due to the small sample size. In addition, the theta-epsilon matrix was not positive definite for the full Adaptive Coping model, indicating negative error variances in the latent variables, and so the solution was inadmissible. Instead, separate stability models were tested for each of the narrow-band scales. These data are presented in Table 12. The model fit was excellent for the more externalizing scales, and approached adequacy for Withdrawal/Depression and Anxiety. The three externalizing scales appeared to be the most stable over three weeks, particularly the Attention Problems and Overactivity scales. Anxiety was clearly the least stable scale. For all scales, Time 1 to Time 2 data showed the strongest test-retest correlations, while Time 1 to Time 3 data showed the weakest correlations. Interestingly, Oppositionalism, which exhibited a high correlation between Time 1 and Time 2, had virtually no correlation between Time 1 and Time 3.

Study 4

Study 4 was conducted to assess the concurrent, discriminant, and predictive validity of the CBRF-R scales. Although two hypotheses addressed the validity of the hypothesized General Maladaptive Coping, Thought Problems and Self Harm scales, since these scales were not derived, the hypotheses could not be tested.

Table 12

Three-Week Stability of Maladaptive Coping and Adaptive Coping Scales (N = 160)

	χ^2	<u>df</u>	GFI	NFI	CFI	IFI	T1/ T2 <u>r</u>	T2/ T3 <u>r</u>	T1/ T3 <u>r</u>
Opposition.	113.26***	51	.90	.93	.96	.96	.64***	.65***	-.04
Attention Problems	44.85***	18	.94	.96	.97	.97	.67***	.54***	.23**
Overactivity	48.87***	15	.93	.93	.95	.95	.74***	.35***	.38***
Withdrawal/ Depression	272.20***	114	.85	.81	.88	.88	.42***	.29***	.26***
Anxiety	36.36**	15	.95	.82	.87	.89	.29***	.15*	-.01
Compliance/ Self Control	121.18***	39	.89	.94	.96	.96	.38***	.40***	.22**
Positive/ Social	55.62*	39	.95	.96	.99	.99	.37***	.37***	.19*

* $p < .05$; ** $p < .01$; *** $p < .001$

Note. GFI = Goodness of Fit Index; NFI = Normed Fit Index; CFI = Comparative Fit Index; IFI = Incremental Fit Index; T1 = Time 1; T2 = Time 2; T3 = Time 3.

Concurrent validity. Hypothesis 4, concurrent validity, was tested by examining correlations between CBRF-R scales and corollary scales on the YSR, CBCL mother and father reports, and DMI. For the YSR and CBCL, the manuals (Achenbach, 1991a, 1991c) recommend using raw scores (sums of the items scores for each scale) rather than T scores for data analysis because the T distributions for the narrow-band syndromes were YSR and CBCL were analyzed.

In addition, the DMI scales were subjected to a principle components analysis with varimax rotation to determine whether the data in this study produces a bipolar variable comprised of TAO and PRO at one end and PRN and REV at the other (Juni, 1982). Using the criteria of eigenvalues greater than 1.00, two factors which together accounted for 82.1% of the variance resulted. One factor consisted of TAO (with a factor loading of .88), PRO (.78), PRN (-.84), and REV (-.92), and accounted for 59.5% of the variance. The other factor consisted only of TAS (.96) and accounted for 22.6% of the variance. These results supported those of Juni (1982) and suggested that the DMI could be encompassed in two variables, DMI Externalizing (versus Internalizing) and TAS. These variables were used in subsequent analyses.

It was expected that the more externalizing CBRF-R scales would show significant positive relationships with the more externalizing scales and no association or a negative relationship with the more internalizing scales on the criterion measures; that the more internalizing CBRF-R scales would show significant positive relationships with the more internalizing scales and no or a negative association with the more externalizing scales on the criterion measures; and that the CBRF-R Adaptive Coping scales would show significant positive relationships with the competency scales on the YSR and CBCL and

no or a negative association with the behavior problems scales on the criterion measures.

The YSR, CBCL, and DMI scale intercorrelations are displayed in Appendix D. Although the hypothesized CBRF-R Thought Problems and Self-Harm were not retained, the K-SADS-E psychosis and suicide ratings are included in Appendix D to examine relationships they may have with other scales. Due to missing data, the number of participants differ for analyses between the CBRF-R scales and the various criterion measures. Table 13 presents the numbers of participants for each set of correlations.

Discussion of the findings will relate only to correlations between the CBRF-R scales and the YSR (Table 14), CBCL-mother (Table 15), and DMI scales (Table 16). The CBCL-father scales demonstrated no significant relationships with the Maladaptive Coping scales; however, it should be noted that the magnitude of the correlations for the hypothesized relationships was often equal to or greater than those for the YSR and CBCL-mother and that findings of significance at this magnitude were likely to have been precluded by the small sample size (N ranges from 33 to 41). Correlational data for the CBRF-R scales with the CBCL-father scales is presented in Appendix E. In addition, the K-SADS-E suicide and psychosis ratings scales were uncorrelated with the CBRF-R scales. Thus, while that exploratory data is presented in Appendix F, it will not be discussed here.

In general, a number of predicted correlations between the CBRF-R scales and the criterion measures reached significance, and the overall pattern of relationships was as expected. However, no significant correlations were found between any CBRF-R scales and the DMI scales. Table 17 shows the number of significant correlations found compared to the number expected by chance alone. The more externalizing CBRF-R

Table 13

Number of Participants in Correlational Analyses Between CBRF-R Scales and the Criterion Measures

	CBRF-R Maladaptive Coping Scales	CBRF-R Adaptive Coping Scales
<u>YSR</u>		
Behavior Problem Scales	204	201
Competency Scales	180	178
<u>CBCL-Mother</u>		
Behavior Problem Scales	111	109
Competency Scales	80	79
<u>CBCL-Father</u>		
Behavior Problem Scales	41	40
Competency Scales	34	33
<u>DMI Scales</u>	227	222

Table 14

Correlations Between CBRF-R Scales and YSR Scales

CBRF-R Scale	YSR Externalizing Scales					YSR Internalizing Scales				
	YAGGRS	YDELNQ	YATTPR	YEXTRN	YWITHD	YANXDP	YSOMAT	YINTRN		
<u>Externalizing Scales</u>										
Externalizing	.18*	.14	.17*	.18*	-.01	.04	-.04	.00		
Oppositionalism	.17*	.18**	.13	.19**	-.02	.02	-.03	-.00		
Attention Problems	.07	.10	.17*	.09	.00	.04	-.03	.01		
Overactivity	.16*	-.05	.11	.09	-.05	.02	-.04	-.02		91
<u>Internalizing Scales</u>										
Withdrawal/Depress.	-.13	-.08	.01	-.13	.20**	.07	.06	.10		
Anxiety	-.10	-.21**	.02	-.15*	.01	.08	.02	.05		
<u>Adaptive Coping Scales</u>										
Compliance	-.07	-.19**	-.02	-.12	.12	.10	.07	.11		
Positive/Social	.01	-.12	-.04	-.04	-.03	.05	.03	.04		

*p < .05; **p < .01; ***p < .001.

(Table continues)

Note. YAGGRS = Aggression; YDELNQ = Delinquent; YATTPR = Attention Problems; YEXTRN = Externalizing; YWITHD = Withdrawn; YANXDP = Anxiety/Depression; YSOMAT = Somatic Complaints; YINTRN = Internalizing. Predicted relationships are indicated by bold type.

Table 14 (cont.)

CBRF-R Scale	YSR Competence Scales					
	YSOCPR	YTHTPR	YTOTPR	YSOCIAL	YACTIV	YTOTCM
<u>Externalizing Scales</u>						
Externalizing	.11	.04	.09	-.03	-.23***	-.14
Oppositionalism	.06	.05	.08	.00	-.22***	-.11
Attention Problems	.14*	-.00	.07	-.07	-.20**	-.16*
Overactivity	.09	.04	.05	-.04	-.13	-.10
<u>Internalizing Scales</u>						
Withdrawal/Depress.	.01	.08	.02	-.09	-.01	-.05
Anxiety	.04	.02	.00	.12	.21**	.20**
<u>Adaptive Coping Scales</u>						
Compliance	-.03	.02	.00	.01	.15*	.06
Positive/Social	-.05	.01	-.01	.07	.15*	.12
*p < .05; **p < .01; ***p < .001.						

Note. YSOCPR = Social Problems; YTHTPR = Thought Problems; YTOTPR = Total Behavior Problems; YSOCIAL = Social Competence; YACTIV = Activities Competence; YTOTCM = Total Competence. Predicted relationships are indicated by bold type.

Table 15

Correlations Between CBRF-R Scales and CBCL-Mother Scales

CBRF-R Scale	CBCL-M Externalizing Scales					CBCL-M Internalizing Scales				
	MAGGRS	MDELNQ	MATTPR	MEXTRN	MWITHD	MANXDP	MSOMT	MINTRN		
<u>Externalizing Scales</u>										
Externalizing	.28**	.15	.20*	.26**	-.19	-.18	-.31***	-.25**		
Oppositional	.27**	.17	.17	.26**	-.20*	-.15	-.26**	-.23*		
Attention Problems	.22*	.16	.29**	.22*	-.08	-.15	-.27**	-.19*		
Overactivity	.25**	.04	.08	.19*	-.19	-.18	-.25**	-.23*		
<u>Internalizing Scales</u>										
Withdrawal/Depress.	-.15	-.06	.01	-.13	.28**	.10	.03	.15		
Anxiety	-.04	-.07	-.09	-.06	.06	.13	.21*	.16		
<u>Adaptive Coping Scales</u>										
Compliance	-.22*	-.27**	-.27**	-.27**	.01	.17	.26**	.18		
Positive/Social	-.08	-.20*	-.22*	-.14	-.16	.05	.15	.03		
*p < .05; **p < .01; ***p < .001. (Table continues)										

Note. MAGGRS = Aggression; MDELNQ = Delinquent; MATTPR = Attention Problems; MEXTRN = Externalizing; MWTHD = Withdrawn; MANXDP = Anxiety/Depression; MSOMT = Somatic Complaints; MINTRN = Internalizing. Predicted relationships are indicated by bold type.

Table 15 (cont.)

CBRF-R Scale	CBCL-M Competence Scales						
	MSOCPR	MTHTPR	MTOTPR	MSOCIAL	MACTIV	MSCHL	MTOTCOM
<u>Externalizing Scales</u>							
Externalizing	.19*	.26**	.12	-.22*	-.04	.00	.08
Oppositionalism	.13	.20*	.09	-.15	-.10	-.05	-.03
Attention Problems	.25**	.30***	.17	-.24*	-.02	-.02	.14
Overactivity	.16	.13	.06	-.19	-.00	.10	.13
<u>Internalizing Scales</u>							
Withdrawal/Depress.	.09	.01	.05	-.11	.12	.02	-.08
Anxiety	-.14	-.01	-.01	.12	-.06	.08	.00
<u>Adaptive Coping Scales</u>							
Compliance	-.08	-.27**	-.11	.19	.15	.11	.05
Positive/Social	-.07	-.20*	-.11	.08	.06	.20	.10

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note. MSOCPR = Social Problems; MTHTPR = Thought Problems; MTOTPR = Total Behavior Problems; MSOCIAL = Social Competence; MACTIV = Activities Competence; MSCHL = School Competence; MTOTCOM = Total Competence. Predicted relationships are indicated by bold type.

Table 16

Correlations Between CBRF-R Scales and DMI Scales

	DMIEXT	TAS
<u>Externalizing Scales</u>		
Externalizing	.05	-.00
Oppositionalism	.08	-.04
Attention Problems	-.01	-.03
Overactivity	.03	.04
<u>Internalizing Scales</u>		
Withdrawal/Depression	.02	-.05
Anxiety	-.08	.08
<u>Adaptive Coping Scales</u>		
Compliance/Self Control	-.05	.02
Positive/Social	.00	.08

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note. DMIEXT = DMI Externalizing; TAS = DMI Turning Against Self.
Predicted relationships are indicated by bold type.

Table 17

Number of Significant Correlations Found Compared to Number of Significant Correlations Expected by Chance

	Externalizing		Internalizing		Competency	
	Found	Expected by Chance	Found	Expected by Chance	Found	Expected by Chance
CBRF-R			YSR			
Externalizing	8	.8	0	.8	4	.6
Internalizing	2	.4	1	.4	2	.3
Adaptive Coping	1	.4	0	.4	2	.3
			CBCL-Mother			
Externalizing	10	.8	9	.8	2	.8
Internalizing	0	.4	2	.4	0	.4
Adaptive Coping	6	.4	1	.4	0	.4

Predicted positive relationships are indicated by bold type.

scales, Externalizing, Oppositionalism, Attention Problems, and Overactivity, demonstrated positive relationships with the YSR and CBCL-mother Aggression, Delinquency, Attention Problems, and Externalizing scales. Eight of the 16 predicted correlations with the YSR scales and 10 of the 16 predicted correlations with the CBCL-mother scales reached significance, whereas only two correlations out of the 32 predicted correlations would be expected to occur by chance. The correlations with the CBCL-mother scales were consistently stronger than those with the YSR. In addition, as predicted, the more externalizing CBRF-R scales showed several significant negative relationships with the CBCL-mother internalizing scales (nine significant correlations compared to one expected by chance), and nonsignificant negative relationships or no correlation with the other internalizing CBCL-mother and the YSR scales (no correlations were found with the YSR internalizing scales, although one might be expected by chance). Thus, the CBRF-R externalizing scales appear to relate to a bipolar externalizing/internalizing dimension for mothers, but not for adolescents. The pattern of correlations also revealed a number of significant negative correlations between the more externalizing CBRF-R scales and the competency scales on the criterion measures, particularly CBCL-mother Social Competence and YSR Activities Competence (six significant correlations compared to one or two expected by chance). Finally, significant positive but unpredicted relations were found between the more externalizing CBRF-R scales and the CBCL-mother Social Problems and Thought Problems scales.

While the pattern of relationships between the more internalizing CBRF-R scales, Withdrawal/Depression and Anxiety, and the YSR and CBCL-mother scales was generally as expected, few correlations reached significance. The correlations were small but

positive between the more internalizing CBRF-R scales and the internalizing scales on the criterion measures; two CBCL-mother correlations and one YSR correlation reached significance, while one significant correlation would be expected by chance across the combined criterion measures. The more internalizing CBRF-R scales also demonstrated negative relationships or no relationship with the externalizing scales on the criterion measures (two correlations were significant compared to one expected by chance). No consistent pattern emerged between the more internalizing CBRF-R scales and the competency scales on the criterion measures (two correlations were significant versus one expected by chance). However, CBRF-R Anxiety did correlate significantly and positively with YSR Activities Competence and Total Competence, suggesting that it may be an indicator of more adaptive functioning.

Finally, all correlations were positive but only two reached significance (with one expected by chance) for the associations between the CBRF-R Adaptive Coping scales, Compliance/Self-Control and Positive/Social, and the competency scales on the criterion measures. However, several significant negative relationships between the Adaptive Coping scales and the externalizing scales on the criterion measures emerged (seven correlations were significant compared to one expected by chance), as well as significant negative relationships with the Thought Problems scales. Nonsignificant but positive correlations with the internalizing scales on the criterion measures complete the pattern which overall provides support for the hypotheses.

Discriminant validity. Hypothesis 5 stated that the CBRF-R would evidence satisfactory discriminant validity as evidenced by its ability to discriminate between diagnoses classified as internalizing or externalizing. K-SADS-E diagnoses were available

for 73 patients. The majority (67%) of patients received both an externalizing and an internalizing diagnosis, while 23% were diagnosed with a pure externalizing disorder and 10% with a pure internalizing disorder. Discriminant function analyses were performed to test the hypothesis. The first analysis tested the ability of the five Maladaptive Coping scales to discriminate between patients who had received an externalizing diagnosis and those who had not; this analysis was also used to test the scales' ability to discriminate between patients who had received an internalizing diagnosis and those who had not. These analyses were repeated using the two Adaptive Coping scales as additional predictors. The results indicated that in no case were the scales able to discriminate between the groups. Two final analyses were performed to test the ability of the scales to discriminate between patients who had received only an externalizing diagnosis, only an internalizing diagnosis, or both an externalizing and an internalizing diagnosis. Neither the Maladaptive Coping scales alone nor in conjunction with the Adaptive Coping scales were able to significantly discriminate between the groups. To determine any mean differences on the CBRF-R scales between diagnostic groups, independent t-tests were conducted. As can be seen in Table 18, no scales discriminated between patients who had received an externalizing diagnosis and those who had not. However, patients who received an internalizing diagnosis were more likely to have lower scores on the Positive/Social scale. Thus, it was concluded that only very limited support was found for Hypothesis 4.

Predictive validity. Hypothesis 6 examined whether the CBRF-R Maladaptive and Adaptive Coping scales significantly predict length of stay (LOS) after controlling for age and Medicaid status, as younger patients and patients who have Medicaid benefits tend to have longer stays. Two hierarchical regression analyses were conducted to test the

Table 18

**Independent T-Tests for Comparison of Means on CBRF-R Scales for K-SADS
Diagnostic Groups**

Means (SD)				
	Externalizing Diagnosis (N = 66)	No Externalizing Diagnosis (N = 7)	df	t
Externalizing	.31 (.24)	.20 (.16)	71	-1.09
Oppositionalism	.29 (.35)	.13 (.15)	71	-1.21
Attention Problems	.44 (.42)	.33 (.32)	71	-.68
Overactivity	.19 (.23)	.17 (.17)	71	-.23
Withdrawal/ Depression	.21 (.19)	.22 (.22)	71	.03
Anxiety	.10 (.14)	.10 (.08)	71	-.09
Compliance	1.71 (.45)	1.70 (.38)	71	-.04
Positive/Social	1.51 (.33)	1.45 (.47)	71	-.44
	Internalizing Diagnosis (N = 56)	No Internalizing Diagnosis (N = 17)	df	t
Externalizing	.28 (.22)	.34 (.29)	71	.91
Oppositionalism	.25 (.32)	.38 (.40)	71	1.40
Attention Problems	.42 (.38)	.46 (.50)	71	.40
Overactivity	.19 (.19)	.21 (.31)	71	.33
Withdrawal/ Depression	.23 (.20)	.16 (.13)	42	-1.85
Anxiety	.11 (.14)	.07 (.10)	71	-1.09
Compliance	1.68 (.42)	1.77 (.52)	71	.70
Positive/Social	1.46 (.32)	1.65 (.37)	71	2.13*

*p < .05; **p < .01; ***p < .001.

hypothesis. For both, age and Medicaid status were entered on the first step, the Maladaptive Coping scales were entered on the second step, and the Adaptive Coping scales were entered on the third step. The first regression model included all five narrow-band Maladaptive Coping scales on the second step, and the second regression model was tested with Externalizing, Withdrawal/Depression, and Anxiety on the second step.

The results are presented in Table 19 and partially support the hypothesis. As expected, both age and Medicaid status significantly predict LOS. In addition, for Model 1, Oppositionalism, Withdrawal/Depression, and Anxiety are significant predictors, while for Model 2, all three Maladaptive Coping scales are significant predictors. However, for both models, Anxiety predicts a shorter rather than longer LOS. Finally, neither of the Adaptive Coping scales predicts LOS.

Table 19

Hierarchical Regression Analysis for Variables Predicting Length of Stay (LOS)

	Model 1	<u>B</u>	<u>SE B</u>	β
Step 1	Age	-.49	.13	-.18***
	Medicaid Status	5.82	.80	.35*****
Step 2	Oppositionalism	3.15	1.01	.17**
	Attention Problems	1.36	1.12	.08
	Overactivity	.75	1.63	.03
	Withdrawal/Depression	2.37	1.04	.10*
	Anxiety	-5.77	1.77	-.09*
Step 3	Compliance/ Self Control	.73	1.21	.05
	Positive/Social	-.45	1.28	-.03
	Model 2	<u>B</u>	<u>SE B</u>	β
Step 1	Age	-.49	.13	-.18***
	Medicaid Status	5.82	.80	.35*****
Step 2	Externalizing	5.70	1.15	.25*****
	Withdrawal/Depression	2.43	1.03	.11*
	Anxiety	-6.03	2.75	-.10*
Step 3	Compliance/ Self Control	.57	1.18	.04
	Positive/Social	-.46	1.27	-.03

* $p < .05$; ** $p < .01$; *** $p < .001$; ***** $p < .0001$.

Note. For Model 1, $R^2 = .20$ *** for Step 1; $\Delta R^2 = .06$ * for Step 2; $\Delta R^2 = .00$ for Step 3. For Model 2, $R^2 = .20$ *** for Step 1; $\Delta R^2 = .06$ * for Step 2; $\Delta R^2 = .00$ for Step 3.

Discussion

The present study is an attempt to develop and evaluate a child and adolescent inpatient behavior rating scale that is sufficiently broad to cover the wide range of behaviors demonstrated across the age ranges and types of dysfunction, can be used for repeated measurements over the hospital stay, and is psychometrically sound. To this end, a measure previously developed by Kolko (1988), the Child Behavior Rating Form, was revised in order to remedy a number of weaknesses and the psychometric properties of the revised measure were investigated. In particular, alternative models of dimensions of inpatient child and adolescent behavior problems and positive behaviors were proposed and the resulting dimensions examined with regard to internal consistency, sex and age differences, interrater reliability, stability, and concurrent, discriminant, and predictive validity.

A number of interesting results emerged. First, several predicted dimensions of child behavior problems and positive behaviors were consistent with factors demonstrated in earlier studies of both normal and clinical children and adolescents. The CBRF-R scales that represent these constructs appeared, with some exceptions, to be reliable and valid. In addition, the dimensions appeared somewhat more differentiated and distinct than in previous investigations. For example, attention problems and overactivity were related but separate dimensions; withdrawal/depression and anxiety appeared to be distinct constructs rather than a general internalizing factor; and the externalizing and internalizing dimensions were completely unrelated. Finally, the CBRF-R scales appear to be sensitive to changes over time, and thus are a potentially useful tool for assessing the extent of improvement due to treatment and medication effects over the hospital stay.

The initial problem set up in this study was to identify distinct, meaningful dimensions of child behavior problems in the inpatient setting. In an effort to extend the previous literature on dimensions of child behavior problems, which has generally relied upon exploratory factor analytic techniques, structural equation modeling and confirmatory factor analysis were used to test hypothesized models of behavior problems and positive behaviors based on prior research with normal and clinical samples of children and adolescents (e.g., Achenbach, 1991a, 1991b, 1991c; Kolko, 1988; Spivack & Levine, 1964). Three models of Maladaptive Coping behaviors, ranging from most differentiated, with several narrow-band behavior problem dimensions that were encompassed by broad-band dimensions, to least differentiated, which was comprised only of broad-band dimensions, were tested. However, none of the hypothesized models fit the covariance structure of the data well. The poor fit appeared to result primarily from extensive item overlap between the hypothesized dimensions (i.e., items hypothesized to load on one factor actually were related to several dimensions).

When considered in the context of the child and adolescent inpatient environment, the difficulty of identifying “pure” problem dimensions is not surprising. For example, one criterion for admission to an inpatient facility, potential for self harm, theoretically might be considered a more internalizing problem, while another criterion, potential for harm to others, might be considered a more externalizing problem. However, research has indicated that although self-harm usually has a depressed, internalizing component, it is also related to aggression and conduct disorder (Brent, Kolko, Allan, & Brown, 1990; Pfeffer, Newcorn, Kaplan, Mizruchi, & Plutchik, 1988), and so is not necessarily an indicator of a pure internalizing dimension. In addition, psychiatric hospitals do not

typically admit conduct-disordered patients without concurrent psychiatric problems such as depression or suicidality. Thus, patients demonstrating high comorbidity of internalizing and externalizing problems are likely to be admitted as a result of these criteria. Support for this contention was provided by the finding that 67 percent of the patients who participated in the K-SADS-E structured diagnostic interview received both an internalizing and an externalizing diagnosis. Other child and adolescent behavior rating scales also exhibit a significant degree of item overlap, as suggested by high correlations (up to .63) between internalizing and externalizing factors (Achenbach et al., 1989).

Furthermore, it should be noted that the statistical method used in this study, confirmatory factor analysis, is more sensitive to problems of item overlap than is the method used in the previous studies, exploratory factor analysis. In exploratory factor analysis, each item must load to some lesser or greater extent on each factor, and the investigator makes a final, and to some extent subjective, decision as to whether the item discriminates sufficiently between factors. In confirmatory factor analysis, the model is hypothesized a priori. If an item relates to more factors than hypothesized, statistical indicators of the goodness of the model fit will suggest that the hypothesized relationships are inadequate. It is entirely possible that if an exploratory factor analysis had been conducted on the current data, prior findings would have been replicated.

Nonetheless, one goal of this study was to find distinct dimensions of the types of problems demonstrated by child and adolescent inpatients rather than to merely replicate previous studies. Thus, subsequent to the lack of support for the predicted models, exploratory analyses, guided by content analysis, were supplemented by confirmatory procedures to identify distinct and parsimonious scales that would encompass the range of

behavior problems seen on the inpatient unit. Five scales, for which the items had been hypothesized originally based on previous research but had included more items, resulted from this procedure: Oppositionalism, a four-item scale which addresses defiant, argumentative behaviors; Attention Problems, a three-item scale which assesses distraction and poor concentration; Overactivity, a three-item scale which covers restlessness, fidgeting, and overexcitement; Withdrawal/ Depression, a six-item scale which addresses sadness, apathy, and isolation; and Anxiety, a three-item scale which assesses fearfulness and worrying. Despite the small number of items in each of the final scales, the items which comprised each factor were conceptually consistent and clearly represented the constructs originally hypothesized. In addition, internal consistency was excellent for most scales and was comparable to that found in the Kolko (1988) study. The internal consistency for Anxiety and Overactivity were somewhat less than for the other scales, but the alpha for Anxiety was an improvement over the Kolko (1988) Anxiety scale (.67 versus .56). Three additional hypothesized scales, Aggression, Thought Problems, and Self Harm, did not receive support as distinct and coherent dimensions, probably due to the low frequency on a secure inpatient unit of the severe behaviors that made up these scales. Despite the lack of empirical evidence for the usefulness of the three scales, it is probably prudent to retain physically aggressive, psychotic, and suicidal items on the final instrument because of their clinical significance.

Additionally, the narrow-band Oppositionalism, Attention Problems, and Overactivity scales were found to comprise a broad-band Externalizing dimension. Identification of an externalizing dimension has been one of the most robust findings of the child behavior problems literature, but investigators have differed in whether they have chosen to include

attentional difficulties and hyperactivity as a component of that dimension (e.g., Achenbach, 1991a, 1991b, 1991c; Kolko, 1988). In the inpatient setting, it appears that these problems are best depicted as a manifestation of a more externalizing coping style.

It is interesting that Attention Problems and Overactivity comprise separate, although highly correlated (.69), dimensions. Generally, these behaviors have been combined into one syndrome (Achenbach, 1991a, 1991b, 1991c; Kolko, 1988). This may be an artifact of exploratory factor analysis; the more sensitive confirmatory factor analytic procedure may be better able to identify subtle but important distinctions in behavior problem dimensions. While the attentional difficulties and overactivity have typically been associated with Attention-Deficit Hyperactivity Disorder, the current results suggest that each problem cluster is also related to other psychiatric disorders. This is borne out by the current criteria for diagnosis. For example, concentration problems are also a criterion for depressive disorders and anxiety disorders, and overactivity may be a component of Bipolar Disorder (DSM-IV; American Psychiatric Association, 1994).

Surprisingly, the Withdrawal/Depression and Anxiety factors did not comprise a single internalizing dimension and were, in fact, totally uncorrelated. This finding contrasts with other studies, which have uniformly revealed a fairly strong positive relationship between the two constructs (Achenbach, 1991a, 1991b, 1991c; Kolko, 1988). It may be that for many youngsters admitted to a psychiatric hospital, experiences of depression and anhedonia are so severe that anxious symptoms are precluded. Worrying and feeling nervous and tense may require more energy and effort than these patients are able to muster during the time of extreme crisis. Anxiety has also been shown to have a strong state component (Gaudry & Poole, 1975) and is likely to fluctuate in a structured

treatment setting, which may function to moderate the association between depression and anxiety. However, while the two scales did not statistically form a single broad-band internalizing dimension, examination of the items suggests that they comprise distinct conceptual components of an internalizing coping style.

In the final Maladaptive Coping model, no relationship was found between the more externalizing scales and the more internalizing scales. This also contradicts previous findings with normal children and adolescents, which have shown a strong positive association between the two constructs (Achenbach, 1991a, 1991b, 1991c), but supports Kolko's (1988) work with clinical child inpatients. It is particularly surprising that a pure construct of withdrawal/depression was derived, given that the admission criteria tend to bias the sample toward comorbid depression and conduct problems. It may be that many depressed children and adolescents express their sadness and anger through more externalizing behaviors while in their home environments, but do not exhibit these behaviors when in the structured, safe hospital milieu. Furthermore, the use of confirmatory procedures may have successfully reduced the degree of overlap between the two constructs.

In addition to the Maladaptive Coping scales, two alternative models of Adaptive Coping were examined. After the elimination of two items, the hypothesized two-factor model based directly on Kolko (1988) was found to provide an excellent fit to the data. The final model was composed of the four-item Compliance/Self Control scale, which addresses the ability to follow rules, be patient, and resist provocation, and the four-item Positive/Social scale, which assesses positive interactions and cheerfulness. As expected, these dimensions were highly related to each other, and negatively related to the

Maladaptive Coping scales, with a few notable exceptions. While overactive patients also tended to be noncompliant, they were not necessarily lacking in positive interactions and sociability, and patients with attention problems exhibited more positive interactions. Conversely, withdrawn and depressed patients understandably were the least social, but were not consistently compliant, as might be expected given their apathetic demeanor. Finally, patients' level of anxiety was found to have no association with their compliant or positive/social behavior as observed in the hospital. Thus, in contrast to the other behavioral dimensions, worrying and nervousness does not necessarily appear to be an indicator of poor functioning. This supports results found in the Kolko (1988) study as well.

The number of children age 11 and under was too small to test the Maladaptive Coping and Adaptive Coping models by age as proposed. Therefore, post hoc analyses examined the individual scales for age differences between children and adolescents, as well as for sex differences. The results concur with other studies examining developmental changes in symptom expression (e.g., Ryan et al., 1987). Younger children exhibited higher levels of externalizing behavior, lower levels of internalizing behavior, and, interestingly, higher levels of positive/social interactions, most likely attributable to the lesser prevalence of withdrawn and depressed behaviors among younger children. In addition, boys were more likely than girls to evidence externalizing behavior, primarily as manifested through attentional problems and overactivity. This is in line with numerous studies documenting a much higher prevalence of attention-deficit hyperactivity disorder in males than females (Trites, Dugas, Lynch, & Ferguson, 1979). Interestingly, female adolescents were not observed to be more depressed than male adolescents, contradicting

extensive research which indicates that in adolescence, depression is experienced more frequently in girls than boys (Fleming, Offord, & Boyle, 1989). The typical sex differences may be eradicated by the admission criteria, so that a greater proportion of depressed boys than is prevalent in the general population is admitted to the inpatient facility.

After the derivation of the final dimensions, a second study was conducted to assess the interrater reliability of the CBRF-R scales. This study replicated Kolko's (1988) examination of the interrater reliability of the original CBRF by using pairs of student raters, and extended that study by also assessing the reliability of rater pairs comprised of one student and one regular member of the unit staff. As expected from previous work on situational specificity in interinformant agreement (Achenbach et al., 1987), the student rater pairs evidenced greater reliability than did the student-mental health worker pairs, with coefficients ranging from moderate to high for the student rater pairs, and low to moderate for the student-mental health worker pairs. Although these coefficients leave much to be desired, they are consistent with those reported in previous studies (Achenbach et al., 1987). In particular, the reliability for the student pairs was generally comparable to that found by Kolko (1988) using a similar method and setting. A few differences did emerge, however. Oppositional behaviors, which showed the least interrater reliability in the Kolko (1988) study, received one of the highest estimates in this study (.84 compared to .27). On the other hand, Attention Problems, Overactivity, and the Adaptive Coping scales had slightly lower estimates in this study, and reliability for Anxiety for student-student pairs could not be estimated as one set of raters did not observe any anxious behaviors (although the reliability coefficient for student-mental health worker pairs was .58). Reliability coefficients for the student-mental health worker

pairs showed much more variability, with Attention Problems showing the smallest estimates.

The differences in the magnitude of the interrater reliability estimates were expected based on previous research. Nonetheless, the question remains concerning the implications of the reliability of these different raters. Although every effort was made in the current study to make student and unit staff exposure to the target children equivalent, important differences are inherent in the rater types. Student raters are more easily trained, more likely to be motivated to rate consistently as instructed, have no previous knowledge of the target children, and are able to focus only on the target children since they have no other duties on the unit. In contrast, despite extensive training, unit staff may be more likely to follow their own perceptions rather than rating according to a manual, are less likely to be motivated to adhere to the constraints of a research study, have prior experience interacting with the target children, and must observe and monitor up to 15 children. Furthermore, perceptions of “severe” behavior and of a particular problem may vary substantially given the differences in training and experience with disturbed populations between the two types of raters. The above differences may account for much of the disparity in the reliability estimates between pairs of student raters and student rater-mental health worker pairs. In order to increase the external validity of the CBRF-R, an alternative examination of interrater reliability would use ratings by pairs of mental health workers. While this was not possible in the current study, Achenbach et al.’s (1987) meta-analysis of studies examining interinformant agreement suggests that informants of the same type and training are likely to agree more than informants of different types. Thus, it is likely that pairs of mental health workers would demonstrate greater reliability,

perhaps comparable to or better than the student rater pairs, than do the mental health workers paired with students. Additionally, clinical observation suggests that mental health professionals may tend to exaggerate the pathology exhibited by patients. Alternatively, mental health workers may be habituated to inpatient behavior problems and thus less prone to emphasize these actions than undergraduate students. Given the implications of this issue for both research and clinical work, future investigations might examine whether mean CBRF-R scale ratings differ between unit staff and student raters.

The next study investigated the stability of the final models across the sample and over time. While the Adaptive Coping model showed good split-half stability for both the full model and the individual scales, the Maladaptive Coping model revealed mixed results. The full Maladaptive Coping model approached stability, suggesting that the relations between the individual scales generally remained consistent in each half of the sample. In addition, the more externalizing scales were highly stable and the Withdrawal/Depression factor was fairly stable. However, the Anxiety factor was not stable across the sample. Nonetheless, the items that comprise the Anxiety scale are very sound conceptually. The poor split-half stability may be due to the relatively low frequency of anxious behaviors throughout the sample, so that a larger number of observations is necessary to obtain a reliable estimate. The low frequency of anxious behaviors may also contribute to the poor interrater reliability for the Anxiety scale.

The stability of the measurement models over time was also examined at two and three timepoints with one-week intervals while controlling for measurement error associated with repeated observations. The stability of the full model was poor at two timepoints, suggesting that the factor intercorrelations had changed somewhat. At three

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timepoints, the stability of the full model could not be tested due to the decreased sample size. However, the stability of the measurement models for the individual scales was excellent at both two and three timepoints for most scales, and adequate for all.

Correlations on the externalizing scales appeared to be the most consistent over a one-week interval, with Withdrawal/Depression and the Adaptive Coping scales exhibiting moderate correlations and Anxiety showing a low correlation. After two weeks, all correlations had dropped substantially, but correlations between Time 1 and Time 3 continued to reach significance for all scales except Anxiety and Oppositionalism.

Standardized assessment of behavioral changes over the inpatient stay has been a much needed, but neglected, area for investigation. The high stability of the measurement models, combined with the changes in the correlations over time, suggests that the CBRF-R scales may be an important tool in examining the effects of treatment and medication effects over the hospital stay. For example, the low correlation between Time 1 and Time 3 for Oppositionalism may indicate that for some patients, defiant, argumentative behaviors are particularly responsive to the effects of inpatient treatment, thus attenuating the correlation over two weeks. In addition, the relatively greater test-retest correlations after two weeks for Attention Problems, Overactivity, and Withdrawal/Depression suggest that these are more consistent behavioral syndromes and may be likely to have a strong organic basis, whereas anxiety and defiance may be more transient and susceptible to environmental cues and intervention. One avenue for future exploration is examination of mean differences in CBRF-R scale scores over time to determine whether certain groups of patients improve in particular problem areas during the hospital stay. The CBRF-R may also be used to address clinically significant differences in those children and adolescents

who have longer versus shorter hospital stays. At two timepoints, 302 patients were available for observation; but by the third week, 142 of those patients had been discharged. It is probable that patients who are discharged earlier differ in significant ways, such as severity and intensity of problems, as well as patterns of comorbidity and other correlates, from those who stay later. These differences may be reflected in treatment and/or medication effects. The CBRF-R, therefore, is potentially an effective instrument to help determine the most appropriate point of discharge.

The final study examined the concurrent, discriminant, and predictive validity of the CBRF-R scales. Concurrent validity was assessed by looking at the relationships between the CBRF-R scales and the narrow- and broad-band scales on the YSR and CBCL-mother report. Overall, support was found for concurrent validity, although many predicted correlations did not reach significance. For the more externalizing scales, good support emerged, with many more correlations reaching significance than were expected by chance. The more externalizing CBRF-R scales were positively related to the YSR and CBCL externalizing scales and negatively related or showed no association with the YSR and CBCL internalizing and competency scales. For mothers' report, in particular, correlations indicated a bipolar externalizing/internalizing dimension. However, the more internalizing CBRF-R scales demonstrated weaker and mostly nonsignificant relationships (although slightly better than expected by chance). Nonetheless, the pattern of correlations was generally as expected, with the more internalizing CBRF-R scales positively related to the YSR and CBCL internalizing scales, and negatively related or showed no association with the YSR and CBCL externalizing scales. In addition, CBRF-R Anxiety had a significant positive association with the YSR competency scales, suggesting that, in the

adolescents' perception, experiences of nervousness and worrying are an indicator of more adaptive functioning. However, given the inconsistent psychometric properties of the Anxiety scale, these results are inconclusive. Finally, the CBRF-R competency scales also demonstrated only somewhat more significant correlations than would be expected by chance with competence scales on the criterion measures. On the other hand, the CBRF-R competency scales were strongly and negatively associated with the mothers' perceptions of their child's externalizing behaviors. Like the CBRF-R internalizing scales, the CBRF-R competency scales also showed a pattern indicating concurrent validity, with positive correlations with the YSR and CBCL competency scales, and negative correlations with the YSR and CBCL externalizing scales.

In sum, strong support for concurrent validity emerged only for the externalizing scales, with some support for the competency scales and limited support for the internalizing scales. However, the patterns of correlations appear to support the hypotheses, and it may be with a larger sample size, more conclusive findings could be reached. Nonetheless, these results provide more support for the CBRF-R scales than that found in Kolko (1988), and suggest that the revised scales may be an improvement over the original factors. Although the correlations for all scales with the criterion measures were of small magnitude (the highest was .31), when considered in the context of interinformant reliability, these correlations are consistent with previous studies. The Achenbach et al. (1987) metaanalysis indicated that the average validity correlation between the report of a mental health worker and a parent is .24 and between the report of a mental health worker and an adolescent is .25. It appears that behaviors observed within the hospital environment, at least within the first week of admission, are relatively

consistent with mothers' and adolescents' own perceptions of behaviors exhibited in the six months prior to admission.

Concurrent validity of the CBRF-R scales was also examined in relation to the DMI in an effort to establish validity using an alternative to observed behavior problems. The DMI is conceptualized as a measure of the patient's underlying defensive styles as opposed to behavior symptom expression. Although Noam and Recklitis (1990) found evidence for the concurrent validity of the YSR with the DMI, and despite the fact that in the current study, the YSR and DMI showed a similar pattern (see Appendix D), no significant correlations resulted between the CBRF-R scales and the DMI scales. It may be that since the YSR and the DMI are both completed by the adolescent, the correlations are subject to rater effects, thus increasing the estimates. Since the CBRF-R and the DMI have different reporters, correlations are likely to be substantially lower, and in this case, nonexistent. The concurrent validity of the adolescent version of the DMI, which was used in this study, has not been previously studied in relation to any measure other than the YSR, so it remains to be seen whether this is an isolated finding.

Evidence for the discriminant validity of the CBRF-R scales was also not forthcoming. Discriminant validity was tested in three ways through the use of discriminant function analyses: by examining the ability of the CBRF-R scales to distinguish between patients who were diagnosed with an externalizing disorder and those who were not; diagnosed with an internalizing disorder and those who were not; and diagnosed only with an externalizing disorder, only with an internalizing disorder, or with both an externalizing and an internalizing disorder. The current study attempted to improve on Kolko's (1988) use of psychiatrist diagnoses by utilizing a semi-structured

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diagnostic interview, but no significant results were found for any of the above analyses. Subsequent examination of the means revealed that no CBRF-R scales distinguished between patients who had received an externalizing diagnosis and those who had not. In addition, only the Positive/Social scale discriminated between patients who had received an internalizing diagnosis and those who had not, with internalizing-disordered patients exhibiting fewer positive interactions. In an attempt to establish evidence for the discriminant validity of the original CBRF, Kolko (1988) conducted ANOVAs for his CBRF scales in relation to psychiatrist-generated externalizing and internalizing diagnoses. He found that children with an externalizing diagnosis were more likely to exhibit attention problems and overactivity and less likely to show withdrawal and depression and compliant behaviors than were children with an internalizing diagnosis. However, CBRF ratings appear to have contributed to the information used to generate the diagnosis, and so may have biased the results in the expected direction. An additional reason for the poorer discrimination in this study as compared to the Kolko (1988) study despite the use of a standardized diagnostic instrument may be the extreme comorbidity of the current sample. Sixty-seven percent of the present sample received both an internalizing and an externalizing diagnosis. In contrast, children in the Kolko (1988) study each were diagnosed with only one disorder. However, research has shown that individuals often meet criteria for multiple diagnoses (Lewinsohn, Hops, Roberts, & Seeley, 1993), and so the classification method used in the earlier study may not have been realistic. For inpatient children and adolescents, discriminant validity may be especially difficult to demonstrate. Alternatively, dimensions of behavior problems simply may not be definitive indicators of diagnostic categories, since the same behavioral dimension can cross

diagnostic groups (e.g., attention problems is a DSM-IV criterion for Attention-Deficit Hyperactivity Disorder, Major Depressive Disorder, Bipolar Disorder, Generalized Anxiety Disorder, and Post Traumatic Stress Disorder [American Psychiatric Association, 1994]).

Finally, regression analyses were used to examine the ability of the CBRF-R scales to predict length of stay. As expected, patients who were younger and received Medicaid benefits had longer stays, and so these variables were controlled for. The broad-band Externalizing scale also predicted longer length of stay, primarily due to the contribution of Oppositionalism, as did Withdrawal/Depression. Interestingly, higher levels of Anxiety actually predicted a shorter length of stay, consistent with other results from this study suggesting that experiences of anxiety may be a positive indicator of functioning. Again, however, this finding must be considered carefully in light of the questionable psychometric properties of the Anxiety scale. No support was found for the hypothesis that higher levels of Adaptive Coping would relate to shorter stays. In keeping with one of the primary goals of an acute care facility, stabilization, the findings appear to confirm that discharge decisions are based more on a decrease in behavioral problems rather than primarily on increases in positive functioning, as might have been a focus in the past when substantially longer stays were an option. In addition, the results of the regression analysis, as well as the lack of a consistent negative association between the Adaptive Coping scales and the Maladaptive Coping scales, highlight the fact that positive behavior and problem behavior do not comprise a single bipolar dimension; patients are likely to demonstrate both positive and negative behaviors within the same time period. This also suggests that children and adolescents who try to “play the game” and exhibit “good”

behavior simply to accelerate their discharge date may not succeed unless they also decrease maladaptive behaviors.

To summarize, models of inpatient child and adolescent behavior problems and adaptive behaviors were derived, and resulted in five Maladaptive Coping and two Adaptive Coping dimensions, as well as an Externalizing dimension. Investigation of the psychometric properties of these scales revealed that they are generally stable across the sample and over a week's interval, have good internal consistency, can be rated reliably, and show expected age and sex differences. In general, the scales relate as expected to each other and to other measures of child behavior problems as reported by the patients themselves and their mothers. However, no relationship was found between the CBRF-R scales and a measure of internal defense mechanisms. In addition, little evidence was found for the discriminating power of the scales, although this may be due to the extensive comorbidity of the sample rather than an inherent weakness in the measure. Finally, support was found for the predictive validity of the Maladaptive Coping scales in relation to length of hospital stay. Overall, the scales appear to be a reliable and valid measure of inpatient child and adolescent behavior problems. In addition, while the final scales are quite brief, this is actually a benefit in the inpatient environment, where rating time is limited and a large number of items is likely to be skimmed and rated less reliably.

Despite the attempt of this investigator to improve upon the previous research in this area, a number of limitations should be noted. First, the adequacy of the hypothesized models could not be tested for each age group. It has been suggested that behavior problems are less differentiated and more variable in young children, and cluster into increasingly specific syndromes over time (Kazdin, 1989). If true, the model structure

could be different for younger children as compared to adolescents. Thus, a larger sample is needed to examine age differences in dimensions of inpatient behavior problems. The interrater reliability of the CBRF-R scales also requires further investigation. This study expanded on prior research by examining agreement between unit staff and student raters. However, the extent of agreement between pairs of similarly trained unit staff who receive the same exposure to the patients needs to be ascertained. Good interrater reliability between mental health worker pairs would do much to demonstrate the external validity of the CBRF-R. In addition, the ability of the CBRF-R scales to discriminate between patients diagnosed with an externalizing or internalizing disorder could not be adequately studied due to the large number of patients diagnosed with both. Additional research is needed with a sample with more clearly defined, “pure” externalizing and internalizing diagnostic groups. Finally, the Anxiety dimension derived in this study exhibited some very interesting associations with other measures, and appeared to have potential as an indicator of adaptive rather than maladaptive functioning. This is consistent with previous research in which the presence of anxious symptoms in conduct-disordered boys was related to less impairment in social functioning (Walker, Lahey, Russo, & Frick, 1991). In a related vein, Beutler et al. (1991) demonstrated that anxiety can function as a form of motivational distress, thereby hastening improvement in response to therapeutic treatment. These studies suggest that anxious symptoms may indicate the capacity to experience guilt and shame, internal controls which can lead to self-control of behavior and hence more adaptive outcomes. However, the psychometric properties of the CBRF-R Anxiety scale were variable and make any findings inconclusive. Thus, further research into the qualities and correlates of the Anxiety scale (particularly the state versus trait properties) is

necessary to determine the utility of this measure.

In conclusion, evidence has been presented for the usefulness of the CBRF-R as a method for repeated inpatient child and adolescent behavior ratings. It appears to satisfy the practical requirements necessary for clinical use on an inpatient unit, including brevity and comprehensiveness. In addition, it appears to be a valuable instrument for investigating a number of research questions relevant to child and adolescent behavior problems and positive behaviors, particularly regarding the relationship between behavioral dimensions and outcome, changes in behavior over the hospital stay, types of patients who manifest particular problems, and personality and family relationship correlates of different problem groups. Finally, the CBRF-R is a potentially important tool for assessing treatment and medication effects; a major focus of future research should focus on investigating the sensitivity of the CBRF-R scales to these effects for both clinical and research purposes.

APPENDIX A

CHILD BEHAVIOR RATING FORM -- R

Patient Name: _____ Date: _____ Shift: AM ____ PM ____
 Staff Member Name: _____ Time: _____

I. Behavior problems: 1) Check all behavior problems that occurred during this shift. 2) Circle 1, 2 or 3 for the checked items only

1 Mild problem		2	3	3 Severe problem
___ 1. Apathetic or unmotivated	1	2	3	___ 34. Said no one likes him/her
___ 2. Argued	1	2	3	___ 35. Secretive, kept things to self
___ 3. Clung to adults, too dependent	1	2	3	___ 36. Self-conscious or easily embarrassed
___ 4. Cruel or mean to others	1	2	3	___ 37. Shifted rapidly from topic to topic
___ 5. Crying, tearful episodes	1	2	3	___ 38. Short attention span
___ 6. Defiant, challenged adult authority	1	2	3	___ 39. Shy or timid
___ 7. Destroyed property	1	2	3	___ 40. Stole
___ 8. Difficulty concentrating	1	2	3	___ 41. Stubborn, had to do things own way
___ 9. Disobedient	1	2	3	___ 42. Sudden changes of mood
___ 10. Didn't seem sorry after misbehaving	1	2	3	___ 43. Sulked, was silent and moody
___ 11. Easily distracted	1	2	3	___ 44. Talked about suicide
___ 12. Easily frustrated	1	2	3	___ 45. Talked back to staff
___ 13. Exaggerated abilities or achievements	1	2	3	___ 46. Talked too much or too loud
___ 14. Explosive, easily angered	1	2	3	___ 47. Temper tantrums
___ 15. Failed to finish things he/she starts	1	2	3	___ 48. Threatened people
___ 16. Feelings easily hurt	1	2	3	___ 49. Threatened to harm self
___ 17. Said others are against him/her	1	2	3	___ 50. Too fearful or anxious
___ 18. Talked about feeling worthless/ inferior	1	2	3	___ 51. Underactive, slow
___ 19. Fidgeted	1	2	3	___ 52. Unhappy or sad
___ 20. Engaged in physical fights	1	2	3	___ 53. Violated rules
___ 21. Impulsive, acted without thinking	1	2	3	___ 54. Withdrawn, uninvolved with others
___ 22. Irritable	1	2	3	___ 55. Worrying
___ 23. Isolated self from others	1	2	3	___ 56. Saw/heard things that others can't
___ 24. Lied or cheated	1	2	3	___ 57. Couldn't stop thinking certain thoughts
___ 25. Nervous movements or twitches	1	2	3	___ 58. Repeated certain acts over and over
___ 26. Nervous or tense	1	2	3	___ 59. Flirtatious
___ 27. Overactive, didn't sit still	1	2	3	___ 60. Disoriented, out of contact with reality
___ 28. Overly anxious to please others	1	2	3	___ 61. Complained of physical problems
___ 29. Overly excited, exuberant	1	2	3	___ 62. Easily led by peers
___ 30. Physically attacked others	1	2	3	___ 63. Laughed at odd times
___ 31. Refused to talk	1	2	3	___ 64. Swore/used profanity
___ 32. Restless, high energy level	1	2	3	___ 65. Harmed self
___ 33. Ran away from staff	1	2	3	___ 66. Sexually inappropriate

List any other behavior problems observed, and rate from 1 to 3. If you were unable to observe patient this shift, please note why

ADLs: Poor ___ Fair ___ Good ___

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Patient Name

APPENDIX B

Means, Standard Deviations, and Correlations for CBRF-R Behavior Problems Items for Entire Sample (N = 387)

Item	2	4	6	9	10	13	14	41	42	45	46
2	--	.60***	.76***	.66***	.49***	.19***	.63***	.63***	.36***	.70***	.44***
4	--	--	.52***	.57***	.45***	.21***	.58***	.45***	.21***	.46***	.46***
6	--	--	--	.76***	.65***	.11*	.59***	.73***	.33***	.76***	.36***
9	--	--	--	--	.61***	.10*	.40***	.59***	.18***	.73***	.41***
10	--	--	--	--	--	.29***	.37***	.56***	.16**	.60***	.31***
13	--	--	--	--	--	--	.14**	.14**	.04	.13**	.15**
14	--	--	--	--	--	--	--	.55***	.44***	.43***	.29***
41	--	--	--	--	--	--	--	--	.27***	.61***	.25***
42	--	--	--	--	--	--	--	--	--	.19***	.09
45	--	--	--	--	--	--	--	--	--	--	.38***
46	--	--	--	--	--	--	--	--	--	--	--
M	.36	.21	.39	.33	.24	.03	.24	.24	.20	.26	.33
SD	.59	.42	.59	.55	.48	.14	.47	.45	.38	.48	.54

*p < .05; **p < .01; ***p < .001

(Table continues)

Item	47	48	53	64	7	20	30	8	11	15	21
2	.48***	.58***	.61***	.49***	.37***	.21***	.33***	.31***	.36***	.34***	.55***
4	.38***	.56***	.50***	.38***	.32***	.50***	.52***	.35***	.30***	.26***	.50***
6	.51***	.52***	.66***	.47***	.38***	.26***	.38***	.41***	.45***	.36***	.59***
9	.48***	.43***	.69***	.32***	.39***	.26***	.41***	.51***	.46***	.44***	.59***
10	.24***	.44***	.65***	.51***	.31***	.11*	.22***	.45***	.52***	.29***	.57***
13	.05	.08	.11*	.20***	.07	.03	.08	.01	.17**	.04	.09
14	.50***	.66***	.47***	.52***	.33***	.44***	.50***	.26***	.28***	.19***	.50***
41	.43***	.43***	.56***	.34***	.35***	.15**	.30***	.33***	.38***	.41***	.47***
42	.27***	.30***	.29***	.25***	.17**	.22***	.26***	.09	.15**	.02	.31***
45	.40***	.48***	.65***	.44***	.39***	.15**	.33***	.43***	.41***	.35***	.51***
46	.28***	.35***	.37***	.27***	.06	.14**	.13*	.42***	.44***	.28***	.44***

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	37	38	62	19	25	27	29	32	1	5	23
2	.14**	.37***	.05	.32***	.04	.41***	.25***	.35***	-.01	.12*	-.01
4	.05	.28***	.13**	.32***	.02	.32***	.11*	.31***	.06	.18***	.12*
6	.09	.42***	.13*	.35***	.07	.43***	.19***	.36***	.05	.15**	.00
9	.08	.50***	.17**	.41***	.07	.41***	.14**	.43***	-.00	.19***	.00
10	.03	.48***	.28***	.24***	.01	.30***	.07	.25***	.17**	-.01	.01
13	.01	.20***	.02	.07	.04	.12*	.00	.03	.22***	-.01	.00
14	.03	.16**	.05	.17**	.06	.16**	.05	.17**	.09	.17**	.10*
41	.02	.37***	.00	.31***	.04	.32***	.21***	.28***	.14**	.12*	.06
42	.07	.06	.00	.06	.01	.04	.01	.00	.06	.35***	.03
45	.07	.41***	.17**	.29***	.03	.42***	.24***	.33***	.03	.07	.06
46	.30***	.38***	.35***	.41***	.09	.55***	.30***	.50***	-.19***	.06	-.16**

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	31	34	35	39	43	51	52	54	18	26	28
2	.18***	.18***	-.11*	-.15**	-.01	-.17**	-.01	-.09	.14	-.03	.02
4	.21***	.11*	-.03	-.11*	.01	-.08	.09	-.01	.19***	-.01	-.02
6	.32***	.18***	-.00	-.11*	.05	-.13*	.03	-.05	.14**	.02	.00
9	.29***	.23***	-.03	-.13**	.02	-.12*	.03	-.03	.17**	.02	.01
10	.25***	.09	.17**	-.07	.13*	-.03	.01	-.01	.16**	.04	.10
13	.02	.05	.11*	-.05	.12*	.13*	.10	-.06	-.03	.02	.01
14	.23***	.17**	.01	-.08	.07	-.07	.08	-.04	.25***	.00	-.04
41	.28***	.11*	.08	-.03	.10	-.04	.12*	.03	.19***	.03	.09
42	.12*	.06	-.04	-.08	.13**	-.05	.27***	-.03	.20***	.11*	.00
45	.28***	.18***	-.04	-.08	.13**	-.05	.27***	-.05	.13**	-.01	.00
46	.03	.01	-.01	-.04	-.03	-.06	.08	-.05	-.00	-.02	-.03

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	36	50	55	61	56	57	58	60	63	44	49	65
2	.04	.01	-.13**	-.07	-.03	.05	.09	.03	.32***	-.02	.24	.22
4	-.01	-.03	-.10	-.05	-.03	.13**	.04	.06	.23***	-.01	.15**	.23***
6	.08	.01	-.12*	-.02	-.01	.08	.20***	.09	.28***	-.00	.18***	.26***
9	.03	-.02	-.10*	-.03	-.03	.02	.26***	.11*	.27***	-.00	.20***	.26***
10	.11*	.01	-.11	-.01	-.00	.01	.31***	.05	.29***	.16**	.26***	.02
13	.05	-.03	-.06	-.03	.00	-.02	.14**	.00	.15**	-.03	-.03	-.02
14	.06	.00	-.07	-.01	.08	.18**	-.02	.15**	.34***	-.02	.17**	.33***
41	.13*	.01	-.10	-.01	.00	-.04	.04	.13**	.33***	.17**	.31***	.21***
42	.05	.00	.03	.05	.13*	.31***	.08	.06	.03	.02	.02	.27***
45	.04	.02	-.12*	-.01	.02	.02	.20***	.12*	.32***	-.01	.15**	.23***
46	-.02	-.02	-.11*	-.05	-.00	.02	.05	.12*	.22***	-.06	.05	.02

*p < .05; **p < .01; ***p < .001

(Table continues)

Item	47	48	53	64	7	20	30	8	11	15	21
47	--	.43***	.35***	.24***	.18***	.18***	.30***	.17**	.20***	.26***	.25***
48	--	--	.54***	.61***	.42***	.24***	.35***	.24***	.29***	.17**	.45***
53			--	.55***	.34***	.18**	.30***	.46***	.48***	.28***	.60***
64				--	.25***	.15**	.17**	.16**	.30***	.06	.43***
7					--	.34***	.48***	.29***	.22***	.38***	.38***
20						--	.82***	.23***	.11*	.15**	.30***
30							--	.30***	.21***	.26***	.35***
8								--	.75***	.53***	.58***
11									--	.50***	.57***
15										--	.39***
21											--
<u>M</u>	.07	.16	.32	.32	.04	.05	.08	.38	.55	.08	.39
<u>SD</u>	.22	.39	.49	.53	.17	.23	.29	.54	.62	.26	.57

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	37	38	62	19	25	27	29	32	1	5	23
47	.07	.21***	.02	.22***	-.05	.22***	.14**	.24***	-.00	.31***	-.04
48	.04	.17**	.14**	.14**	-.02	.13*	.00	.10	.03	.02	.06
53	.12*	.38***	.28***	.27***	.00	.39***	.14**	.30***	.02	.10	-.04
64	-.07	.14**	.32***	.01	.03	.09	-.01	.11*	.13**	-.09	.01
7	.03	.26***	.01	.25***	-.03	.17**	.05	.06	.23***	.14**	.26***
20	.09	.08	.00	.23***	-.01	.14**	.08	.09	.08	.24***	.16**
30	.05	.21***	-.02	.30***	-.02	.20***	.06	.14**	.09	.29***	.16**
8	.29***	.72***	.20***	.56***	.13*	.61***	.34***	.55***	.01	.13*	.03
11	.26***	.70***	.36***	.56***	.14**	.59***	.36***	.47***	.09	.18***	.08
15	.21***	.59***	-.04	.61***	.08	.57***	.36***	.47***	.09	.18***	.08
21	.16**	.53***	.29***	.41***	.11*	.50***	.25***	.49***	.01	.13*	.00

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	31	34	35	39	43	51	52	54	18	26	28
47	.27***	.03	-.01	-.04	-.03	-.06	.08	-.05	-.00	-.02	-.03
48	.29***	.11*	-.08	-.13**	.03	-.13*	-.08	-.01	.15**	-.04	-.07
53	.25***	.12*	-.06	-.14**	.03	-.18***	-.02	-.08	.11*	.04	.05
64	.19***	.03	-.02	-.11*	.12*	-.05	-.03	-.04	.13**	.01	-.02
7	.35***	.10	-.04	-.05	.30***	-.07	.05	.18***	.47***	-.04	-.03
20	.08	.14**	-.07	-.05	.15**	-.05	.19***	-.01	.44***	-.05	-.04
30	.16**	.18***	-.07	-.06	.16**	-.07	.18***	.02	.48***	-.06	-.01
8	.10	.14**	-.01	-.07	.03	-.07	-.01	-.03	.23***	.09	.05
11	.08	.09	.01	-.11*	.00	-.10	-.05	-.12*	.11*	.05	.04
15	.18***	.09	-.02	-.00	.08	-.07	-.00	.06	.16**	.02	-.03
21	.15**	.14**	-.02	-.16**	-.04	-.16**	-.04	-.09	.29***	.07	.05

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	36	50	55	61	56	57	58	60	63	44	49	65
47	.04	.01	-.10*	-.03	.00	.00	-.00	.12*	.09	.04	.18***	.20***
48	-.04	-.00	-.11*	-.03	-.01	.02	.07	.06	.32***	.00	.28***	.27***
53	.02	-.03	-.11*	.02	.01	-.06	.18***	.04	.28***	-.02	.20***	.20***
64	.06	-.06	-.09	-.01	-.05	.10	.15**	.03	.23***	-.00	.20***	.21***
7	-.03	-.02	-.03	-.00	.02	.21***	.05	-.02	.22***	.04	.32***	.56***
20	-.03	-.01	.04	-.05	-.01	.42***	-.00	-.02	.01	.00	.02	.48***
30	-.01	-.02	.01	.01	-.00	.35***	.03	-.01	.10	.01	.09	.49***
8	.03	-.00	-.04	-.03	.06	.04	.22***	.15**	.27***	.09	.25***	.18***
11	.05	-.03	-.05	-.06	.04	-.01	.21***	.16**	.27***	.10	.15**	.13*
15	.03	-.01	-.06	-.07	-.02	-.04	.03	.06	.17**	-.01	.24***	.21***
21	-.03	-.01	-.05	-.04	.02	.17**	.25***	.11*	.39***	-.04	.19***	.34***

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	37	38	62	19	25	27	29	32	1	5	23
37	--	.31***	.04	.31***	.19***	.30***	.19***	.26***	-.09	.03	-.01
38	--	--	.17**	.66***	.13*	.66***	.31***	.57***	.08	.12*	.00
62			--	.01	.14**	.12*	.07	.13**	-.11*	-.14**	-.19***
19				--	.19***	.74***	.38***	.62***	-.04	.20***	-.00
25					--	.16**	.06	.13**	-.02	-.01	.05
27						--	.50***	.83***	-.14**	.19***	-.11*
29							--	.46***	-.12*	.05	-.12*
32								--	-.11*	.13*	-.07
1									--	-.04	.58***
5										--	.06
23											--
<u>M</u>	.07	.30	.46	.23	.02	.28	.09	.30	.42	.18	.24
<u>SD</u>	.22	.50	.57	.43	.10	.52	.25	.52	.60	.40	.49

*p < .05; **p < .01; ***p < .001

(Table continues)

Item	31	34	35	39	43	51	52	54	18	26	28
37	-.06	-.01	-.10*	-.05	-.13*	.05	-.09	-.07	-.03	.04	.22***
38	.07	.07	.04	-.05	.01	-.03	-.03	-.05	.13*	.06	.07
62	.01	-.03	.02	-.06**	-.08	-.15**	-.22***	-.23***	-.03	.08	.07
19	.10	.08	-.13*	-.08	-.05	-.12*	-.00	-.05	.14**	.05	-.03
25	.01	.23***	-.01	.02	-.04	.01	-.03	-.01	-.00	.30***	.05
27	-.00	.13*	-.15**	-.13*	-.16**	-.18***	-.10*	-.15**	-.00	.07	.03
29	-.04	-.01	-.04	-.04	-.13*	-.12*	-.14**	-.14**	-.03	-.04	.08
32	-.04	.11*	.00	-.09	-.17**	-.09	-.06	-.11*	-.04	.04	.04
1	.38***	.08	.38***	.34***	.65***	.56***	.47***	.60***	.28***	.05	-.04
5	.06	.03	-.08	-.05	.08	-.08	.38***	-.02	.18**	.19***	.04
23	.41***	.07	.29***	.35***	.53***	.51***	.41***	.68***	.37***	.03	-.10*

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	36	50	55	61	56	57	58	60	63	44	49	65
37	-.03	.03	.03	-.05	-.04	.06	.06	.07	.13*	-.03	.01	-.04
38	.05	-.01	-.09	-.06	.03	-.02	.24***	.12*	.24***	.03	.26***	.13**
62	.06	-.06	-.02	-.03	-.02	-.05	.17**	.04	.09	.05	-.08	.02
19	-.05	.01	-.03	-.05	-.00	.01	.03	.05	.18**	-.04	.13**	.20***
25	.04	.04	.23	-.02	.04	.09	.14**	.19***	.09	-.02	-.03	-.02
27	-.04	-.01	-.09	-.05	-.01	-.05	.18***	.09	.17**	-.06	.05	.04
29	-.04	-.02	-.06	-.02	-.02	-.05	-.01	-.00	.19***	-.01	.11*	.01
32	-.04	-.01	-.10	-.00	.01	-.06	.15**	.25***	.22***	-.06	.05	.01
1	.26***	.01	-.02	.04	.09	.06	.01	.11*	.08	.15**	.18***	.23***
5	-.06	.26***	.20***	.19***	.04	.31***	.01	-.01	-.02	.02	.01	.25***
23	.17**	-.01	.04	.05	.08	.22***	-.07	.20***	.08	-.01	.07	.34***

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	31	34	35	39	43	51	52	54	18	26	28
31	--	.11*	.13*	.13**	.29***	.10*	.20***	.33***	.16**	-.01	-.05
34		--	-.04	.02	.02	.02	.06	.01	.13*	.16**	.03
35			--	.39***	.30***	.35***	.25***	.34***	.02	-.01	.05
39				--	.30***	.38***	.20***	.50***	.01	.01	-.10*
43					--	.48***	.51***	.55***	.41***	.04	-.11*
51						--	.41***	.66***	.07	.00	-.03
52							--	.39***	.25***	.06	-.01
54								--	.23***	-.03	-.11*
18									--	.04	.11*
26										--	.00
28											--
<u>M</u>	.10	.02	.21	.18	.25	.20	.37	.33	.05	.05	.10
<u>SD</u>	.27	.09	.46	.40	.47	.44	.54	.54	.23	.18	.28

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	36	50	55	61	56	57	58	60	63	44	49	65
31	.04	-.03	-.10	-.04	.01	.02	.03	.14**	.15**	.07	.18***	.31***
34	.14**	.11*	.12*	-.02	.07	.07	.25***	.23***	.07	.04	-.00	.07
35	.33***	-.00	-.04	-.01	.03	.01	.00	.13**	.10*	.16**	.14**	-.03
39	.47***	.02	.06	-.03	.00	-.01	-.10	.09	-.08	.01	-.03	-.04
43	.35***	.01	.08	.02	.04	.21***	.05	.01	.05	.11*	.12*	.38***
51	.28***	.04	.02	.05	.12*	-.01	.11*	.21***	.01	.02	-.05	-.03
52	.14**	.02	.09	.13*	.04	.22***	.01	.08	-.09	.20***	.09	.21***
54	.26***	-.01	.04	.03	.04	.04	-.04	.16**	.00	.03	.05	.15**
18	.06	.02	.19***	-.01	.09	.50***	.07	-.01	.18***	.27***	.32***	.67***
26	.09	.56***	.37***	.05	.01	-.01	.12*	.08	.02	-.00	.00	.02
28	.01	-.03	-.03	.02	-.02	.07	.08	.02	.07	.36***	.34***	-.04

* $p < .05$; ** $p < .01$; *** $p < .001$

(Table continues)

Item	36	50	55	61	56	57	58	60	63	44	49	65
36	--	.10	.00	-.05	.00	-.00	.01	.02	.06	.02	-.03	-.01
50		--	.42***	.04	.08	.02	.02	.02	.00	-.01	-.02	.00
55			--	.02	.03	.23***	.08	.04	-.02	.02	-.04	.07
61				--	.06	.09	.05	.11*	-.05	.02	-.02	.02
56					--	.19***	.12*	.12*	.20***	.04	-.02	.02
57						--	.03	.11*	.02	.00	-.03	.43***
58							--	.17**	.17**	.06	.06	.06
60								--	.03	-.03	-.02	.13*
63									--	-.01	.23***	.17**
44										--	.55***	.04
49											--	.24***
65												--
<u>M</u>	.05	.03	.10	.06	.02	.05	.07	.04	.08	.04	.04	.04
<u>SD</u>	.17	.19	.30	.19	.16	.23	.25	.18	.26	.21	.24	.22

* $p < .05$; ** $p < .01$; *** $p < .001$

APPENDIX C

Means, Standard Deviations, and Correlations for CBRF-R Positive Behavior Items for Entire Sample (N = 381)

Item	1	3	6	8	10	2	4	5	7	9
1	--	.87***	.81***	.82***	.81***	.60***	.63***	.71***	.60***	.50***
3		--	.80***	.84***	.81***	.61***	.65***	.69***	.63***	.46***
6			--	.76***	.85***	.57***	.61***	.69***	.62***	.53***
8				--	.80***	.72***	.73***	.77***	.73***	.54***
10					--	.62***	.65***	.69***	.68***	.51***
2						--	.80***	.74***	.72***	.62***
4							--	.76***	.84***	.69***
5								--	.74***	.64***
7									--	.65***
9										--
<u>M</u>	1.90	1.84	1.76	1.71	1.76	1.66	1.47	1.91	1.45	1.51
<u>SD</u>	.65	.60	.67	.58	.63	.62	.64	.58	.64	.57

*p < .05; **p < .01; ***p < .001

(Table continues)

APPENDIX D

Intercorrelations Between YSR, CBCL Mother, CBCL Father, DMI and KSAD-S Suicide and Psychosis Scales

Scale	YAGGRS	YDELNQ	YATTPR	YSOCPR	YWTHD	YANXDP	YSOMT	YTHTPR
YAGGRS	--	.58***	.64***	.42***	.38***	.54***	.44***	.41***
YDELNQ		--	.40***	.11	.21**	.24***	.23***	.27***
YATTPR			--	.65***	.58***	.71***	.51***	.50***
YSOCPR				--	.57***	.59***	.40***	.37***
YWTHD					--	.72***	.55***	.45***
YANXDP						--	.60***	.51***
YSOMT							--	.50***
YTHTPR								--

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. Y= YSR; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems (N = 204).

Scale	YEXTRN	YINTRN	YTOTPR	YSOCIAL	YACTIV	YTOTCOM
YAGGRS	.94***	.54***	.79***	-.12	-.12	-.16*
YDELNQ	.82***	.26***	.52***	-.15	-.23***	-.26***
YATTPR	.62***	.71***	.83***	-.18*	-.13	-.23**
YSOCPR	.34***	.61***	.66***	-.23**	-.11	-.25***
YWTHD	.35***	.82***	.73***	-.24***	-.06	-.20**
YANXDP	.47***	.95***	.87***	-.18*	.04	-.11
YSOMT	.40***	.80***	.72***	-.09	-.02	-.07
YTHTPR	.40***	.55***	.64***	.01	.02	.02

*p < .05; **p < .01; ***p < .001.

(Table continues)

Note. Y= YSR; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WTHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; TOTCOM = Total Competence.

For behavior problems scales, $\underline{N}$ = 204; for behavior problems scales with competence scales, $\underline{N}$ = 175.

Scale	YEXTRN	YINTRN	YTOTPR	YSOCIAL	YACTIV	YTOTCOM
YEXTRN	--	.49***	.64***	-.14	-.18*	-.22**
YINTRN		--	.90***	-.19*	.01	-.13
YTOTPR			--	-.19*	-.08	-.19*
YSOCIAL				--	.30***	.80***
YACTIV					--	.81***
YTOTCOM						--

* $p < .05$; ** $p < .01$; *** $p < .001$.
(Table continues)

Note. Y = YSR; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; TOTCOM = Total Competence.
For behavior problems scales, $N = 204$; for competence scales, $N = 180$; for behavior problems scales with competence scales, $N = 175$.

Scale	MAGGRS	MDELNQ	MATTPR	MSOCPR	MWITHD	MANXDP	MSOMT	MHTTPR
YAGGRS	.14	.04	.18	.40**	.13	.11	.15	.13
YDELNQ	.00	.31*	-.01	.03	.13	-.15	-.05	-.09
YATTPR	.06	-.21	.24	.49***	.21	.29*	.20	.17
YSOCPR	.00	-.21	.29*	.57***	.26	.19	.17	.22
YWITHD	-.18	-.23	.07	.42**	.31*	.27	.30*	.03
YANXDP	-.21	-.39**	-.00	.46***	.13	.33*	.17	.00
YSOMT	-.02	-.17	.25	.46***	.22	.35*	.37**	.15
YHTTPR	.07	-.12	.30*	.36**	.24	.44***	.21	.24

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. Y = YSR; M = Mother CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; HTTPR = Thought Problems ($N = 51$).

Scale	MEXTRN	MINTRN	MTOTPR	MSOCIAL	MACTIV	MSCHL	MTOTCOM
YAGGRS	.11	.16	.22	-.08	.20	-.36*	.07
YDELNQ	.14	-.06	.00	-.02	.03	-.30*	-.01
YATTPR	-.06	.30*	.25	-.07	.24	-.46***	.06
YSOCPR	-.09	.25	.24	-.11	.31*	-.36*	.11
YWITHD	-.23	.36*	.16	.01	.12	-.32*	.07
YANXDP	-.32*	.28*	.10	-.04	.16	-.28	.08
YSOMT	-.09	.41**	.30*	.07	.09	-.43**	.07
YTHTPR	-.01	.39**	.31*	.01	.24	-.35*	.10

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. Y = YSR; M = Mother CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence.

For behavior problems scales, $N = 51$; for behavior problems scales with competence scales, $N = 44$.

Scale	MAGGRS	MDELNQ	MATTPR	MSOCPR	MWITHD	MANXDP	MSOMT	MHTTPR
YEXTRN	.10	.15	.12	.29*	.15	.01	.08	.05
YINTRN	-.17	.33*	.10	.50***	.21	.36**	.29*	.06
YTOTPR	-.04	-.20	.20	.52***	.24	.32*	.25	.10
YSOCIAL	-.19	-.00	-.08	-.28	-.32*	-.09	-.14	.05
YACTIV	-.15	-.26	.04	-.05	-.05	.28*	.25	.10
YTOTCOM	-.21	-.12	-.04	-.25	-.28	.13	-.07	-.01
*p < .05; **p < .01; ***p < .001. (Table continues)								

Note. Y = YSR; M = Mother CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; TOTCOM = Total Competence.

For behavior problems scales, $N = 51$; for behavior problems scales with competence scales, $N = 45$.

Scale	MEXTRN	MINTRN	MTOTPR	MSOCIAL	MACTIV	MSCHL	MTOTCOM
YEXTRN	.14	.08	.15	-.07	.15	-.38**	.04
YINTRN	-.26	.37**	.19	.00	.15	-.36*	.08
YTOTPR	-.12	.34*	.24	-.07	.23	-.45***	.08
YSOCIAL	-.13	-.20	-.19	.34*	.08	.20	.30
YACTIV	-.22	.18	-.02	.27	-.15	.10	.03
YTOTCOM	-.20	-.04	-.16	.39**	-.02	.21	.25
*p < .05; **p < .01; ***p < .001.							
(Table continues)							

Note. Y= YSR; M = Mother CBCL; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence.
 For behavior problems scales, $N = 51$; for competence scales, $N = 39$; for behavior problems scales with competence scales, $N = 44$.

Scale	FAGRS	FDELNQ	FATTPR	FSOCPR	FWTHD	FANXDP	FSOMT	FTHTPR
YAGRS	.34	.18	.28	.34	-.10	.05	.17	.34
YDELNQ	-.14	.29	-.19	-.18	-.05	-.33	.05	-.20
YATTPR	.13	.11	.30	.23	.21	.16	.25	.46
YSOCPR	.27	.09	.38	.43*	.10	.13	-.04	.48*
YWTHD	-.13	-.00	-.06	.08	.18	.15	.31	-.02
YANXDP	.14	.03	.19	.21	.28	.39	.09	.46*
YSOMT	.03	-.03	.07	.15	.31	.25	.38	.28
YTHTPR	.19	.03	.39	.38	.36	.30	.32	.27

*p < .05; **p < .01; ***p < .001.

(Table continues)

Note. Y = YSR; F = Father CBCL; AGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems (N = 24).

Scale	FEXTRN	FINTRN	FTOTPR	FSOCIAL	FACTIV	FSCHL	FTOTCOM
YAGGRS	.33	.07	.31	-.07	-.04	-.27	-.15
YDELNQ	.04	-.23	-.14	.00	-.30	.02	-.21
YATTPR	.15	.25	.33	-.04	-.11	-.56**	-.22
YSOCPR	.24	.11	.30	-.15	-.27	-.59**	-.40
YWTHD	-.10	.24	.04	-.17	-.04	-.32	-.19
YANXDP	.12	.39	.35	-.15	-.03	-.57**	-.26
YSOMT	.01	.38	.24	-.07	.07	-.58**	-.11
YTHTPR	.16	.41*	.40	-.27	-.01	-.20	-.19

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. Y = YSR; F = Father CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence.

For behavior problems scales, $N = 24$; for behavior problems scales with competence scales, $N = 21$.

Scale	FAGGRS	FDELNQ	FATTPR	FSOCPR	FWITHD	FANXDP	FSOMT	FHTTPR
YEXTRN	.20	.26	.13	.19	-.10	-.10	.15	.13
YINTRN	.07	.02	.12	.19	.29	.34	.25	.36
YTOTPR	.18	.15	.26	.30	.27	.26	.23	.41*
YSOCIAL	-.06	-.13	-.29	-.20	-.07	.12	-.14	-.21
YACTIV	-.10	-.41*	-.12	.14	.05	.25	.11	.16
YTOTCOM	-.13	-.32	-.28	-.05	-.05	.20	-.04	-.09

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. Y = YSR; F = Father CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; TOTCOM = Total Competence.

For behavior problems scales, $N = 24$; for behavior problems scales with competence scales, $N = 18$.

Scale	FEXTRN	FINTRN	FTOTPR	FSOCIAL	FACTIV	FSCHL	FTOTCOM
YEXTRN	.37	-.04	.18	-.05	-.16	-.20	-.19
YINTRN	.06	.40	.30	-.14	-.01	-.60**	-.22
YTOTPR	.21	.33	.38	-.17	-.13	-.60**	-.32
YSOCIAL	-.11	.02	-.13	.41	.39	.02	.44
YACTIV	-.26	.22	-.04	-.20	.19	-.07	.06
YTOTCOM	-.24	.11	-.15	.12	.32	.02	.31
* $p < .05$; ** $p < .01$; *** $p < .001$. (Table continues)							

Note. Y= YSR; F = Father CBCL; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence. For behavior problems scales, $N = 24$; for competence scales, $N = 18$; for behavior problems scales with competence scales, $N = 21$.

Scale	MAGRS	MDELNQ	MATTPR	MSOCPR	MWITHD	MANXDP	MSOMT	MHTTPR
MAGRS	--	.52***	.58***	.45***	.21*	.29**	.06	.43***
MDELNQ		--	.30***	-.05	.14	.06	.05	.27**
MATTPR			--	.59***	.47***	.49***	.24*	.69***
MSOCPR				--	.37***	.37***	.29**	.38***
MWITHD					--	.55***	.55***	.41***
MANXDP						--	.51***	.40***
MSOMT							--	.16
MHTTPR								--

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. M = Mother CBCL; AGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems ($N = 111$).

Scale	MEXTRN	MINTRN	MTOTPR	MSOCIAL	MACTIV	MSCHL	MTOTCOM
MAGGRS	.93***	.24**	.75***	-.35***	-.02	-.33***	-.26*
MDELNQ	.79***	.09	.46***	-.03	-.18	-.26*	-.11
MATTPR	.54***	.49***	.81***	-.21*	.11	-.40***	-.04
MSOCPR	.30***	.42***	.63***	-.35***	.11	-.25*	-.12
MWITHD	.21*	.80***	.62***	-.23*	.16	-.27**	-.14
MANXDP	.23*	.87***	.69***	.04	.18	-.14	.10
MSOMT	.07	.81***	.49***	.08	.06	-.07	.10
MTHTPR	.42***	.40***	.70***	-.22*	.08	-.23*	.01

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. M = Mother CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence.

For behavior problems scales, $N = 111$; for behavior problems scales with competence scales, $N = 78$.

Scale	MEXTRN	MINTRN	MTOTPR	MSOCIAL	MACTIV	MSCHL	MTOTCOM
MEXTRN	--	.21*	.73***	-.27**	-.09	-.36***	-.24*
MINTRN		--	.73***	-.03	.17	-.19	.04
MTOTPR			--	-.26**	.09	-.34***	-.07
MSOCIAL				--	.17	.19	.68***
MACTIV					--	.15	.74***
MSCHL						--	.47***
MTOTCOM							--

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. M = Mother CBCL; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence. For behavior problems scales, $N = 111$; for competence scales, $N = 78$; for behavior problems scales with competence scales, $N = 78$.

Scale	FAGGRS	FDELNQ	FATTPR	FSOCPR	FWITHD	FANXDP	FSOMT	FTHTPR
MAGGRS	.72***	.35*	.37*	.39*	.40*	.12	-.01	.13
MDELNQ	.23	.61***	.17	-.15	.25	-.07	.09	-.09
MATTPR	.29	.18	.63***	.32	.41*	.12	.02	.34*
MSOCPR	.25	-.09	.31	.76***	.24	.20	.11	.27
MWITHD	.17	.11	.47**	.33*	.62***	.21	.26	.23
MANXDP	.27	.17	.29	.16	.65***	.52***	.38*	.37*
MSOMT	-.16	-.08	.12	-.08	.25	-.01	.61***	-.03
MTHTPR	.23	-.11	.39*	.30	.32	.29	.11	.48**

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. M = Mother CBCL; F = Father CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems ($N = 36$).

Scale	FEXTRN	FINTRN	FTOTPR	FSOCIAL	FACTIV	FSCHL	FTOTCOM
MAGRS	.67***	.24	.53***	-.21	-.09	-.44*	-.26
MDELNQ	.44**	.06	.31	-.13	-.17	-.26	-.33
MATTPR	.29	.22	.46**	-.06	.17	-.55***	-.11
MSOCPR	.14	.26	.30	-.25	.05	-.41*	-.12
MWITHD	.17	.42*	.44**	-.31	.10	-.37*	-.04
MANXDP	.27	.65***	.58***	-.15	.09	-.47**	-.17
MSOMT	-.15	.24	.08	.07	.03	-.19	.03
MTHTPR	.11	.31	.39*	-.22	.01	-.43*	-.19

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. M = Mother CBCL; F = Father CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence.

For behavior problems scales, $N = 36$; for behavior problems scales with competence scales, $N = 30$.

Scale	FAGGRS	FDELNQ	FATTPR	FSOCPR	FWITHD	FANXDP	FSOMT	FTHTPR
MEXTRN	.60***	.50**	.33*	.21	.39*	.06	.03	.05
MINTRN	.15	.10	.34*	.17	.62***	.33*	.48**	.26
MTOTPR	.41*	.24	.48**	.34*	.58***	.27	.27	.33*
MSOCIAL	-.25	.14	-.24	-.52**	-.24	-.19	.00	-.22
MACTIV	-.08	-.14	.06	.01	.12	-.10	-.01	.19
MSCHL	-.40*	-.15	-.46**	-.36*	-.40*	-.29	-.30	-.35*
MTOTCOM	-.27	-.04	-.13	-.42*	-.07	-.19	-.09	-.04

* $p < .05$; ** $p < .01$; *** $p < .001$. (Table continues)

Note. M = Mother CBCL; F = Father CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence.

For behavior problems scales, $N = 36$; for behavior problems scales with competence scales, $N = 30$.

Scale	FEXTRN	FINTRN	FTOTPR	FSOCIAL	FACTIV	FSCHL	FTOTCOM
MEXTRN	.66***	.19	.50**	-.20	-.13	-.41*	-.31
MINTRN	.15	.55***	.47**	-.14	.11	-.44*	-.08
MTOTPR	.40*	.45**	.60***	-.22	.03	-.54**	-.22
MSOCIAL	-.12	-.20	-.27	.46**	.18	.06	.24
MACTIV	-.12	-.05	-.02	.06	.47**	.12	.46*
MSCHL	-.37*	-.43*	-.49**	.25	.10	.82***	.31
MTOTCOM	-.22	-.20	-.22	.44*	.50**	.45*	.58**
*p < .05; **p < .01; ***p < .001. (Table continues)							

Note. M = Mother CBCL; F = Father CBCL; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence. For behavior problems scales, $N = 36$; for competence scales, $N = 23$; for behavior problems scales with competence scales, $N = 30$.

Scale	FAGGRS	FDELNQ	FATTPR	FSOCPR	FWITHD	FANXDP	FSOMT	FTHTPR
FAGGRS	--	.41**	.41***	.42**	.33*	.36*	-.08	.41**
FDELNQ		--	.37*	-.09	.27	.12	-.23	.06
FATTPR			--	.48***	.48**	.41**	-.04	.39*
FSOCPR				--	.26	.36*	.11	.43**
FWITHD					--	.65***	.25	.34*
FANXDP						--	.16	.42**
FSOMT							--	.03
FTHTPR								--

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. F = Father CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems ($N = 41$).

Scale	FEXTRN	FINTRN	FTOTPR	FSOCIAL	FACTIV	FSCHL	FTOTCOM
FAGGRS	.91***	.35*	.76***	-.24	.08	-.36*	-.11
FDELNQ	.75***	.11	.52***	-.02	-.03	-.28	-.22
FATTPR	.54***	.43**	.75***	-.27	.06	-.48**	-.18
FSOCPR	.27	.38*	.45**	-.46**	-.01	-.31	-.23
FWITHD	.37*	.83***	.72***	-.02	.16	-.34*	-.02
FANXDP	.32*	.90***	.72***	-.14	.16	-.25	-.12
FSOMT	-.16	.48***	.11	.08	.16	-.09	.14
FTHTPR	.33*	.40**	.57***	-.27	.09	-.48**	-.23

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. F = Father CBCL; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence.

For behavior problems scales, $N = 41$; for behavior problems scales with competence scales, $N = 34$.

Scale	FEXTRN	FINTRN	FTOTPR	FSOCIAL	FACTIV	FSCHL	FTOTCOM
FEXTRN	--	.31*	.79***	-.18	.04	-.37*	-.17
FINTRN		--	.75***	-.08	.21	-.33	-.04
FTOTPR			--	-.27	.10	-.50**	-.22
FSOCIAL				--	.29	.17	.66***
FACTIV					--	.17	.81***
FSCHL						--	.47**
FTOTCOM							--
*p < .05; **p < .01; ***p < .001. (Table continues)							

Note. F = Father CBCL; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence.
 For behavior problems scales, $N = 41$; for competence scales, $N = 33$; for behavior problems scales with competence scales, $N = 34$.

	DMIEXT	TAS	SUICIDE	PSYCHOSIS
DMIEXT	--	.16*	-.11	-.02
TAS		--	.15	.25
SUICIDE			--	.02
PSYCHOSIS				--
YAGGRS	.41***	.20**	.18	.24
YDELNQ	.38***	.09	.16	-.07
YATTPR	.30***	.31***	.48**	.36*
YSOCPR	.07	.27***	.31	.30
YWITHD	.22*	.31***	.44**	.26
YANXDP	.27***	.45***	.47**	.32*
YSOMT	.16*	.22**	.36*	.35*
YTHTPR	.30***	.24***	.46**	.28
YEXTRN	.44***	.18*	.19	.14
YINTRN	.25***	.41***	.46**	.36*
YTOTPR	.37***	.36***	.47**	.31*
YSOCIAL	-.20*	-.06	.02	-.07
YACTIV	-.13	.14	.05	.05
YTOTCOM	-.22**	.05	.03	-.04

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. Y = YSR; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence; DMIEXT = DMI Externalizing; TAS = Turning Against Self; SUICIDE = K-SADS-E suicide rating; PSYCHOSIS = K-SADS-E Psychosis rating. For behavior problems scales with DMI scales, $N = 177$; for competence scale with DMI scales, $N = 159$; for behavior problems scales with K-SADS-E scales, $N = 41$; for competence scales with K-SADS-E scales, $N = 34$; for DMI scales alone, $N = 227$; for K-SADS-E scales alone, $N = 73$; for DMI scales with K-SADS-E scales, $N = 42$.

	DMIEXT	TAS	SUICIDE	PSYCHOSIS
MAGGRS	.17	-.05	-.20	.09
MDELNQ	.15	-.20	.05	.08
MATTPR	.09	-.05	.19	.33
MSOCPR	.21	.18	.16	.54**
MWITHD	.25*	.03	.49*	.17
MANXDP	.10	-.00	.34	.28
MSOMT	.04	-.08	.20	.36
MTHTPR	.14	.05	.21	.52*
MEXTRN	.19	-.13	-.11	.11
MINTRN	.14	-.03	.39	.34
MTOTPR	.22	-.06	.21	.46*
MSOCIAL	-.14	-.01	-.19	-.06
MACTIV	.19	.21	-.08	.27
MSCHL	-.00	-.28*	-.26	-.17
MTOTCOM	.01	.04	-.32	.18

* $p < .05$; ** $p < .01$; *** $p < .001$.

(Table continues)

Note. M = YSR; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence; DMIEXT = DMI Externalizing; TAS = Turning Against Self; SUICIDE = K-SADS-E suicide rating; PSYCHOSIS = K-SADS-E Psychosis rating. For behavior problems scales with DMI scales, $N = 177$; for competence scale with DMI scales, $N = 159$; for behavior problems scales with K-SADS-E scales, $N = 41$; for competence scales with K-SADS-E scales, $N = 34$.

	DMIEXT	TAS	SUICIDE	PSYCHOSIS
FAGGRS	-.29	-.35	-.37	-.07
FDELNQ	-.01	-.40*	.07	-.22
FATTPR	-.17	-.04	.38	.61
FSOCPR	.05	.29	.13	.65*
FWITHD	-.48*	-.07	.68*	.18
FANXDP	-.51**	-.09	.54	.11
FSOMT	.09	.23	.75*	.42
FTHTPR	-.23	.17	.02	.33
FEXTRN	-.22	-.45*	-.27	-.15
FINTRN	-.47*	-.03	.70*	.22
FTOTPR	-.38	-.23	.37	.22
FSOCIAL	-.18	-.35	.14	-.26
FACTIV	.08	.04	.59	.09
FSCHL	.17	-.09	-.20	.17
FTOTCOM	.08	-.05	.16	.14

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note. M = YSR; AGGRS = Aggressive; DELNQ = Delinquent; ATTPR = Attention Problems; SOCPR = Social Problems; WITHD = Withdrawn; ANXDP = Anxious/Depressed; SOMT = Somatic; THTPR = Thought Problems; EXTRN = Externalizing; INTRN = Internalizing; TOTPR = Total Problems; SOCIAL = Social Competence; ACTIV = Activities Competence; SCHL = School Competence; TOTCOM = Total Competence; DMIEXT = DMI Externalizing; TAS = Turning Against Self; SUICIDE = K-SADS-E suicide rating; PSYCHOSIS = K-SADS-E Psychosis rating. For behavior problems scales with DMI scales, $N = 177$; for competence scale with DMI scales, $N = 159$; for behavior problems scales with K-SADS-E scales, $N = 41$; for competence scales with K-SADS-E scales, $N = 34$.

APPENDIX E

Correlations Between CBRF-R Scales and CBCL-Father Scales

CBRF-R Scale	CBCL-F Externalizing Scales					CBCL-F Internalizing Scales				
	FAGGRS	FDELNQ	FATTPR	FEXTRN	FWITHD	FANXDP	FSOMT	FINTRN		
<u>Externalizing Scales</u>										
Externalizing	.29	-.02	.05	.20	.01	-.05	-.26	-.08		
Oppositionalism	.25	.10	.01	.23	.07	.01	-.24	-.02		
Attention Problems	.15	-.09	.10	.07	-.08	-.14	-.24	-.18		
Overactivity	.30	-.07	-.04	.19	.07	.03	-.09	.04		
<u>Internalizing Scales</u>										
Withdrawal/Depress.	-.04	.19	.11	.06	.26	.13	-.09	.15		
Anxiety	-.13	-.35*	-.18	-.25	-.01	.19	.25	.18		
<u>Adaptive Coping Scales</u>										
Compliance	-.44**	-.33*	-.27	-.47	-.15	.07	.27	.05		
Positive/Social	-.37*	-.41**	-.27	-.46	-.25	-.06	.29	-.05		
*p < .05; **p < .01; ***p < .001.										(Table continues)

Note. FAGGRS = Aggression; FDELNQ = Delinquent; FATTPR = Attention Problems; FEXTRN = Externalizing; FWITHD = Withdrawn; FANXDP = Anxiety/Depression; FSOMT = Somatic Complaints; FINTRN = Internalizing. Predicted relationships are indicated by bold type.

CBRF-R Scale	CBCL-F Competence Scales						
	FSOCPR	FTHTPR	FTOTPR	FSOCIAL	FACTIV	FSCHL	FTOTCOM
<u>Externalizing Scales</u>							
Externalizing	.18	-.04	.02	.27	.27	.00	.22
Oppositionalism	.13	-.03	.04	.33*	.04	-.12	.08
Attention Problems	.14	-.10	-.05	.15	.11	.09	.24
Overactivity	.20	.04	.06	.19	.13	.19	.44**
<u>Internalizing Scales</u>							
Withdrawal/Depress.	.08	.10	.20	-.23	-.17	.03	-.02
Anxiety	-.17	-.00	-.12	-.02	.05	.11	.11
<u>Adaptive Coping Scales</u>							
Compliance	-.14	-.12	-.25	-.06	-.09	.06	-.06
Positive/Social	-.14	-.16	-.33*	-.00	-.08	.02	-.10

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note. FSOCPR = Social Problems; FTHTPR = Thought Problems; FTOTPR = Total Behavior Problems; FSOCIAL = Social Competence; FACTIV = Activities Competence; FSCHL = School Competence; FTOTCOM= Total Competence. Predicted relationships are indicated by bold type.

APPENDIX F

Correlations Between CBRF-R Scales and K-SADS Suicide and Psychosis Scales**(N = 73)**

CBRF-R Scales	SUICIDE	PSYCH
<u>Externalizing Scales</u>		
Externalizing	-.13	-.09
Oppositionalism	-.17	-.22
Attention Problems	-.06	.03
Overactivity	-.01	.11
<u>Internalizing Scales</u>		
Withdrawal/Depression	.13	.19
Anxiety	.05	-.09
<u>Adaptive Coping Scales</u>		
Compliance/Self Control	.12	.17
Positive/Social	.12	-.05

* $p < .05$; ** $p < .01$; *** $p < .001$.**Note.** SUICIDE = K-SADS-E suicide rating; PSYCH = K-SADS-E psychosis rating.

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