

## **Assessment of Parenting Practices Related to Conduct Problems: Development and Validation of the Management of Children's Behavior Scale**

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*We report on the development and initial validation of the parent-report scale, Management of Children's Behavior Scale (MCBS), designed to evaluate parenting practices related to conduct problems in children. Children (N = 396, ages 2–14) referred for outpatient treatment and their parents served as participants. We evaluated the composition and consistency of the scale and provided evidence pertaining to concurrent, predictive, and incremental validity. Evidence for each type of validity was consistent with the conceptualization of the scale and the pertinence to child conduct problems. The measure also was sensitive to therapeutic changes. Parenting practices targeted in treatment (parent management training) improved as predicted over time. The results suggest the measure may be useful in evaluating parenting practices known to relate to conduct problems and often targeted for intervention in parent- and family-based treatment.*

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**KEY WORDS:** assessment; Management of Children's Behavior Scale; parenting practices; conduct problems of children.

Parenting practices play a critical role in the development and maintenance of conduct disorder and oppositional defiant disorder. The term "inept parenting" has been used to encompass a variety of practices including coercive parent-child communications, dysfunctional disciplining practices, inconsistent parental control, harsh, physical and violent punishment, negative parental attitudes and relations, limited parental praise, approval and support, negative reinforcement of deviant behavior, poor parental supervision and monitoring, and others (Patterson,

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Reid, & Dishion, 1992; Reid, Patterson, & Snyder, 2002; Robins & Rutter, 1990; Stoff, Breiling, & Maser, 1997). Some of these practices (e.g., harsh corporal punishment) have been evaluated separately in part because of separate interest in child abuse. However, many of the practices go together as a package. Assessment of these practices is important to permit evaluation of the interrelations of the parenting practices and child, parent, and family functioning and the impact of interventions designed to alter these practices.

Many measures have been developed to assess parenting (Kazdin, 1995; Locke & Prinz, 2002). Among the most exemplary is the behavioral observation method (Family Interaction Coding System; Patterson, 1982). Careful studies using this measure have elaborated family interaction and their direct contribution to aggressive child behavior (Patterson, 1982; Patterson et al., 1992). The method has not been used routinely in part because of the feasibility and expense of sending observers to the home on multiple occasions.

Parent self-report measures are a feasible methodological alternative to direct observations in the home (e.g., Arnold, O'Leary, Wolff, & Acker, 1993; Locke & Prinz, 2002). Yet, available self-report measures have been questioned because of their suitability with clinical populations, inconsistencies in their reliability and validity, retrospective evaluation of parenting practices as putative antecedents to current behaviors, and applicability to selected populations (e.g., socioeconomically disadvantaged) (e.g., Gerlsma, Emmelkamp, & Arrindell, 1990; Holden & Edwards, 1989; Reitman et al., 2001). Impetus for the present study was the focus of available measures.

Most of the currently available measures do not assess child management practices identified in the research literature as specifically related to the development of behavior problems. Many measures are certainly relevant to the development of behavioral problems. For example, many available questionnaires assess parenting styles or the emotional climate in which parental behavior is expressed (Darling & Steinberg, 1993). These relate to conduct disorder but omit specific practices that have been especially well studied in relation to disruptive behavior in the home. An important exception is the Alabama Parenting Questionnaire (APQ, Frick, 1991) that taps into many of the parenting practices related to the development of conduct problems. However, APQ does not address parenting practices that are the focus of the research and treatment of disruptive behavior problems that utilize Parent Management Training (PMT). APQ includes items that are not directly targeted by PMT (e.g., supervision and monitoring, parental involvement), and omits items that are targeted (e.g., coercive communication, negative reinforcement of deviant behavior). Such features may render APQ less sensitive to the therapeutic change when PMT is utilized, even though the scale has many other uses. PMT is the most well investigated and well established of the therapeutic approaches for behavior problems (Kazdin, 2001). In clinical work as well as research, there would be considerable use of a measure designed to

assess practices pertinent to the development of disruptive behavior and targeted by PMT, both to study these practices and to identify change over the course of treatment.

Parenting and parenting practices are multifaceted and no single measure can be expected to assess the range of cognitive, affective, and behavioral domains that are critical to development. This study provides an initial investigation on the development of a parent-report measure, referred to as the *Management of Children's Behavior Scale* (MCBS, Kazdin & Rogers, 1985). The goals of the study were to examine: (1) the composition and internal consistency of the scale, (2) concurrent, predictive, and incremental validity, and (3) whether the measure reflects change among families who received an intervention (parent management training [PMT]) known to alter parenting practices.

Validity of the measure was evaluated in several ways. *Concurrent validity* was examined by the extent to which the MCBS, a measure of parental discipline practices, would relate to measures of other constructs (e.g., socioeconomic and familial adversities, parental depression and stress) known to be associated with poor child management practices (e.g., Campbell, March, Pierce, Wing, & Szumowski, 1991; Forgatch, 1991). We anticipated that these variables measured at pretreatment would relate significantly to scores on the pretreatment parenting scale. Concurrent validity also was examined by testing the relation between the MCBS and measures of child conduct problems. Poor parenting practices are strongly associated with the conduct problems in children and adolescents (e.g., Bierman & Smoot, 1991; Brenner & Fox, 1998; Dishion, Patterson, & Kavanagh, 1992; Stormshak, Bierman, McMahon, & Lengua, 2000). Therefore, we expected that the scores on the MCBS would relate to measures of child conduct problems; this was tested at two points in time (pretreatment, posttreatment). Finally, concurrent validity also was evaluated by examining the association of the MCBS with more established inventories of child-rearing practices that have a narrow focus but encompass practices that are associated with conduct problems. Thus, we predicted that scores on the MCBS would relate to a measure of the likelihood that parents engage in harsh parenting (*Child Abuse Potential Inventory* [CAPI], Milner, 1986) and dysfunctional and harsh parent-child interactions (*Conflict Tactics Scale* [CTS], Straus, 1992). We predicted moderate, rather than high, correlations of these measures with the MCBS, reflecting that they are related but not overlapping (i.e., redundant).

*Predictive validity* of the MCBS was also examined. Dysfunctional parenting practices assessed at earlier age are associated with later conduct problems and poor child outcomes over time (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Dodge, Pettit, & Bates, 1994). The scores on the MCBS at pretreatment were expected to predict child posttreatment conduct problems. To further support the notion that the MCBS measures constructs related to parenting practices, we also evaluated whether variables known to be associated with inept parenting

predicted scores on the MCBS longitudinally. Parents who are socioeconomically disadvantaged, depressed, and stressed are less likely to benefit from parent training (see Kazdin, 1997). We expected that the family and parent characteristics at pretreatment would predict the posttreatment scores on parenting practices.

*Incremental validity* was assessed by examining if the MCBS contributed significantly to the prediction of the child behavior problems above and beyond (i.e., controlling for) factors that are known to predict disruptive behavior (socioeconomic disadvantage and family adversity, parental depression and stress, child abuse potential and aggressive conflict tactics) (e.g., Robins & Rutter, 1990; Stoff et al., 1997). We expected that the scores on the MCBS would predict the scores on the measures of child behavior problems above and beyond (controlling for) the combined effect of the specified factors.

In addition to tests of validity, we examined whether performance on the MCBS behaved in ways one would expect from the literature on parent functioning. We evaluated whether the scores on the MCBS mediate the relationship between the scores on the measures of parental depression and parental stress and the scores on the measures of conduct problems. Because dysfunctional parenting mediates the relationship between parental depression and parental stress and behavior problems (e.g., Campbell, Pierce, Moore, Marakovitz, & Newby, 1996; Dumas & Wekerle, 1995; Harnish, Dodge, & Valente, 1995), a similar mediating effect of parenting measured by the MCBS was anticipated. Demonstrating such mediating effect would further support the notion that the MCBS measures constructs related to parenting practices.

Finally, we examined whether the MCBS reflects change over the course of treatment. Parent Management Training is an evidence-based treatment for oppositional and conduct problems and is designed to improve parenting skills (Brestan & Eyberg, 1998). Several studies have shown parenting practices to improve over the course of treatment (e.g., Irvine, Biglan, Smolkowski, Metzler, & Ary, 1999; Taylor & Biglan, 1998; Webster-Stratton, 1997). We predicted that clinically referred families receiving PMT would show a decrease in adverse child-rearing practices that the MCBS was designed to reflect. Practices altered in PMT include: use of positive reinforcement, use of mild punishment techniques, refraining from prolonged, severe and physical methods of disciplining, consistency in delivering reinforcing and punishing consequences, avoiding negative reinforcement of deviant behavior and coercive patterns of communication (Kazdin, 2001).

The purpose of this study was to report on the development of the *Management of Children's Behavior Scale*, evaluate its composition, consistency, sensitivity to therapeutic change, and examine multiple types of validity. The scale was evaluated in a clinical setting with children referred for aggressive and antisocial behavior. Aggressive and antisocial behavior is the most frequently referred clinical problem among children and adolescents, encompassing from 1/3 to 1/2 of

clinic referrals (e.g., Kazdin, Siegel, & Bass, 1990; Robins, 1981). The sample was especially relevant to the goals of the study because parents of conduct problem youth have high rates of parenting practices the measure was designed to assess.

## METHOD

### Setting and Participants

The study was completed at the Yale Child Conduct Clinic, an outpatient treatment facility for children referred for antisocial, oppositional, and aggressive behavior. Participation was initiated by families directly contacting the clinic or by referral from the triage center at a child psychiatry service. Families completed an initial evaluation to assess child, parent, and family functioning, and then began treatment. The study included 396 children (77% boys, 23% girls) and their parents who agreed to participate and provided informed consent. The cases were consecutively referred to the clinic and were unselected in the sense of special screening criteria for purpose of the study.

Children ranged in age from 2 to 14 years ( $M = 7.92$ ,  $SD = 2.89$ ); 67.9% were European American, 20.7% were African American, 5.3% were Hispanic American, and 6.1% were of other groups or mixed background, based on parent identification of ethnicity. Diagnoses of the children were obtained from the parent version of the *Research Diagnostic Interview* (RDI; Kazdin, Siegel, & Bass, 1992), a structured interview modeled after the *Schedule for Affective Disorders and Schizophrenia for School Age Children* (Chambers et al., 1985). The interview assessed the presence, absence, and duration of child symptoms to permit diagnoses based on the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R; American Psychiatric Association, 1987). Reliability of Axis I diagnosis was routinely assessed by independent observers for randomly selected children for approximately 10% of the sample over the period in which this study was conducted ( $\kappa = .93$  across all diagnoses). Principal Axis I diagnosis included conduct disorder (38.5%), oppositional defiant disorder (28.4%), attention deficit/hyperactivity disorder (6.3%), major depressive disorder (9.6%), anxiety disorder (3.0%), other disorders (5.6%), or no diagnosable Axis I disorder (8.6%). Almost half (48.4%) of the children met a primary or secondary diagnosis of conduct disorder. Most children (70.6%) met criteria for more than one disorder.

The mother or female guardian was the primary caretaker for almost all of the families and included biological (90.3%), step or adoptive mother (1.5%), or other relatives (8.2%) and ranged in age from 20 to 62 ( $M = 35.70$ ,  $SD = 6.61$ ); 34.6% of the children came from single-parent families. Family socioeconomic status (Hollingshead, 1975) included (from lower to higher): Class I: 9.5%, II:

12.6%, III: 27.7%, IV: 32.1%, and V: 18.2%. Median monthly family income was \$2,501–\$3,000 (range from 0 to \$500 to >\$5,000); 21% of the families received public assistance.

### Assessment

Measures drew on several assessment formats (interviews and questionnaires) and were administered at intake and posttreatment by trained assessors, who were unaware of the purposes of the present investigation.

#### *Management of Children's Behavior Scale*

The MCBS (Kazdin & Rogers, 1985) was used to assess parenting practices. The measure was developed to assess a broad range of areas related to parenting and associated with child conduct problems, such as coercive communications, dysfunctional disciplining practices, negative parental attitude, harsh, physical and violent punishment, inconsistent parental control, negative reinforcement of deviant behaviors, and parental praise, approval and support for prosocial behaviors. The scale was developed on the basis of the existing research on parental practices and by generating questions via focus-group discussions with therapists who worked with conduct disorder children and their parents. The item pool went through several iterations prior to administration of the scale to participants. The goal of the scale was to sample multiple areas of inept parenting practices in an overall scale, i.e., without multiple subscales to address each domain that has been identified to comprise inept parenting. Items sampled multiple areas of inept parenting practices including: coercive communications—"If my child misbehaves, I will swear at him or call him names"; dysfunctional disciplining practices—"I believe that if my child misbehaved during the day, none of his good behavior should be rewarded"; inconsistent parental control—"I punish my child for doing something one day, but ignore it the next day"; physical punishment—"When spanking my child, I have used other things besides my hand"; harsh punishment—"I take away a privilege for a week or more when my child misbehaves"; negative reinforcement of deviant behavior—"I take away a privilege but if my child whines or complains, I will give it back"; negative parental attitude—"I believe that trying to explain to my child why his behavior is not appropriate is a waste of time and energy"; and acknowledgment of good behavior—"I reward my child in some manner when he is good." Domains of parenting practices usually overlap and are interrelated; therefore, many items could not be classified into a single category. For example, "If my child hits me, I will hit him back even harder to teach him a lesson" belongs to coercive communication and physical punishment domains. The measure contained 38 items on a 3-point scale: "Not like me," "Somewhat like me," and "Like me." Total score ranged from 38 to 114. Higher scores indicate

more adverse or inept parenting. The measure was administered to the parents at intake and at posttreatment.

### *Measures of Family and Parent Characteristics*

Validation of the scale (concurrent, predictive, and incremental validity) entailed the assessment of domains that were predicted to relate to but be distinguishable from parenting practices measured by the MCBS. Four domains were assessed and included: socioeconomic disadvantage, maternal depression; maternal stress, and parenting practices as assessed by other measures predicted to relate to the MCBS. Socioeconomic disadvantage included five measures. Four measures were drawn from a *General Information Form*, included: Hollingshead (1975) level of educational and occupational attainment of the family; family income (9-point scale in which 1 = 0 to \$500/month and 9  $\geq$  \$5,000/month); receipt of public assistance (yes, no); and whether the mother was ever married (yes, no), which relates to socioeconomic status. The fifth measure was Poor Living Accommodations, a subscale of the *Risk Factor Interview* (Kazdin, Mazurick, & Bass, 1993). The subscale includes 5 items that reflect adequacy of the living situation (e.g., adequacy of the size of home or apartment, high-crime neighborhood). Higher scores represent poorer living accommodations.

Maternal depression was assessed using the *Beck Depression Inventory* (BDI, Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). For each of the 21 items, mothers were asked to select 1 of 5 statements that differed in the presence or severity of the depressive symptoms. Maternal stress was measured by the *Parenting Stress Index* (Abidin, 1990), which includes 120 items (rated on a 5-point scale), and assesses multiple areas of stress related to parental views of their own level of functioning (e.g., restrictions of role, social isolation) and the functioning of the child (e.g., demandingness, mood). The items yield a total perceived stress score. The total score on the 120-item PSI was used in this study.

Two measures of parenting practices were included to provide evidence for the concurrent validity of the MCBS. The *Child Abuse Potential Inventory* (CAPI, Milner, 1986) was administered to examine the association of the MCBS with a more established inventory, measuring related constructs. The CAPI consists of 160 items that screen characteristics and attitudes associated with physical child abuse. Items are answered in a forced-choice, agree-disagree format. The total abuse scale was used for this study. The scale consists of 77 items and measures the severity of child abuse potential. Higher scores indicate increased probability for maltreatment. The *Conflict Tactics Scale* (CTS, Straus, 1992) was the second measure of related parenting practices. In this study, we used the Parent-Child version of the CTS to measure the severity and frequency of several tactics used in conflict situations between parent and child. The CTS items encompass multiple

discipline practices including three major domains: reasoning, verbal aggression and physical aggression (violence) scale. The total score is based on 20 items, each rated on a scale from 1 (occurred once in a past year) to 6 (occurred more than 20 times in the past year). Higher scores reflect more aggressive discipline practices of the parent.

### *Severity of Child's Conduct Problems*

Inept parenting practices are known to relate to oppositional, aggressive, and antisocial behavior. As part of the validation of the measure, we examined the relation of parenting practices to child conduct problems. Three measures of child conduct problems were used. First, the total number of conduct disorder symptoms was counted from the *Research Diagnostic Interview*, mentioned previously. This number represents DSM symptoms for which there was significant impairment in everyday life. Second, the *Interview for Antisocial Behavior* (IAB, Kazdin & Esveldt-Dawson, 1986) was completed by all parents. This 30-item measure rates severity (on a 5-point scale) and duration (on a 3-point scale) of a range of overt and covert aggressive and antisocial behaviors. The total antisocial behavior score is obtained by adding the severity and duration subscores. Both the RDI and IAB have been validated in studies on moderators of parenting practices, therapeutic change, and attrition from therapy (Kazdin, Holland, & Crowley, 1997; Kazdin & Wassell, 2000). Third, to assess the severity of child dysfunction across a broad range of behaviors, parents were asked to complete the *Child Behavior Checklist* (CBCL, Achenbach, 1991). The CBCL consists of 118-items (on a 3-point scale) and assesses multiple problem areas. This study employed total externalizing behaviors scale, which focuses on a range of disruptive behavior problems, in keeping with the focus of other measures.

## **Treatment**

Upon the completion of the intake assessment, all parents began PMT (see Kazdin, 2003). Parents were seen individually for approximately 16 sessions to develop adaptive parenting practices and child-parent interaction patterns and to alter child behavior at home and at school. Practice, feedback, and shaping were used to develop parental skills in the sessions and specific behavior-change programs for use outside of the sessions. Over the course of therapy, the child was brought into the sessions to review, discuss, and practice aspects of treatment. The treatment included a core set of sessions to convey content, themes, and skills. Within the core sessions, child dysfunction at home and at school and special family circumstances (e.g., living conditions, job schedules, custody issues, use of extended family members) were individually addressed. Occasionally, additional



sessions were provided to address specific problems or a theme that was not sufficiently well conveyed in a core session.

Eleven clinicians (2 male, 9 female, ages 23–56, all European American, 9 masters level and 2 doctoral level) served as therapists. Therapists had experience and supervised training in PMT. To maintain integrity of treatment: (a) therapists followed a treatment manual; (b) all treatment sessions were videotaped, some of which were reviewed weekly to provide feedback to the therapist; (c) all cases were reviewed weekly; and (d) ongoing clinical supervision was provided through direct observation of live treatment sessions via a TV monitor connected to cameras in the treatment rooms.

## RESULTS

### Composition and Internal Consistency of the Scale

Not all parents completed all of the items. We wished to retain the full sample of subjects rather than to delete cases and omit cases that may have special characteristics in relation to the overall sample. Missing items for a given subject were imputed using the Expectation-Maximization (EM) algorithm for Missing Values Analysis procedure in SPSS® (Tabachnick & Fidell, 2001).

The goal was to develop a scale that would sample broadly from a range of parenting practices. We wanted items that would relate to the overall score on inept parenting. To evaluate the items, for their inclusion in the scale, individual item-remainder correlations were computed, in each case correlating the score on that item with the total score of the overall scale, removing that item from the total score. A cut-off criterion for deleting an item from the scale was  $r \leq .10$ . That is, any item with a correlation lower than this cutoff was omitted. Only one item was deleted (see Table I). The item-remainder score correlations of the remaining items were positive and ranged from .14 to .48 ( $Mdn = .35$ ,  $p < .001$ ).

The 37-item MCBS ( $M = 51.49$ ,  $SD = 8.30$ , range = 45.08, from 37.00 to 82.08) demonstrated good internal consistency. Cronbach's alpha and Spearman-Brown coefficient were .84 and .75, respectively. The 37-item MCBS served as the scale for validation analyses that follow.

### Concurrent Validity

Several analyses were completed to evaluate the extent to which inept parenting discipline practices, as measured by the MCBS related to other domains known to be associated with these practices. Socioeconomic disadvantage, family adversity, parental depression, and stress were expected to correlate concurrently with parenting assessed by the MCBS. These initial analyses were cross-sectional

**Table I.** Item-Remainder Correlations of the Management of Children's Behavior Scale

	Total score (minus the item)
14) If my child misbehaves, I will swear at him or call him names.	.48
18) I often praise my child.	.43
8) When spanking my child, I have used other things besides my hand.	.43
23) If my child cleans his room, I will tell him how proud I am.	.43
26) If I give my child a request and he carries out the request per my instructions I praise him for being a good listener.	.43
16) I ground my child for days at a time when my child disobeys.	.42
11) I criticize my child in front of others.	.42
27) If my child interacts nicely with his brother/sister, I will tell him how nicely he is playing with him/her.	.42
37) I believe that trying to explain to my child why his behavior is not appropriate is a waste of time and energy.	.39
13) If my child hits me, I will hit him back even harder to teach him a lesson.	.39
35) I believe that if my child had misbehaved during the day, none of his good behavior should be rewarded.	.39
28) If my child brings home a test from school and he has made a small improvement, I will tell him how proud I am of his grade.	.38
24) If my child does his chores, I will recognize his behavior in some manner.	.38
20) When I review my child's report card, I tell him how proud I am of his work.	.37
29) If I ask my child to do something I know he really does not want to do, when he carries out the request, I tell him thank you for helping me.	.37
31) I believe that by reminding my child of all the bad things he has done, will help him to be good.	.37
15) I take away a privilege for a week or more when my child misbehaves.	.35
32) I believe that since my parent spanked me when I misbehaved, it is okay to spank my child.	.35
2) I threaten to punish my child for his misbehavior, but I do not follow through.	.35
1) I punish my child for doing something one day, but ignore it the next day.	.34
21) I show my child that I am interested in how well he is doing in school.	.34
38) I believe that trying to reason with my child will not help him to behave appropriately.	.34
7) I spank my child when I am extremely angry.	.32
5) If I tell my child he is not allowed out to play because of his behavior and a friend comes over to play with him, I will let him go out.	.32
34) I believe that physical punishment is the only method that can be used to control my child's behavior.	.32
25) If my child does an unexpected task or chore, I will make a big fuss about it.	.31
3) I take away a privilege but if my child whines or complains, I will give it back.	.30
19) I reward my child in some manner when he is good.	.28
33) I use the quote, "Spare the Rod, Spoil the Child" as a guide for disciplining my child.	.26
9) I refuse to speak to my child if he irritated me.	.25
4) If my child misbehaves, I tell him that I am not going to punish him now, but will leave it up to his father when he gets home.	.24
30) I believe that all of my child's bad behavior should be punished in some way.	.23
36) I believe that in order to manage my child's behavior you have to be strict.	.22
22) I encourage my child to do well in school after he has brought home a good report card.	.21
17) If my child misbehaves, I will not give him his allowance even though he has completed all of the chores necessary to earn it.	.20
6) If I tell my child that I am going to punish him and he says he is not going to take the punishment, I will not punish him at all because he will not cooperate.	.18
10) I have punished my child in the presence of others.	.14
Deleted Item	
12) On occasion, I have let my child go to bed without food.	.08

and based on correlations of pertinent measures at pretreatment assessment. In separate regression analyses, the five family characteristics (socioeconomic status, income level, living accommodations, public assistance, and single-parent family status) ( $F[5, 395] = 18.27, p < .001, R = .44, R^2 = .19$ ), parental depression ( $F[1, 395] = 57.98, p < .001, R = .36, R^2 = .13$ ), and parental stress ( $F[1, 395] = 77.88, p < .001, R = .41, R^2 = .17$ ) were all significantly related to parenting practices as measured by the MCBS. Specifically, greater socioeconomic disadvantage, maternal depression, and maternal stress were associated with more inept parenting on the MCBS. These results demonstrate the expected relationships between the known predictors of dysfunctional parenting and the MCBS, providing evidence for the concurrent validity and supporting the notion that the scale measures constructs related to parenting practices.

As discussed in the introduction, scores on parenting measures are significantly correlated with child conduct problems. Consequently, we expected that the pretreatment total scores on the MCBS would be significantly correlated with measures of such problems (RDI, CBCL and IAB) at pretreatment. Consistent with our hypothesis, total pretreatment MCBS scores predicted pretreatment RDI scores ( $F[1, 395] = 30.49, p < .001, R = .27, R^2 = .07$ ); IAB scores ( $F[1, 395] = 42.79, p < .001, R = .31, R^2 = .10$ ); and CBCL scores ( $F[1, 395] = 49.93, p < .001, R = .34, R^2 = .11$ ). Parenting practices assessed by the MCBS were significantly correlated with child behavior problems. These findings provide further evidence of concurrent validity and support the notion that this measure can be utilized for research on disruptive behavior problems.

Concurrent validity was also evaluated by examining measures administered at posttreatment. These too were cross-sectional analyses and merely provide another occasion to examine expected relations between the MCBS and other measures. We anticipated that scores on MCBS at posttreatment would relate significantly to scores on the measures of child conduct problems at posttreatment. IAB and CBCL measures of conduct problems were used for the analyses at posttreatment, because these were the only measures completed by the parents after treatment. The subsample of 208 subjects that completed the treatment and filled out the above two measures of conduct problems were used to test the concurrent validity of the MCBS at posttreatment (188 subjects were either still in treatment, dropped out of the program or did not fill out the measures). As anticipated, total posttreatment MCBS scores predicted posttreatment IAB scores ( $F[1, 207] = 27.66, p < .001, R = .34, R^2 = .12$ ) and CBCL scores ( $F[1, 207] = 29.31, p < .001, R = .35, R^2 = .13$ ). The significance of these findings lends additional support for the concurrent validity and utility of MCBS for the research on conduct problems.

The final evaluation of concurrent validity was an examination of the relationship of the MCBS to measures of closely related constructs, specifically a measure of child abuse potential (CAPI) and parent-child conflict tactics (CTS).

We expected significant moderate associations between MCBS and these related measures. As predicted, significant correlations of .47 ( $df = 315$ ;  $p < .001$ ) and .45 ( $df = 252$ ,  $p < .001$ ) between MCBS and the abuse scale of CAPI and total score of the CTS, respectively, were obtained. The magnitudes of the associations are moderate, indicating that these measures are related but not overlapping (i.e., redundant).

Overall, the tests of concurrent validity indicated that the inept parenting, as measured by the MCBS, is related to socioeconomic disadvantage, maternal depression, and stress, conduct problems of the child, and to measures of severe parenting practices. The results were consistent across measures and across the two occasions (pre and post) when separate cross-sectional analyses were completed. The results support the construct validity of the measure and its applicability to research on child conduct problems. Several other variables (parent functioning, parenting practices, sociodemographic variables) are related to the scales in ways one would expect from prior research. Concurrent validity is useful and important but is only one bit of evidence to support what the scale might measure.

### Predictive Validity

Several tests were completed focusing on longitudinal rather than cross-sectional relations among the measures. The subsample of 208 subjects that completed the treatment and filled out the measures of family, parent and child characteristics was used for the longitudinal analyses. Dysfunctional parenting practices assessed at earlier age are associated with later poor child outcomes and are predictive of behavior problems longitudinally. Therefore, we hypothesized that the scores on the MCBS at pretreatment would predict child behavior problems at posttreatment. As anticipated, total scores on the MCBS at pretreatment predicted posttreatment scores on IAB ( $F[1,207] = 10.22$ ,  $p < .01$ ,  $R = .224$ ,  $R^2 = .05$ ) and CBCL ( $F[1,207] = 19.61$ ,  $p < .001$ ,  $R = .30$ ,  $R^2 = .09$ ). These results support the predictive validity of the MCBS.

To provide further evidence for the notion that the MCBS measures constructs related to parenting practices, we evaluated whether variables known to be associated with inept parenting predict scores on the MCBS longitudinally. Parents who are socioeconomically disadvantaged, depressed, and stressed are less likely to benefit from parenting training. We expected that the family and parent characteristics at pretreatment would predict the posttreatment parenting practices. In separate regression tests on the variables that had significant univariate correlation with parenting practices, the five family characteristics ( $F[5,207] = 7.17$ ,  $p < .001$ ,  $R = .39$ ,  $R^2 = .15$ ), parental depression ( $F[1, 207] = 40.72$ ,  $p < .001$ ,  $R = .41$ ,  $R^2 = .17$ ), and parental stress ( $F[1,207] = 25.63$ ,  $p < .001$ ,  $R = .33$ ,  $R^2 = .11$ ) measured at pretreatment were all significant statistical predictors of

posttreatment parenting practices. These results further support the notion that the MCBS measures constructs related to parenting practices.

### Incremental Validity

The previous analyses indicate that the scores on the MCBS are consistent with other domains that are known to relate to inept parenting. A further test of the validity of the measure encompasses utility as well as validity. Specifically, we examined whether the measure adds any useful information in explaining or predicting conduct problems in children. Several other variables (e.g., socioeconomic factors, maternal factors, other measures of parenting practices) are already available and known to predict child conduct problems. Perhaps scores on the MCBS are of little use in adding incrementally to the prediction.

We expected that pretreatment parenting scores on the MCBS would add to the prediction of conduct problems after controlling for the combined effect of socioeconomic and family adversity, parental depression, and stress, child abuse potential, and aggressive conflict tactics. To test the incremental validity, we used a subsample of 247 participants that completed all the measures. Hierarchical multiple regression analysis was used; we entered the pretreatment family characteristics, parental depression and stress, and scores on measures of child abuse potential and aggressive conflict tactics together in the first step, and the total MCBS scores in the second step, predicting scores on the behavior problem measures: RDI, IAB, and CBCL.

The scores on RDI, IAB, and CBCL were moderately related ( $r$ 's ranged from .52 to .72,  $Mdn = .60$ , all  $p$ 's < .001). To facilitate presentation of the analyses on the incremental validity, we combined these measures. A principal component analysis was performed on the total scores of these measures to obtain a component score for the further use in the mediation test. Eigenvalues, scree plot, pattern matrix and residual correlation matrix supported the presence of one component (eigenvalue = 2.23, variance explained = 74.28%). When family and parent characteristics were controlled, parenting practices added significant variance to the explanation of the conduct problem scores ( $\Delta F[10,395] = 5.05$ ,  $\Delta R^2 = .01$ ,  $p < .05$ ). Parenting assessed by the MCBS statistically predicted child outcomes above and beyond the combined effect of other specified predictors, supporting its incremental validity.

### Mediational Analyses

We predicted that scores on the MCBS would mediate the relationships between the scores on the measures of parental depression and parental stress and the scores on the measures of conduct problems. The prediction stems from prior

research on these relations. The mediation tests were proposed for the MCBS as another way of evaluating the construct validity of the scale. Prior analyses (concurrent and predictive validity) suggest that the scale behaves in a way one would expect for a measure of inept parenting. The mediational analyses have the same goal in mind. If the measure encompasses inept parenting as proposed above, dysfunctional parenting assessed by the MCBS would mediate the relationship between parental depression and parental stress and behavior problems.

Three measures of child conduct problems were used (RDI, IAB, CBCL), as described above. As mentioned previously, these measures were combined into a single component. We expected that parenting practices measured by the MCBS would mediate the association between parental depression, assessed by the *Beck Depression Inventory* and conduct problem scores (from the principal component analysis). In keeping with Baron and Kenny's (1986) recommendations, the following three separate regressions were performed: parenting practices were regressed on parental depression ( $F[1,395] = 57.98$ ,  $R^2 = .19$ ,  $\beta = .36$ , all  $p$ 's  $< .001$ ), conduct problems were regressed on parental depression ( $F[1, 395] = 21.30$ ,  $R^2 = .05$ ,  $\beta = .23$ , all  $p$ 's  $< .001$ ), and conduct problems were regressed on parenting practices, when parental depression was also a predictor ( $F[2,395] = 31.33$ ,  $R^2 = .14$ ,  $\beta = .32$ , all  $p$ 's  $< .001$ ). The Holmbeck (2002) test of mediation was performed to evaluate the extent to which the effect of the parental depression on conduct problems shrinks upon the addition of parenting practices to the model. The raw regression coefficient for the association between MCBS and parental depression ( $B = .39$ ,  $SE = .05$ ) was compared to the raw regression coefficient for the association between MCBS and conduct problems, when parental depression was also a predictor ( $B = .04$ ,  $SE = .01$ ). The Holmbeck test showed a significant mediation effect,  $z = 4.89$ ,  $df = 395$ ,  $p < .001$ .

We also expected that scores on the MCBS would mediate the relationship between parental stress, assessed by *Parent Stress Inventory* and component scores on conduct problems. Three separate regressions were performed: parenting practices were regressed on the parental stress ( $F[1,395] = 77.88$ ,  $R^2 = .17$ ;  $\beta = .41$ , all  $p$ 's  $< .001$ ), conduct problems were regressed on parental stress ( $F[1,395] = 143.37$ ,  $R^2 = .27$ ;  $\beta = .52$ , all  $p$ 's  $< .001$ ), and conduct problems were regressed on parenting practices, when parental stress was also a predictor ( $F[2, 395] = 81.09$ ,  $R^2 = .29$ ;  $\beta = .17$ , all  $p$ 's  $< .001$ ). To evaluate the extent to which the effect of the parental stress on conduct problems shrinks upon the addition of parenting practices to the model, the raw regression coefficient for the association between MCBS and parental stress ( $B = .07$ ,  $SE = .01$ ) was compared to the raw regression coefficient for the association between MCBS and conduct problems, when parental stress was also a predictor ( $B = .02$ ,  $SE = .01$ ). The Holmbeck test of mediation showed a significant mediation effect,  $z = 3.26$ ,  $df = 395$ ,  $p < .001$ .

Overall, the results were in keeping with predicted effects. Parenting practices, as assessed by the MCBS, demonstrated the relationships between the measures of parental depression, parental stress, and conduct problems consistent with prior research. These results further indicate that constructs measured by the MCBS relate to parenting practices that are implicated in the development of disruptive behavior.

### Changes Over Time

The MCBS was intended to assess parenting practices that reflect day-to-day interactions in the home. The practices are expected to be amenable to change. The present investigation was not an intervention study designed to evaluate treatment. However, families in the present project received Parent Management Training, an intervention designed to address parenting practices included in the MCBS. The treatment in this clinic where this study was completed has been shown to effect change in many randomized controlled trials (Kazdin, 2003). One would expect the MCBS to reflect change over the course of treatment. Analyses were completed merely to assess whether scores changed over time and hence whether the measure would be sensitive to change.

As noted previously, 208 families completed treatment during the course of this study. Analysis of data using this subsample demonstrated a significant reduction in inept parenting practices from pretreatment ( $M = 50.93$ ,  $SD = 8.38$ ) to posttreatment scores ( $M = 45.05$ ,  $SD = 6.74$ ),  $t[207] = 14.33$ ,  $p < .001$ , with an effect size of Cohen's  $d = .77$ . The decrease in inept parenting practices is consistent with the notion that the MCBS reflects parenting practices and is sensitive to change.

## DISCUSSION

This study evaluated a measure of inept parenting practices, which includes multiple characteristics such as coercive parent-child interactions, dysfunctional disciplining practices, negative parental attitudes, inconsistent parental control, harsh, physical and violent punishment, negative reinforcement of deviant behaviors, and less praise and approval for prosocial behaviors. These practices have been implicated in the development and maintenance of conduct problems in children and are targeted in some forms of evidence-based treatment (e.g., PMT). The MCBS was designed to sample behaviors from multiple domains of inept parenting. The main findings indicated that the MCBS: (a) shows good internal consistency; (b) demonstrates concurrent, predictive, and incremental validity; and (c) reflects changes among families over the course of treatment. Overall, the

MCBS measures constructs related to parenting practices that are implicated in the development of conduct problems and are primarily targeted in the PMT,

In the development and validation of a measure, no one correlation or set of correlations is adequate. Rather multiple tests are conducted to develop the nomological net, i.e., the set of findings that place the measure in the context of several other constructs and measures to determine whether or the extent to which the underlying construct is supported. The MCBS was developed to sample parenting practices associated with conduct problems, as evident in research and as aided by a focus group of therapists involved in the treatment of children and families.

The pattern of results supports the construct validity of the measure. Specifically, the relation of parenting practices on the MCBS was associated in predicted ways with socioeconomic disadvantage and family adversity, parental depression, parental stress, and child conduct problems, both cross-sectionally and longitudinally. Parenting practices assessed by the MCBS mediated the relationship between parental depression and stress, and child conduct problems. Furthermore, inept parenting assessed by the MCBS predicted conduct problem cross-sectionally and longitudinally. When several variables known to predict child conduct problems were controlled, scores on the MCBS provided an increment in the prediction of such problems. The MCBS reflected changes among parents receiving parent management training. Finally, inept parenting was associated in expected ways with other measures of parent-child interaction that are related but also distinguishable. Child Abuse Potential Inventory and Conflict Tactics Scale assess domains of parenting that are known to be associated with inappropriate parental attitudes and poor child-rearing practices (e.g., Egeland, 1993; Patterson, Reid, & Dishion, 1992). Although scales are related, they are not redundant. The MCBS addresses a broader range of negative and positive parenting practices.

Although the findings support the validity of the measure, individual sources of evidence this study provides by itself is not necessarily strong, persuasive, or adequate. Indeed, this is invariably the case in measure validation. For example, perhaps the weakest was evaluation of change in parenting practices from pre- to post-treatment. We expected changes because PMT targets rather specific parenting practices of the type related to conduct problems. The results show that scores on the MCBS decrease, i.e., parenting becomes less negative and more positive after PMT. On the other hand, we did not show, nor attempted to show, that change over time was due to parent training as opposed to the passage of time. However, in the broader context of the study, the scale behaved as would be predicted from the construct of inept parenting. These practices can change and in fact do. It would be beyond the present goals to attribute the changes to parent training.

Several limitations place constraints on the results. First, the study focused on parents of youths referred for disruptive behavior problems and evaluated cases referred to a single outpatient clinic. This is a pertinent population to evaluate the measure because the parenting practices of interest are known to be associated



with these clinical problems. At the same time, this was a clinic-referred sample and the findings and utility of the scale remain to be evaluated in the context of a community sample.

Second, the scale included several practices known relate to child conduct problems. However, the measure did not necessarily encompass all practices that might be included. It is not clear from prior research on conduct problems whether there is a key set of parenting practices that ought to be assessed, whether such a subset can stand for all or most of the others in predicting conduct problems or reflecting therapeutic change, and whether some practices vary in their importance over development and in relation to clinical dysfunction. The MCBS sampled several parenting practices drawn from such domains as coercive communication patterns, inept disciplining, negative parental attitudes, inconsistent parental control, harsh, physical and violent punishment, negative reinforcement of deviant behavior, and parental praise, approval and support.

Future studies can examine the utility of the MCBS as a measure of parenting practices for research on the development of the social, emotional, and behavioral child problems, other than disruptive conduct problems. Also, sensitivity of the scale to therapeutic change associated with treatments other than PMT warrants further investigation. Validation of the measure should continue with more diverse population of referred and non-referred children. Further, convergent and discriminant validity of the measure require examination. This study was an initial validation effort and serves as a point of departure for further use and evaluation of the scale.

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