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Anger, Child Behavior, and Family Distress: Further Evaluation of the Parental Anger Inventory

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Abstract: Presumably, anger is a common experience of parenting. Although practitioners and researchers recognize the role of anger in various parenting situations, objective and standardized measures of parental anger have been notably lacking in the field. This study examined the Parental Anger Inventory (PAI), a measure developed specifically to assess parental anger in response to child misbehavior. A diverse sample of 98 parents participated in the study, including (a) physically abusive or neglectful parents, or both, $n = 44$; (b) non-maltreating clinic parents seeking assistance for child behavior problems, $n = 24$; and (c) nonmaltreating, non-help-seeking community parents, $n = 30$. Results support the internal consistency, temporal stability, and convergent validity of the PAI. Findings also demonstrate the PAI's potential utility when working with maltreating and help-seeking parents. Results highlight the importance of assessing parental anger toward children and support the use of the PAI in assessment, treatment, and research.

Keywords: assessment, child maltreatment, help-seeking, parental anger, stress

Emotional responses have been acknowledged as playing a formative role in parenting, including maladaptive parenting processes (Dix, 1991). Presumably, anger is a high frequency, high intensity emotion experienced by parents during their caretaking role. In fact, anger toward children is becoming recognized as a common emotional experience in parent–child interactions (Peterson *et al.*, 1994) as well as an identified high risk behavior frequently associated with forceful parent–child interactions (e.g., Kolko, 1996).

Although the relationship between anger and parenting is not yet clearly delineated, the extant literature has begun to establish a link between anger and subsequent risk for coercive and harmful parenting behavior. Findings suggest that parents' uncontrolled anger toward their children is strongly associated with child physical abuse (e.g., Kolko, 1996; Novaco, 1975; Vasta, 1982). Rodriguez and Green (1997) highlight the importance and relevance of anger expression to the study of physical child abuse. Their findings revealed that anger expression and parenting stress combined to predict child abuse potential (i.e., characteristics and attitudes associated with child abuse) better than either factor alone (Rodriguez & Green, 1997). Limited parental self control or harsh discipline, such as heightened anger, has been noted as a high risk factor warranting ongoing assessment (Kolko, 1996). In an examination of the relationship between anger and other correlates of abusive parenting, Peterson *et al.* (1994) found that mothers' self report of child behaviors which elicited the most anger resulted in the highest anger scores as well as the highest use of physical discipline. Similarly, Dukewich *et al.* (1996) found predisposition for aggressive coping to be a significant mediating variable of the effects of expectations about child development and limited parenting skills on one's potential for child abuse.

Differences related to parental anger have also been discovered between maltreating and nonmaltreating families. Bauer and Twentyman (1985) found that abusive mothers possess unrealistic expectations of their children's behavior and report being more annoyed with their children's behavior when compared with nonabusive mothers. In his review of the literature on abusive parent characteristics, Wolfe (1987) found that abusive parents, relative to their nonabusive counterparts, tend to have a low frustration tolerance, which may contribute to heightened levels of parental anger. Further, abusive and nonabusive parents have been found to differ along various dimensions, including coping with anger provoking situations (e.g., Hansen *et al.*, 1995). However, although this research addresses emotional and coping responses that may be related to anger, there is limited research involving direct assessment of anger across various parenting situations.

Although studies have been conducted to investigate more specific types of anger, such as anger directed toward children, these current research efforts (e.g., Rodriguez & Green, 1997) have used measures of global anger, such as the Novaco Anger Control Scale (Novaco, 1975) or the State-Trait Anger Expression Inventory (Spielberger, 1988). Although these measures are standardized, well-known, and frequently used, their use in the assessment of anger in specific situations departs from their original intent. Further, their use implies that global anger (i.e., across various life situations) is equivalent to anger provoked by child misbehavior and parent-child interactions, yet there is a lack of empirical support for this implication.

The growing body of research examining the role of parental anger in negative parent-child interactions and potentially harmful parenting behaviors also highlights parental anger as a key variable in assessment and treatment with help-seeking or maltreating parents. In fact, a study by Kolko (1996) recognized parental anger as a key variable for monitoring the clinical course of maltreating families in treatment. However, proper assessment of this construct has received insufficient empirical examination. Although parental anger has been implicated in coercive and abusive parenting practices (e.g., McKay *et al.*, 1996), such conclusions are often based on assumptions about the relationship between anger and aggressive parental acts, rather than actual assessment of such experiences. Thus, a discrepancy exists between the field's emphasis on parental anger and its relationship to harmful parenting behavior (e.g., maltreating situations) and the availability and use of adequate tools to assess this specific type of anger.

The emerging compilation of research on the relationship between anger and harmful parenting practices, albeit sparse, points to a need for continued examination by both practitioners and researchers alike. As parental anger is becoming increasingly recognized as a central aspect of parenting, there is a need for more sensitive and specific assessment of this construct. Given that links between reported anger and subsequent parenting behavior have been demonstrated, assessment of parental anger seems to be a key component of prevention and intervention efforts aimed at maltreating or other distressed parents who may be at future risk for engaging in maltreatment. Specifically, objective and standardized measures of parenting-specific anger have been noticeably lacking in assessment protocols used with maltreating, help-seeking, and other distressed parents. This shortage most likely explains the use of internally developed anger measures (e.g., within a specific research program) or global measures of anger and stress (e.g., Novaco Anger Control Scale, Hassles Scale) by researchers and practitioners. One such measure, the Parental Anger Inventory (PAI; MacMillan *et al.*, 1988), has been specifically developed to meet this need. The PAI is a self-report measure which assesses anger subjectively experienced by parents in response to child misbehavior and other child-related situations.

The development of the PAI was conducted in multiple phases. An initial version of the questionnaire contained 81 items (MacMillan *et al.*, 1988). Items in this pool were generated from child-related complaints of maltreating clients during therapy sessions (as identified by raters coding audiotaped sessions), a review of the literature of existing child behavior problems, and other frequently problematic child behaviors identified by therapists experienced in working with maltreating families. In generating these items, support for the content validity of the measure was considered. Some examples

of child-related situations which were rated as problematic include "A child refuses to go to bed" or "A child throws food." In this phase, ratings by therapists for clarity and appropriateness of items (on a 4-point scale) resulted in the elimination of four items with a mean score of 2.0 or below. Forty parents were administered the PAI in order to refine the measures' internal consistency. Twenty-seven items with item total correlations below .30 on the Problem and Anger Intensity dimensions were also eliminated.

In a later phase (DeRoma & Hansen, 1994), subjects included 48 parents with at least one child between the ages of 2 and 10. The sample was comprised predominantly of female, White mothers of low socioeconomic status. These subjects included (a) maltreating parents, $n = 17$; (b) nonmaltreating clinic parents seeking help for child behavior problems, $n = 18$; and (c) nonmaltreating, non-help-seeking community parents, $n = 13$. Analyses demonstrated high item-total, split-half, and test-retest correlations and support the internal consistency and temporal stability of the measure. Pearson product-moment intercorrelations of the problem and severity dimensions of the scale ($r = .67$) suggested that the dimensions were related, but not redundant. Moderate correlations with other measures of child problems (i.e., Eyberg Child Behavior Inventory) and global stress (i.e., Hassles Scale, Novaco Anger Control Scale), have also been documented. Twenty-one subjects from this sample returned to complete the PAI between 8 and 21 days ($M = 17.4$) following the completion of the first PAI. Test-retest correlations for the problem dimension ($r = .78$) and the severity dimension ($r = .86$) support the temporal reliability of this measure.

This study builds upon existing research conducted with the PAI (e.g., DeRoma & Hansen, 1994; Hansen *et al.*, 1995; MacMillan *et al.*, 1988; Sedlar *et al.*, 1997) by further documenting its psychometric properties and investigating its utility in measuring parental anger with a varied sample of parents, including help-seeking and maltreating parents. Specifically, this study evaluates the internal consistency, test-retest reliability, and convergent validity of the PAI. This study expands upon previous research (e.g., DeRoma & Hansen, 1994; MacMillan *et al.*, 1988; Sedlar *et al.*, 1997) by including a larger diverse sample of parents (i.e., maltreating, help-seeking, and community/nonmaltreating groups). Additional analyses involve an exploration of PAI scores and select demographic characteristics as predictors of parent group status. This investigation is intended to improve understanding of the relationship of parental anger (with other family, stress, and anger variables) and to provide further description of the PAI's utility with various parenting populations, such as maltreating parents and other distressed parents.

METHOD

Participants

Participants were parents ($n = 98$) of children between the ages of 2 and 12 years. A variety of parents was recruited through multiple methods. Parents were recruited from the community and two university clinics providing psychological services and parent training for both maltreating and nonmaltreating parents. Community participants were recruited via newspaper advertisements and a list of community parents maintained by a university psychology department for research recruitment purposes. Participants in the clinic settings were first approached by their therapists to obtain permission to be contacted regarding the study by the primary investigator. Participants from the identified maltreating group were referred by Child Protective Services for treatment services related to maltreatment.

Participants comprised a diverse representation of parents, including (a) maltreating, including physical abuse or neglect, or both, $n = 44$; (b) help-seeking, nonmaltreating, $n = 24$; and (c) nonmaltreating, non-help-seeking community parents, $n = 30$. Presence of physical abuse and neglect by maltreating parents was substantiated by Child Protective Services. Community and help-seeking participants were asked about any contact with Child Protective Services and if parents reported that an investigation of abuse or neglect of their children had occurred, their data were excluded from subsequent analyses.

Most of the participants were Caucasian females (89.8% were females; 94.7% were Caucasian). Participants ranged in age from 17 to 51 years, with an average of 32.1 years ($SD = 7.58$). Almost half (44%) of the sample was married, 27.6% were single, and 18.3% were divorced or separated. The modal number of children each parent had was 3 ($M = 2.53$; $SD = 1.44$) and the average age of the child about which parents answered questions was 6.97 ($SD = 2.67$). The average annual income reported by parents was \$21,759 ($SD = \$23,187$).

Measures

Parental Anger Inventory

As noted earlier, the Parental Anger Inventory (PAI; MacMillan *et al.*, 1988) was developed to assess anger experienced by maltreating parents in response to child misbehavior and other child-related situations. In completing the PAI, parents answer questions about their child(ren) between the ages of 2

and 12 years old. Parents rate 50 child-related situations (e.g., "Your child demands something immediately") as problematic or non-problematic and rate the degree of anger evoked by each situation on a 5-point scale (1: *Not at All*; 2: *A Little Bit*; 3: *Somewhat*; 4: *Quite A Bit*; 5: *Extremely*). Higher scores on the scales reflect higher number of problems with child misbehavior (Problem Scale) and higher intensity level of self-reported anger in response to child misbehavior (Anger Intensity Scale).

Eyberg Child Behavior Inventory

The Eyberg Child Behavior Inventory (ECBI; Eyberg, 1992; Eyberg & Ross, 1978) is a comprehensive 36 item behavior inventory completed for 2–16-year-old children. This measure asks parents to rate (a) the frequency of occurrence on a 7-point scale (1: *Never*; 7: *Always*) and (b) whether or not they think their child's behavior is a problem. A Total Problem score requires the parents to circle "yes" or "no" when asked if a particular child behavior is problematic and scores range from 1 to 36. The ECBI has been shown to have adequate internal consistency, split-half and test-retest reliability, and predictive validity (Eyberg & Robinson, 1983; Eyberg & Ross, 1978; Robinson *et al.*, 1980).

Hassles Scale

The Hassles Scale (Kanner *et al.*, 1981) is a 117-item measure of the number and severity of hassles experienced in the past month. Example of hassles included in the measure include misplacing or losing things, financial concerns, and not having enough time for family. For each of the hassles that have occurred in the past month, participants rate its severity on a 3-point scale (1: *Somewhat Severe*; 2: *Moderately Severe*; 3: *Extremely Severe*). Research supports its test-retest reliability and convergent and construct validity (Kanner *et al.*, 1981).

Novaco Anger Control Scale

The Novaco Anger Control Scale (Novaco, 1975) is a 90-item measure intended to assess anger in response to nonchild related stressors. Participants rate on a 5-point scale the degree to which general life incidents provoke an-

ger for them. Example incidents include losing keys, being called a liar, and hitting a finger with a hammer. This measure was used as a global measure of anger experienced by parents. Research has supported the internal consistency, test-retest reliability, and concurrent validity of the Novaco Anger Control Scale (Mills *et al.*, 1998; Novaco, 1975, 1994).

Edwards Social Desirability Scale

The Edwards Social Desirability Scale (ESD; Edwards, 1957) measures an individual's tendency to answer items according to their social desirability rather than their actual content. The ESD contains 39 items taken from the MMPI (Minnesota Multi-phasic Personality Inventory), which were found to be most subject to the effects of a social desirability response set. Scores range from 0 to 39, with higher scores indicating a greater tendency to respond in a socially desirable manner. Internal consistency for this measure is good (.83). The ESD was presented to participants under the heading "Self-Description Scale" to avoid potential test reactivity.

Procedure

Informed consent was obtained prior to participation in the study. Participants were asked to complete various self-report measures pertaining to parenting, child behavior, and affective experience (e.g., stress, anger). In addition to the measures, demographic information was collected from the participants with regards to age, gender, income, marital status, ethnicity, and the number and age of their children. To examine the test-retest reliability of the PAI, parents were asked to complete a second PAI 2 weeks after completion of the first PAI. Thirty-nine parents (39% of the sample) completed both administrations of the PAI, with an average of 16.85 ($SD = 6.0$) days between administrations. Upon completion of the second administration of the PAI, parents were entered into a lottery making them eligible to receive a family related "prize" (e.g., movie passes to a local theater).

RESULTS

Internal Consistency

Alpha coefficients for the Problem and Anger Intensity Scales were .96 and .81, respectively (refer to Table I). These analyses indicate strong internal consistency for both scales of the measure.

Table I. Parental Anger Inventory Alpha Coefficients and Test-Retest Correlations

	Alpha ($n = 98$)	Test-retest ($n = 39$)
Problem Scale	.92****	.80***
Anger Intensity Scale	.81****	.79***

*** $p < .001$. **** $p < .0001$.

Intrascale Correlation of the PAI

The Pearson product-moment correlation of the Problem and Severity dimensions was .68. This correlation indicates that the two dimensions are related to but are not redundant with each other.

Test-Retest Reliability

To examine the test-retest reliability of the measure, analyses were conducted on data from 39 participants who had completed two administrations of the PAI. Analyses yielded correlation coefficients of .80 for the Problem Scale and .79 for the Anger Severity Scale. These results suggest that both scales of the PAI have good temporal stability (see Table I).

Convergent Validity

Pearson Product-moment correlations between the PAI scales and the other child-and anger-related measures were conducted to evaluate the PAI's convergent validity (see Table II). Results suggest a moderate relationship between the PAI scales and the Eyberg, Hassles, and Novaco scales. The correlations of the Anger Intensity Scale of the PAI with the Novaco Anger Control Scale ($r = .38$) and the Severity domain of the Hassles scale ($r = .33$) suggest that the PAI is measuring the construct of anger but a more specific type of anger. As shown in Table II, the PAI had slightly stronger correlations with both scales of the Eyberg Child Behavior Inventory.

Regression Analyses

Backward stepwise regression analyses were conducted using the Eyberg Child Behavior Inventory (both problem and frequency scales), Novaco Anger Control Scale, Hassles Scale (both number and severity), and the Edwards Social Desirability Scale to examine their relationship with scores on

Table II. Pearson Product-Moment Correlations of the PAI and Other Measures

	Anger Intensity Scale	Problem Scale
Eyberg Child Behavior Inventory: Problem frequency	.48**	.72**
Eyberg Child Behavior Inventory: Problem presence	.19	.44**
Novaco Anger Control Scale	.38**	.15
Hassles Scale: Number of problems	.28*	.41**
Hassles Scale: Severity of hassles	.33**	.40**
Anger Intensity Scale	—	.68**

* $p < .05$. ** $p < .01$.

the Problem Scale and the Anger Intensity Scale of the PAI. Analyses yielded single factor models that accounted for a significant proportion of the variance for both PAI scale scores. Results showed that the Frequency scale of the Eyberg Child Behavior Inventory (Beta = .432) significantly predicted scores on the Anger Intensity Scale of the PAI, $R^2 = .19$, $F(1, 47) = 10.76$, $p < .002$. Similarly, the Frequency scale of the Eyberg Child Behavior Inventory (Beta = .715) also significantly predicted scores on the Problem Scale of the PAI, $R^2 = .51$, $F(1, 47) = 49.26$, $p < .001$.

Discriminant Analyses

Discriminant analyses were conducted in order to explore the value of PAI scale scores for distinguishing among the groups of maltreating, help-seeking, and community/nonmaltreating parents. Prior to conducting these analyses, a one-way ANOVA was performed to evaluate possible demographic differences on income and parent age across the different parent groups. Significant differences on income emerged, $F(2, 62) = 13.66$, $p < .001$. Follow-up Tukey HSD analyses revealed that the community parents reported significantly higher income than maltreating and help-seeking parents ($p < .001$), but there were no significant income differences between maltreating and help-seeking parents. No significant differences emerged on parent age for the three groups, $F(2, 61) = 2.03$, $p < .141$. Means and standard deviations for the parent groups on income, parent age, and PAI scores are presented in Table III.

Because of the significant differences among parent groups on income, this variable was included in the discriminant analyses. Multivariate analyses revealed that the first discriminant function reliably differentiated among the parent groups; Lambda = .572, $\chi^2(4) = 38.83$, $p = .001$, R^2 -canonical = .65, but that the second function did not provide reliable further differentiation, Lambda = .991, $\chi^2(1) = .558$, $p = .455$, R^2 -canonical = .096. Analyses showed

Table III. Means (Standard Deviations) for Parent Groups on Demographic Variables and PAI Scores

	Maltreating (<i>n</i> = 45)	Help-seeking (<i>n</i> = 24)	Community (<i>n</i> = 30)
Income	\$6,987 (2,902)	\$12,835 (8,584)	\$34,993 (27,738)
Parent age	33.06 (7.47)	32.28 (6.18)	36.13 (7.21)
PAI Problem Scale	31.13 (7.36)	25.61 (11.93)	17.67 (7.59)
PAI Intensity Scale	115.50 (46.23)	107.89 (34.06)	96.7 (39.84)

that the PAI Problem Scale scores and income significantly contributed to the discrimination among the groups. The pooled within-groups correlations between the discriminating variables and the standardized canonical discriminant functions (*i.e.*, structure weights) were as follows: .762—income; .748—Problem Scale of PAI; .389—Anger Intensity Scale of PAI.

DISCUSSION

Results from this study provide strong support for the psychometric properties of the PAI, a measure developed to assess the level of anger toward children reported by parents. Analyses revealed that both scales of the PAI have good internal consistency. Temporal stability across an average of almost 17 days was strong for both scales.

Results further suggest that the two scales of the PAI are related to each other but yet clearly assess two separate aspects of parent-child interactions (*i.e.*, intensity of subjectively experienced anger and the parent's view of child misbehavior as a problem). The relatively low to moderate relationships between the PAI and other anger-and stress-related measures suggest the measure has adequate discriminant validity such that it is measuring anger specific to parent-child interactions.

Additionally, stronger relationships between the PAI and other commonly used and standardized child measures (*i.e.*, Eyberg Child Behavior Inventory scales) indicate the measure is tapping areas relevant to parenting and child behavior, thereby supporting the PAI's convergent validity. Regression analyses provide further clarification of the relationship between the variables measured by the PAI and other parent-child relevant variables (*e.g.*, child misbehavior). Parental report of the frequency of child behavior problems, as measured by the Eyberg Child Behavior Inventory, emerged as a significant predictor of both PAI scales, lending additional support for the PAI's convergent validity with a well-known parent-child related measure. In sum, these findings lend support for the use of the PAI as a reliable and valid measure of parental anger.

Findings from the discriminant analyses support the PAI's potential utility in differentiating among groups of parents. In combination with income, PAI Problem Scale scores significantly differentiated the maltreating, help-seeking, and community parents. Additional research in which groups are equivalent on income and other demographic variables would be valuable for understanding the independent value of the PAI in distinguishing distressed or maltreating parents from other parents.

Overall, results of this study support the utility of the PAI when working with parents, especially those who may be maltreating, distressed or at risk for problematic parent-child interactions, including forceful or harmful parenting practices. These results highlight various parent populations (*e.g.*, maltreating, help-seeking) for which assessment of parental anger may be warranted and for which the PAI may be useful. Findings have important implications for prevention, assessment, and intervention with maltreating or other distressed parents as well as research efforts devoted to improving understanding of parental anger towards children.

Careful and comprehensive assessment of various factors from different levels of an individual's ecology (*e.g.*, individual parent factors, environmental stressors) is valuable when working with distressed families as well as those suspected or identified as maltreating (*cf.* Hansen *et al.*, 1999; Milner & Chilamkurti, 1991). Parental anger is one factor at one level of the ecology (*i.e.*, individual) with potential to interact with a range of other factors at different levels (*e.g.*, family). Thus, results of this study provide support for the utility and value of incorporating assessment of parental anger into a more comprehensive assessment. For example, the PAI may be used in conjunction with other established measures of abuse potential, parenting stress, parent-child interactions, and child behavior problems to form a more complete understanding of a parent's risk for ineffective and inappropriate parenting (*e.g.*, see Hansen *et al.*, 1999). In providing information about both the number of problematic parent-child situations and the intensity of anger experienced from these situations, the PAI may identify those parents reporting high levels of anger towards their children's behavior and target child behaviors most likely to provoke parental anger. Given the relationship between severity of parental anger and coercive parent-child relations and the importance of regular monitoring of parental engagement in high-risk behaviors, such as severity of anger, during treatment (Kolko, 1996), the PAI may be a useful clinical and research tool for monitoring high risk behavior throughout treatment as well as evaluating treatment efficacy.

Although results of this study are promising, limitations exist. Although the sample size of this study is adequate, particularly given the inherent challenges of collecting data from a diverse sample of parents, a larger sample

would provide stronger evidence of the PAI's psychometric properties and would allow for a wide range of normative information to be collected on the measure. A second limitation of this study is the combination of different types of maltreatment (*i.e.*, physical abuse and neglect) to form a single "maltreating" category. Because of sample size limitations and the co-occurrence of physical abuse and neglect, parents engaging in different types of maltreatment were placed in one category. Additional data from a variety of distressed and maltreating parents would add to existing knowledge and may help to clarify other populations for which the PAI may be useful. Another limitation of this study is the racial homogeneity of the sample. Although the sample adequately reflects the racial composition of the communities and regions from which the data were collected, there is a lack of diverse representation across various ethnic groups.

Additional areas for further investigation remain. Few treatment monitoring or treatment outcome studies have addressed parental anger toward children and child behavior. This seems like a viable research endeavor with the PAI. The relationship of parental anger and distress in relationship to other parenting skills and deficits (e.g., problem-solving strategies) seems worthy of future exploration. The PAI may also be useful in conjunction with more objective behavioral observations, *in vivo* methods and other collateral informants. Further, research with the PAI could expand to other at-risk parents seeking assistance for domestic violence and other family conflict issues.

In sum, the PAI is a useful and valuable addition to the assessment of families seeking services for parent-child problems and may be beneficial for treatment monitoring and outcome evaluation efforts. Given that anger towards children is common and is likely to be associated with forceful and maladaptive parenting, it is surprising that relatively little research has been conducted on parental anger. With development of the PAI, progress in assessing and understanding the role of parental anger toward children has been made, yet the experience of anger in parenting situations is a complex issue in need of further inquiry.

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