Mothers of children with externalizing behavior problems: Cognitive risk factors for abuse potential and discipline style and practices

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Abstract:

Objective

Utilizing the conceptual framework of the Social Information Processing (SIP) model ([Milner, 1993] and [Milner, 2000]), associations between cognitive risk factors and child physical abuse risk and maladaptive discipline style and practices were examined in an at-risk population.

Methods

Seventy-three mothers of 5–12-year-old children, who were identified by their therapist as having an externalizing behavior problem, responded to self-report measures pertaining to cognitive risk factors (empathic perspective taking, frustration tolerance, developmental expectations, parenting locus of control), abuse risk, and discipline style and practices. The Child Behavior Checklist (CBCL) provided a confirmation of the child's externalizing behaviors independent of the therapist's assessment.

Results

The results of this study suggest several cognitive risk factors significantly predict risk of parental aggression toward children. A parent's ability to empathize and take the perspective of their child, parental locus of control, and parental level of frustration tolerance were significant predictors of abuse potential (accounting for 63% of the variance) and inappropriate discipline practices (accounting for 55% of the variance).

Conclusions

Findings of the present study provide support for processes theorized in the SIP model. Specifically, results underscore the potential role of parents' frustration tolerance, developmental expectations, locus of control, and empathy as predictive of abuse potential and disciplinary style in an at-risk sample.

Keywords: Cognitive risk factors; Child physical abuse risk; Discipline style; Behavior problems; Child maltreatment; Social information processing model

Article:

Introduction

When attempting to understand physical aggression toward children, and thus advance child abuse prevention, a focus on the cognitive schemas involved in the decision making process of perpetrators of physical child abuse is needed. Predicting physical abuse in the home cannot be attributed to a single factor ([Belsky, 1980] and [Belsky, 1993]), and understanding the circumstances and interpersonal dynamics in which such aggression occurs is vital. Characteristics of the perpetrators of physical abuse, typically caregivers, include their developmental experience, personality, and cognitive schema ([Belsky, 1980] and [Belsky, 1993]; Milner & Dopke, 1997).

Parents engage in a decision making process when electing to use physical aggression toward their children, a process influenced by pre-existing cognitive schema. A clearer grasp of why some parents decide to use physical aggression with their children whereas others do not may be achieved by clarifying the nature of these cognitions, which in turn could guide intervention efforts. Such cognitions can reflect different aspects of the parent-child relationship. For instance, abusive and at-risk parents demonstrate maladaptive schemas about their children, negative cognitions about the parent-child interactions, and negative attributions about their children's behavior ([Azar, 1997] and [Azar, 1998]). Thus, potential interventions for abusive parents could explicitly

focus on restructuring these internal, or cognitive, factors (Azar, 1997), as exemplified in cognitive-behavioral therapy intended to modify parent-child relations in families with a history of child physical abuse (Runyon, Deblinger, Ryan, & Thakkar-Kolar, 2004).

Cognitive behavioral approaches to conceptualizing physical abuse have been proposed (e.g., Twentyman, Rohrbeck, & Amish, 1984), and parental cognitions have been considered to mediate their actions and emotions toward their children ([Azar, 1997], [Azar, 1998] and [Milner, 2000]). For example, parents at high risk of abuse demonstrate aversive, negative attributions of children and their behavior (McGuigan, Vuchinich, & Pratt, 2000; Montes, de Paul, & Milner, 2001), and such cognitive factors may in fact be more critical than affective predictors of abuse risk (Haskett, Scott, Grant, Ward, & Robinson, 2003).

However, the breadth of cognitive influences in physical abuse risk has only more recently been delineated in Social Information Processing (SIP) theory ([Milner, 1993] and [Milner, 2000]). This model proposes that parents' cognitive processing of events occurs in four stages, leading toward decisions to engage in physical aggression with children. According to the SIP model, preexisting cognitive schemata that exist prior to processing information from new interactions (e.g., child- and discipline-related beliefs) precede the four stages. Then, at the first information processing stage, parents must initially perceive a parent-child situation and attend to the interaction, with the potential for interference (i.e., selective attention, encoding difficulties) impacting such perceptions. In the second stage, the parent holds expectations, interprets, and evaluates the parent-child interaction. In Stage 3, parents integrate information about the parent-child situation and choose their response. Difficulties in this third stage result from poor integration of factors that mediate or explain the child's behavior as well as from the choice of inappropriate alternate responses given limited knowledge of parenting skills and techniques. The final cognitive-behavioral stage (Stage 4) focuses on response implementation and parents' ability to monitor their own behavior. Abusive parents may choose a response that involves physical aggression and have difficulty monitoring their behavior to avoid harming their children. The SIP model thus hypothesizes that parents proceed through a series of cognitive stages that may lead them to engage in parent-child aggression ([Milner, 1993] and [Milner, 2000]). Given this attention to an array of cognitive processes, the SIP model serves as the framework for the cognitive factors under investigation in the present study.

Several cognitive risk factors consistent with the SIP model are indeed associated with risk of parental aggression toward children. Frustration tolerance, locus of control, developmental expectations, and empathy have been identified as potential risk factors (Milner & Dopke, 1997). Each of these cognitive factors may contribute to the decision making process parents engage in when deciding to implement aggression toward their children. These cognitive risk factors would either impact a parent's perceptions (Stage 1), interpretation and evaluation (Stage 2), or information integration (Stage 3), thereby increasing the risk of abusing the child.

Frustration tolerance

Despite the longstanding recognition of the link between frustration and aggression (Dollard, Doob, Miller, Mowrer, & Sears, 1939), parental intolerance of child behavior, reflective of frustration tolerance, has not been widely studied. Research using physiological reactivity comparing physically abusive and non-abusive mothers attempted to discern the level of distress or frustration experienced when confronted with aversive stimuli. One classic study examined abusive and non-abusive mothers and their reaction to a crying infant (Frodi & Lamb, 1980) and concluded that both abusive and non-abusive mothers had physiological reactions. However, the abusive mothers responded the same way to a smiling or crying infant (no differentiation), whereas the non-abusive mothers did not show an increase in reactivity to a smiling infant (Frodi & Lamb, 1980). Most physiological reactivity studies have consistently shown that abusive mothers show greater skin conductance, heart rate, and blood pressure when presented aversive stimuli (e.g., crying infants) than non-abusive mothers (Black, Heyman, & Smith Slep, 2001; Milner & Dopke, 1997).

Such reactivity may represent a parent's ability to tolerate situations of high frustration. If a child is exhibiting disruptive behaviors that a parent finds distressing, the parent is likely to experience great frustration. If the parent is not able to tolerate this increased level of frustration, he or she may become aggressive toward the

child as a means to stop the behavior and thereby relieve the parent's own frustration. The inability to tolerate frustration can interfere with the parent's perceptions of a parent-child interaction, and could thus be considered a Stage 1 process of the SIP model ([Milner, 1993] and [Milner, 2000]).

Locus of control

A parent's attributions regarding their parent-child interactions are considered components of the second stage in the SIP model ([Milner, 1993] and [Milner, 2000]). Such attributions are part of the evaluations parents make about their children in this phase of processing perceptions from a situation. Attributions have previously been identified as a risk factor for abuse (Milner & Dopke, 1997). Parents may view their child's behavior as problematic and misattribute the child's misbehaviors (Wolfe, 1999).

Attributions can be described with three dimensions: locus of control (external or internal), stability (stable or unstable), and controllability (controllable or uncontrollable) (Wiener, 1985). Parents who sense they are in control of the child and the situation may view the child's behaviors to be uncontrollable by the child. These parents tend to be more sympathetic and understanding of the child, and view this as an internally controlled problem, characteristic of those with an internally based locus of control. In contrast, parents who believe the child to be in control may view the child's behavior as willfully controlled by the child and consequently become angry with the child, indicative of an external locus of control (Wiener, 1985). These parents may be more likely to use extreme disciplinary measures or even physical abuse as a means to control the child. Indeed, abusive mothers were more apt to adopt an external locus of control than nonabusive mothers (Wiehe, 1986).

For example, when parent attributions for children with behavioral disorders such as Attention Deficit Hyperactivity Disorder (ADHD) were examined, parents respond more negatively to their children when they hold misattributions about the child's behavior, and these parents tended to view themselves as less responsible (external locus of control) for the child's behavior (Johnston & Freeman, 1997). If the child was taking medication for the disruptive behavior, parents were then more likely to see the behavior as uncontrollable by the child and were more accepting of the child (Johnston & Freeman, 1997). Thus, the role of such attributions, particularly locus of control, appears to be an important risk factor in parent-child aggression.

Child developmental expectations

An equally important cognitive risk factor, and one commonly addressed in prevention programs, is related to misconceptions in parental expectations about children. In the SIP model, inappropriate expectations for children are also considered part of the interpretation phase of the second stage ([Milner, 1993] and [Milner, 2000]). Child developmental expectations held by a parent can impact how a parent interprets a child's behavior. Parents who physically abuse their children tend to have unrealistic expectations about their child's performance and ability level (Azar & Pearlmutter, 1993; Milner & Dopke, 1997; Peterson, Gable, Doyle, & Ewigman, 1997). Parents' developmental expectations are also important in their ultimate selection, implementation, and monitoring of their behavior toward their child (Chilamkurti & Milner, 1993).

Abusive parents can have both high and low child developmental expectations and both are inappropriate for the child and situation (Milner, 1993). If a parent expects a toddler to speak coherently, they may believe the child is being deliberately difficult and disobedient (Peterson et al., 1997). This lack of knowledge has an impact on how the parent chooses to implement effective child behavior management techniques (Rickard, Graziano, & Forehand, 1984). Thus, the child is considered to be at fault and the risk of aggression toward the child increases.

One study that included parental expectations of child development concluded that physical abuse was linked to a parents' assessment that their child had an externalizing behavior problem (Williamson, Borduin, & Howe, 1991). These findings support previous research that a parent who holds unrealistic child developmental expectations is likely to think the child is responsible for negative behavior and, therefore, deserves to be punished (Daggett, O'Brien, Zanolli, & Peyton, 2000). Such inappropriate developmental expectations represent a cognitive risk factor for high-risk parents.

Empathy

Empathy reflects the parent's ability to relate to the child when seeing a situation from the child's point of view. Perspective-taking is the cognitive component of empathy ([Davis, 1983a] and [Davis, 1983b]), the extent to which one is able to adopt the psychological point of view of others. In contrast, empathic concern, the affective component of empathy, involves the other-oriented emotions of sympathy and concern for others ([Davis, 1983a] and [Davis, 1983b]). Within the SIP model, perspective taking ability could be conceptualized as a Stage 3 process that affects the parent's ability to integrate information about the situation which could mitigate a child's perceived responsibility in a transgression (Milner, 2000).

An abusive or at-risk parent may be unable to place him or herself in the child's position and imagine the world from the child's perspective. Thus, because they are not able to empathize with the child, such parents would have a greater risk of using physical aggression toward children, particularly in a discipline situation. Lack of parental empathy is considered a possible risk factor in child physical abuse because general models of aggression have proposed that low empathy increases the likelihood of aggressive behavior (Milner, Halsey, & Fultz, 1995; Richardson, Hammock, Smith, Gardner, & Signo, 1994). The ability of mothers to take the perspective of their children has also been linked to higher levels of responsiveness to their children, wherein mothers who have difficulty taking the perspective of their child are more likely to experience greater emotional distress than more empathic mothers (Gondoli & Silverberg, 1997). Given its connection to the third stage of the Social Information Processing model, empathic perspective-taking was expected to be an important contributor to abuse risk.

At-risk populations

Although many factors play a role in increasing the risk of physical abuse of children, certain individuals have received greater attention in maltreatment research. For example, mothers are most commonly targeted due to the likelihood that they are the primary caretaker and primary disciplinarian, and in these roles, spend more time than fathers with their children (Belsky, 1993). Moreover, some children are at risk because of the unique demands required in parenting certain children.

Among those children identified as being at risk of maltreatment are those who exhibit externalizing behavior difficulties. Examples of diagnoses for external behavior difficulties are attention-deficit disorder (ADD), attention-deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (American Psychiatric Association [APA], 2000). Children with behavior problems may increase the frustration in the family because they are noticed, heard, and often difficult to ignore, resulting in more frequent discipline encounters and greater abuse risk (Wolfe, 1999). Indeed, given the research described above that suggests at-risk parents are prone to consider their children's behavior as notably problematic ([Daggett et al., 2000] and [Williamson et al., 1991]) and to externalize control (Johnston & Freeman, 1997), parents of children with disruptive behavior disorders may be particularly likely to display cognitive risk factors congruent with the SIP model. Children with behavioral difficulties who are receiving therapeutic services may have a greater risk of being physically abused than other children because they have already been identified (by parents and teachers) as difficult and problematic. Furthermore, the demands of having a child in therapy may increase the frustration a parent experiences towards the child, which would tax the parent's frustration tolerance. Therefore, by investigating these cognitive factors in mothers raising children with behavior problems, family interventions could incorporate the salient factors that would decrease parents' risk to physically abuse children during discipline situations.

Purpose of the study

Previous research has concentrated on individual components reflective of processes within the SIP model. Nonetheless, an empirical evaluation of combined elements of the broad SIP model across stages, particularly with potential at-risk groups, has not yet been conducted. Thus, the proposed research study explored cognitive risk factors associated with child physical abuse risk and discipline style in a high-risk group. The intent of this study was to examine several cognitive risk factors consistent with the SIP model, highlighting elements from the first three stages, included within one study with a potentially at-risk population, namely mothers raising a

child with a behavior disorder. It was hypothesized that mothers of children with externalizing behavior problems who demonstrate greater abuse risk would (1) hold unrealistic expectations of their children, (2) demonstrate a more externalizing parenting locus of control, (3) be expected to experience difficulty empathizing or taking the perspective of their child, and (4) demonstrate low frustration tolerance. Collectively, parents at risk on each cognitive risk factor were expected to account for unique variance in parents' increased child abuse potential, reported physical disciplinary actions, as well as maladaptive disciplinary style.

Method
Participants
Inclusion criteria were (a) maternal caregivers of a child between the ages of 5–12; (b) the child had received no more than five therapy sessions for behavior problems; (c) Externalizing Score or Total Problems Score on the CBCL was ≥60; and (d) disruptive behavior disorder diagnosis was confirmed by the child's therapist. Foster parents and new caregivers (less than 6 months) were excluded from the study. Approval was obtained by the University of Utah Institutional Review Board to conduct this study, and informed consent was acquired from participants.

Seventy-three maternal caregivers participated in this study, with 67.1% identifying themselves as the biological mother, 23.3% as an Other Relative (e.g., aunt, grandmother), 8.2% as an adoptive parent, and 1.4% as a stepmother. For purposes of description, all participants will be referred to as "mothers" regardless of the relationship with the identified child. Most caregivers reported living with a spouse/partner, with 28.8% indicating they were single parents.

Mothers' ages ranged from 21 to 73 years, with a mean of 40.51 and a median of 38 years ($SD = 10.53$). The mean number of children in the home was three ($SD = 1.50$), with 15% of the sample having only one child in the home, 22% had two, 27% had three, and 36% had four or more children in the home. The range of ages for the identified child with problem behavior was 5–12 years, with a mean age of 9.67 years ($SD = 1.72$), with 53 boys (72.6%) and 20 girls.

Of the 73 mothers, 82.2% identified as Caucasian, 12.3% as Hispanic, 2.7% as American Indian/Alaskan Native, 1.4% as Black/African American, and 1.4% as Asian. Estimated annual family income averaged $41,016 ($SD = $33,058$, median = $35,000). The majority (82.2%) of the mothers finished high school, with 43.8% reporting vocational training beyond high school, 11.0% attaining a college degree, and 5.5% obtaining some graduate education, with the remaining 23.3% reporting no education beyond high school.

Mothers were asked to indicate the numbers and types of medications prescribed to the identified problem child. Over 45% of children were taking pharmacological medications, with the most frequently prescribed being Adderall, Ritalin, Concerta, Metadate, and Dexadrin, and several children taking two or more such medications.

Procedures
Participants for this study were recruited from several community mental health agencies and one school district located in a moderately large city in a Southwestern state (between Spring 2003 and Spring 2004). Participants were identified and recruited with the help of staff, the child's therapist, flyers, and newspaper ads. Interested participants returned signed consent forms to their therapist or directly to the laboratory. As part of the screening process, the identified child's therapist completed a form verifying a disruptive behavior disorder diagnosis (from a list derived of DSM-IV diagnoses; APA, 2000) as part of his or her treatment. Mothers provided permission for researchers to contact the child's therapist to verify the diagnoses. The checklist also asked the therapist to indicate if the child had been a victim of physical or sexual abuse and neglect.

After the child's externalizing diagnosis was confirmed by the therapist, a 2-hour session was scheduled in the family's home at a time of their convenience. All mothers completed the protocol entering their responses on a preprogrammed laptop computer, with no identifying information to enable information to be stored anonymously. Such procedures are designed to increase candid responding as well as automatically score and

record responses into a database. Each mother was compensated $20.00 for participation in the study. A *T*-score of 60 or more on either the child's Total Problem scale or Externalizing scales on the Child Behavior Checklist (CBCL) was required to meet criteria for study inclusion. This criterion was chosen because these scores are considered clinically significant despite being below the CBCL cut-off of 65 as children in the 60–65 *T*-score range benefit from intervention (Achenbach & Rescorla, 2001). Given that the CBCL was completed at the same time as the other measures, participants were excluded from the study after completion of the measures. Five participants were excluded from the study for this reason.

Measures
Measure of externalizing behavior problems
Child Behavior Checklist/6-18 (CBCL; Achenbach & Rescorla, 2001)
The CBCL is a widely used 113-item checklist in which parents indicate on a 3-point Likert scale which problem areas their child displays. The CBCL was completed by the mothers to provide confirmation, independent of the therapist's assessment, of whether the child indeed demonstrated clinically significant behavior problems. The CBCL provides a Problem Total score (comprised of eight subscales) as well as Internalizing and Externalizing Scales, all three of which are converted to *T*-scores to account for age and gender differences. The CBCL provides information about the child's interests and behaviors and is a description of the child, and thus will be considered in the analyses at the demographic level.

Intraclass coefficients for the CBCL are high (.90), with retest stability coefficients at .95 for 1 week and .74 for 1 year (Achenbach & Rescorla, 2001). With regard to validity, CBCL Problem Total *T*-scores have correlated with other measures of child problem behavior (Achenbach & Rescorla, 2001).

Abuse risk measures
Child Abuse Potential Inventory (CAPI; Milner, 1986)
The CAPI evaluates risk of physical child abuse, with 160 statements on which respondents indicate agreement or disagreement. Of these items, 77 comprise the Abuse Scale which contains six factors, with the overall Abuse Scale the score of most interest in this study. Three validity scales measure distortion biases: Faking-Good, Faking-Bad, and Random Response. Faking-Good profiles suggest a respondent is attempting to present themselves in a socially desirable manner, which is problematic if their Abuse Scale scores fall below the recommended cut-off score of 166. Faking-Bad profiles occur when one is presenting themselves negatively. The Random Response Index detects inconsistent or random responding. None of the participants in this study evidenced Faking-Bad or Random Response profiles. Although some participants were found to be Faking-Good in this sample, all of those obtained scores were above the cut-off score of 166, and thus their scores were retained as conservative estimates of their abuse potential.

The internal consistency of the CAPI is high, with a Kuder-Richardson reliability coefficient of .92 (Milner, 1986). The CAPI has been utilized to screen abusive parents, correctly classifying 89.2% of confirmed child abusers and 96.3% of controls (Milner, 1994). Milner (1986) reported test-retest reliabilities of .91 after 1 day, .90 after 1 week, .83 after 1 month, and .75 after 3 months.

Parenting Scale (PS; Arnold, O'Leary, Wolff, & Acker, 1993)
The PS was developed to identify dysfunctional disciplinary styles and has been used previously with samples of parents of children with behavior problems (Arnold et al., 1993). The instrument contains 30 items of parent-child conflict situations and asks respondents to indicate their typical reaction along a 7-point scale, with two opposing reactions situated at the scale endpoints. The PS includes three disciplinary styles, including Overreactivity, Laxness, and Verbosity, which contribute to a Total score that reflects overall maladaptive parenting style. The PS Total score will be utilized in this study, which demonstrates test-retest reliability (.84) and internal consistency (.84). Further, validity is supported by scores' correlations to independently observed parent behavior (Arnold et al., 1993).

Parent-Child Conflict Tactics Scale (CTSPC; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998)

The CTSPC was developed to measure specific acts related to physical and psychological aggression toward children. Parents estimate the frequency with which they have engaged in 36 behaviors in the past year, with subscales of Nonviolent Discipline, Psychological Aggression, Physical Assault, and Neglect. For the purposes of this study, the 13-item Physical Assault subscale was utilized in the analyses. Although internal consistency for the Physical Assault subscale is moderately low at .55, such results likely reflect the diverse behaviors included in Physical Assault, with many very low frequency items (Straus et al., 1998). The authors provide supportive evidence of construct and discriminant validity, and some indication of modest correlations among subscales (Straus et al., 1998).

Predictor variables
Interpersonal Reactivity Index (IRI; [Davis, 1983a] and [Davis, 1983b])

The IRI is a 28-item multi-dimensional assessment of empathy, with Perspective Taking (the ability to assume the psychological perspective of others) the scale of interest for the current study. Respondents indicate the extent to which items are descriptive of their behavior on a 5-point Likert scale. Moderately high internal consistency (.71–.77) and test-retest reliability (.62–.71) is reported (Davis, 1983b). Higher scores are indicative of greater empathy and perspective-taking ability.

Parental Opinion Questionnaire (POQ; Azar, Robinson, Hekimian, & Twentyman, 1984)

The POQ is an 80-item questionnaire asking respondents questions pertaining to expectations of normal child behaviors. Parents indicate if they agree or disagree with each item, with responses across items summed for a Total Score. Higher scores on the POQ indicate poor knowledge of developmental milestones and inappropriate expectations of child behavior. The POQ has previously been applied in maltreatment research and has an internal consistency for the six subscales ranging from .65 to .87 and test-retest reliability of .85 over 3 months (Azar & Rohrbeck, 1986).

Parental Locus of Control (PLOC; Campis, Lyman, & Prentice-Dunn, 1986)

The PLOC assess parents' locus of control beliefs, with 47 items in which respondents rate on a 5-point Likert scale their perspective of child rearing successes and failures as well as feelings of responsibility, efficacy, and sense of control in relation to their child's behavior. Containing five factors, the Total score was utilized in this study, with higher scores indicating greater external locus of control in parent-child situations. Internal consistency of the Total score is high (.92) (Campis et al., 1986), with good retest stability (Roberts, Joe, & Rowe-Hallbert, 1992).

Frustration Tolerance Maze simulation

A computer simulation task to assess frustration tolerance was created specifically for use in this study. The task was a two-dimensional unsolvable maze. The maze instructions asked the parent to imagine she is in a grocery store and must find her way out of the store because her child has begun throwing a tantrum. A voice-over of a crying child began at the start of the task and remained for the duration of the 5-minute time period. Although the parent progressed step by step through the maze, no escape was possible. The task had a prominent "quit maze" button, and parents are asked to continue searching for an exit until they find one or until they decide to quit. Frustration Tolerance was measured by the time each parent took to quit the task.

Data analysis

Using SPSS for Windows, descriptive statistics were first conducted to identify outliers, compare scores against normative information, and determine whether any demographic controls would be required in subsequent analyses. Following preliminary correlational analyses among the outcome measures, hierarchical multiple regression analyses were employed to determine if the predictor variables accounted for risk of abuse reported on the CAPI Abuse Scale, Parenting Scale, and the CTSPC Physical Assault subscale scores. The independent variables were entered in blocks, beginning with potential control variables (e.g., demographics and CBCL Total scores) followed by predictor variables in blocks corresponding to the SIP model. Frustration tolerance, as

a Stage 1 process, was entered first, followed by locus of control and developmental expectations as Stage 2 processes, ending with empathic perspective-taking, a Stage 3 process.

Results

With the exception of the Frustration Tolerance Maze, the other measures have all been utilized in previous research, and descriptive statistics are summarized in Table 1. Relative to previous reported means on the measures, the CBCL exhibited higher means on the subscales and Total scales than the normative data, which has a mean T-score of 50 (Achenbach & Rescorla, 2001), consistent with the clinical nature of the sample. Both Internalizing and Externalizing CBCL mean scores were elevated. The CAPI Abuse Scale scores obtained in the current sample were also significantly higher ($p < .001$), than the reported non-clinical normative mean of 91.0 (Milner, 1986).

Table 1. *Means, standard deviations, and correlations of predictor and dependent variables with the Child Behavior Checklist*

	M	*SD*	CBCL Total	CBCL External	CBCL Internal
IRI-PT	25.01	4.89	−.20	−.18	−.16
POQ Total Score	5.59	3.75	.14	.12	.16
LOC Total Score	119.90	16.30	.45[**]	.37[**]	.44[**]
Frustration (seconds)	222.50	92.07	−.28[*]	−.26[*]	−.27[*]
CAPI Abuse	152.84	101.68	.31[**]	.22[a]	.42[**]
CTSPC-PA	10.56	16.28	.18	.21[a]	.17
Parenting Scale Total	3.18	.78	.32[**]	.26[*]	−.30[*]
Child Behavior Checklist					
Problem Total	70.18	7.14			
Externalizing Total	65.41	9.10			
Internalizing Total	70.12	7.00			

Note. IRI-PT: Interpersonal Reactivity Index-Perspective-Taking subscale; POQ: Parental Opinion Questionnaire; LOC: Parental Locus of Control; Frustration: Frustration Tolerance Maze; CAPI: Child Abuse Potential Inventory; CTSPC-PA: Parent-Child Conflict Tactics Scale-Physical Assault subscale.
[*] *p < .05.*
[**] *p < .01.*
[a] *p ≤ .08.*

Diagnoses were aggregated across the sample, with 50% or fewer of the children having a single diagnosis. The primary reported diagnoses were Attention Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, followed by Conduct Disorder. In conjunction with a diagnosis of an externalizing disorder, therapists indicated approximately 18 children had been victims of physical or sexual abuse or neglect.

Preliminary analyses of background characteristics

To evaluate whether the predictor and outcome measures differed with respect to demographic variables to determine the need for statistical controls, a series of t-tests were performed. The results indicate single mothers obtained higher mean CAPI Abuse Scale scores ($M = 198.05$, $SD = 93.43$) than those with a partner ($M = 134.58$, $SD = 99.96$). No significant findings were apparent between educational level (high school graduate) and any of the predictor and outcome measures. Parents of those children taking pharmacological medications obtained marginally higher scores on the locus of control measure ($M = 123.85$, $SD = 15.94$) than those not taking medications ($M = 116.85$, $SD = 16.05$). For continuous demographic variables, correlations were computed to compare the relationships between the demographic characteristics and the predictor and dependent (abuse risk) variables. There was a negative correlation between mother's age and the CAPI ($r = -.31$, $p < .01$), and estimated income was negatively correlated with the CAPI ($r = -.34$, $p < .01$). Age of mother was negatively correlated with the Parenting Scale ($r = -.30$, $p < .01$).

Preliminary correlational analyses

To ascertain whether severity of behavior problems was associated with the predictor and outcome (abuse risk) measures, the CBCL was correlated with these variables (Table 1). Positive correlations between the CBCL Internalizing scale and Parental Locus of Control, Parenting Scale, and CAPI scales, as well as the negative correlation with the Frustration Tolerance task, indicated that when the child exhibits more internalizing behavior, the mother is more likely to report feeling more out of control, less tolerant, and more likely to use inappropriate discipline and demonstrate increased abuse potential. Similar correlations were found between the CBCL Externalizing scale and Parental Locus of Control, Frustration Tolerance Maze, and the Parenting Scale Total, indicating that mothers are more likely to report feeling increasingly out of control, less tolerant, and have a greater risk of utilizing dysfunctional discipline practices when the child is perceived to display more externalizing symptoms. Significant correlations existed between the CBCL Total score and Parental Locus of Control, Frustration Tolerance, CAPI Abuse Scale and the Parenting Scale Total scores, suggesting that mothers of children who report global behavioral problems feel more out of control, have less tolerance for their child's behaviors, and use more dysfunctional discipline styles and report greater abuse risk.

Correlations were conducted among the predictor measures to understand the relationship between each cognitive risk factor (Table 2). Notably, the IRI Perspective-Taking subscale was positively correlated with Frustration Tolerance suggesting that as a mother's ability to tolerate frustration increases, so does her ability to view events from another's perspective. The Parental Opinion Questionnaire was negatively correlated with frustration tolerance and positively correlated with locus of control. These latter findings indicate more appropriate developmental expectations are associated with increased frustration tolerance. Poorer understanding of developmental expectations was associated with exhibiting an external locus of control regarding a child's behavior.

Table 2. *Correlations among predictor and dependent variables*

Variable	1	2	3	4	5	6
1. IRI-PT						
2. POQ	−.16					
3. LOC	−.28*	.39**				
4. Frustration	.37**	−.25*	−.19			
5. CAPI	−.48**	.46**	.41**	−.48**		
6. PS	−.47**	.22	.59**	−.38**	.61**	

Variable	1	2	3	4	5	6
7. CTSPC-PA	$-.26^{*}$	$.23^{*}$	$-.28^{*}$	$-.31^{**}$	$.34^{**}$	$.37^{**}$

Note. IRI-PT: Interpersonal Reactivity Index-Perspective-Taking subscale; POQ: Parental Opinion Questionnaire; LOC: Parental Locus of Control; Frustration: Frustration Tolerance Maze; CAPI: Child Abuse Potential Inventory; PS: Parenting Scale; CTSPC-PA: Parent-Child Conflict Tactics Scale-Physical Assault subscale.
* $p < .05.$
** $p < .01.$

Regression analyses

Hierarchical multiple regression was first conducted with CAPI Abuse Scale Scores. After the first attempt in predicting CAPI Abuse Scale scores, with the background variables of demographics and the CBCL entered, the initial equation was $R^2 = .64$, $F(8, 65) = 12.68$, $p < .001$. However, only income and age of the control variables reliably improved prediction of CAPI Abuse Scale scores. The most parsimonious regression equation (Table 3 for final regression results) predicting the CAPI Abuse Scale scores included the hypothesized cognitive variables, with a final $R^2 = .64$, $F(6, 65) = 17.14$, $p < .001$.

Table 3. *Final multiple regression results for the CAPI Abuse Scale and Parenting Scale Total scores[a]*

CAPI Abuse Scale	Beta	sr^2	R^2
Block 1			.21
Age	$-.27$	$.11^{***}$	
Estimated income	$-.26$	$.10^{**}$	
Block 2			.19
Frustration	$-.20$	$.19^{*}$	
Block 3			.17
POQ	$.29$	$.13^{**}$	
LOC	$.17$	$.04^{*}$	
Block 4			.06
IRI-PT	$-.28$	$.06^{**}$	
		$R^2 = .635^{***}$	
		Adjusted $R^2 = .60$	
		$R = .80$	

Parenting Scale Total	Beta	sr^2 and R^2	
Block 1			

CAPI Abuse Scale	Beta	sr^2	R^2
Age	−.26	.09**	
Block 2			
Frustration	−.18	.14*	
Block 3			
LOC	.48	.27***	
Block 4			
IRI-PT	−.25	.05**	
		$R^2 = .55$***	
		Adjusted $R^2 = .52$	
		$R = .74$	

*$p \leq .05.$
**$p \leq .01.$
***$p \leq .001.$
a Standardized regression coefficients (Beta weights), semipartial correlation coefficients or incremental r^2 (sr^2), R-squared change(R^2), multiple correlations coefficient (R), squared multiple correlation coefficient (R^2), and adjusted multiple correlation (adjusted R^2).

To predict Parenting Scale Total scores of dysfunctional discipline style, with the demographic variable and CBCL scores added first into the regression equation, followed by the Stage 1, 2, and 3 markers, $R^2 = .60$, $F(9, 65) = 9.27$, $p < .001$. In the background variables step, only age was retained as a significant contributor of unique variance, accompanied by the predictors of Frustration Tolerance, Parental Locus of Control, and IRI Perspective Taking (not POQ developmental expectations). The best model contributing to the prediction of dysfunctional parenting style (Table 3) yielded a regression equation of $R^2 = .55$, $F(4, 71) = 20.39$, $p < .001$.

Finally, to predict CTSPC Physical Assault subscale scores with the CBCL, demographics variables, and the predictors added into the equation, none of the variables significantly predicted unique variance of CTSPC scores, $R^2 = .21$, $F(9, 64) = 1.66$, $p > .05$. Therefore, no further steps were taken to predict the CTSPC Physical Assault subscale scores.

Discussion
Previous research has concluded that several cognitive risk factors impact physical abuse potential, many of which are consistent with the Social Information Processing (SIP) model ([Milner, 1993] and [Milner, 2000]), in which a parent proceeds through a series of stages before implementing abusive discipline. The current study clarified the relationship between relevant cognitive risk factors (empathic perspective taking, frustration tolerance, developmental expectations, and locus of control) and child abuse potential and physical discipline in mothers of children with behavior problems. Findings of the present study support the SIP model, suggesting that frustration tolerance (indicative of Stage 1 processing), developmental expectations and locus of control (as markers of Stage 2 processes), and empathic perspective-taking (consistent with Stage 3 processing) significantly contribute to variance in child abuse potential. Similar results were obtained for predicting

dysfunctional disciplinary style, with the exception that developmental expectations did not contribute significant unique variance.

Specifically, with respect to the expected contribution of frustration tolerance, the results parallel earlier work (see Milner & Dopke, 1997), as well as the long-standing frustration-aggression connection (Dollard et al., 1939). Findings confirm the study's hypothesis that frustration tolerance, a variable reflective of SIP Stage 1 processing, significantly predicts child physical abuse potential and discipline style. Given that Stage 1 processes can interfere with a parent's perceptions of a child's behaviors, tolerance of problem behaviors appears to relate to the parent's use of maladaptive discipline and increased risk of child physical abuse.

The SIP Stage 2 variables of locus of control and developmental expectations yielded mixed results. Unrealistic developmental expectations significantly predicted child abuse potential but not maladaptive disciplinary style. Thus, the findings of the study, similar to those in earlier research (e.g., Azar & Pearlmutter, 1993; Peterson et al., 1997), partially supported the hypothesis that a parent's knowledge of child development is significantly associated with increased abuse risk. In contrast, locus of control significantly predicted both discipline style and child abuse potential, although more powerfully for parenting style scores (the unique contribution of locus of control for child abuse potential scores was significant at $p < .05$). Earlier studies have suggested that externalizing locus of control may increase abuse potential (Wiehe, 1986). Together, these results indicate that inappropriate expectations may be more critical to increasing abuse potential whereas locus of control may be more relevant to disciplinary style, although continued work examining both predictors in order to clarify these potential distinctions is needed.

Both child abuse potential and dysfunctional disciplinary style scores were significantly predicted by mothers' perspective taking ability, a hypothesized SIP Stage 3 variable. This finding is consistent with prior research (e.g., Milner & Dopke, 1997; Richardson et al., 1994) that has proposed that low empathy increases physically aggressive behavior. Such difficulties with assuming a child's perspective theoretically interfere with a parent's processing potentially mitigating information in a particular discipline situation, thus increasing child abuse risk. Thus, findings in this study affirm the important role of empathy in augmenting abuse risk.

Not surprisingly, age of the mother was a significant predictor of child physical abuse risk and maladaptive discipline beliefs and practices, which corroborates earlier findings suggesting that younger parents are more at risk to abuse (Milner, 1986; Milner & Dopke, 1997). Other background characteristics, such as estimated income, also evidenced some ability to predict abuse potential.

Unexpectedly, none of the identified cognitive risk factors predicted a mother's report of physically aggressive behavior toward her child on the CTSPC. One explanation for this finding may be that parents are reluctant to endorse obvious items suggesting that they implement harsh, and potentially injurious, discipline. Indeed, mothers in the present sample reported that such behavior was particularly infrequent.

Research has shown that mothers who report their children to have CBCL Internalizing, Externalizing, or Total T-Scores at or above 60, could benefit from clinical intervention because these scores are classified as deviant from the normative data (Achenbach & Rescorla, 2001). As expected, given that this study recruited a clinical sample, significant correlations existed between the predictor and outcome variables and the Child Behavior Checklist (CBCL) Internal, External, and Total Scale T-scores. The present findings suggest that mothers who report their children to be internalizers (i.e., high Internal Scale T-scores) or externalizers (i.e., high External Scale T-scores) feel less in control and experience higher levels of frustration, thus increasing the risk of abuse and the use of inappropriate discipline. The CBCL scores had not been expected to predict abuse potential or discipline style given the truncated range of scores created by using a T-score of 60 as inclusion criteria (thereby reducing overall variability). Nonetheless, the CBCL scores were significantly correlated with dysfunctional disciplinary scores and largely with child abuse potential scores as well. Such findings support the study rationale of the children being an at-risk group for child physical abuse due to therapist and parental report of externalizing and/or problem behaviors.

Limitations and future directions

Several limitations are recognized in this study. First, although the results indicated that several of the cognitive risk factors were predictive of abuse risk, the pattern of associations would be clearer with a larger number of participants. Secondly, sample characteristics were limited to mothers as well as participants who were recruited from a large city in a Southwestern state with over 80% of the sample identifying as Caucasian. Likewise, mothers included in this study were those who were willing to volunteer for a study and those who sought assistance for their children's disruptive behavior at a mental health agency or school. Thus, future research should include a more ethnically diverse sample, possibly inclusive of parents who are not seeking services for their children, as well as involving fathers.

A third limitation was the unanticipated finding that mothers of children with internalizing problems on the CBCL also have a high abuse potential, suggesting these mothers report problems in all areas (i.e., "halo" effect, whereby parents over-identify problems) or that this sample suffers from both internalizing and externalizing behavior difficulties. Indeed, the possibility that the children also reportedly have internalizing difficulties may reflect, in part, perceptual problems in the cognitive schemas present in the parents.

Fourth, with respect to sources of data, reliance upon the child's therapist for an initial accurate diagnostic picture created unexpected difficulties. During recruitment, researchers learned that staff at one participating agency consistently applied the same diagnostic labels across all clients (i.e., being reluctant to give a disruptive behavior disorder diagnosis), suggesting that diagnostic reliability was not ideal and that some eligible parents may not have been recruited for the study. Future studies relying on therapist diagnosis would benefit from the use of stricter screening procedures in an attempt to reduce the overlap of internalizing and externalizing behavior diagnoses and to increase reliability of the child's diagnosis. The final limitation of the study involves the reliance on mothers' self-reports, given that parents may misrepresent themselves, despite efforts to ensure anonymity in responding to increase candor. For instance, this type of social desirability responding may have accounted for mothers not endorsing many of the physical assault items on the CTSPC. Future investigations with multiple informant sources would clarify the results obtained in this study.

Future research in this area should also consider asking background questions regarding the parents' history of a psychiatric diagnosis and/or history of using therapeutic services for parenting issues. As evidenced from this study, parents' cognitions have an impact on their behavior toward their children. Learning more about the parental psychological state could further enhance understanding of risk factors and physical abuse potential.

Summary and conclusions

Children referred to psychotherapy have typically been labeled as "troublesome" or "difficult" by parents or school officials. Harsh and maladaptive discipline styles may be construed as necessary due to the severity of the child's behavior. Cognitive processes in mothers appear to impact the course of discipline in homes where a parent is raising an at-risk child, namely, a child labeled as displaying problematic, externalizing behaviors. Continued research on such cognitive risk factors would enable abuse prevention programs to be tailored to the underlying cognitive processes leading to discipline decisions and abuse potential. Prevention programs often do not focus on the particular cognitive factors in caregivers, instead electing to pursue more global approaches addressing parents' nurturing and caregiving techniques in general (Dorman, Moore, & Schaerfl, 1999). Interventions need to target more than one risk factor (i.e., developmental expectations) to be effective. High abuse risk and poor discipline style appear to result from several contributing cognitive risk factors, with the present results pointing to the need to include strategies to improve frustration tolerance and empathy and assist parents in restructuring their sense of parental control. As the links between cognitive mechanisms and child physical abuse become clearer and more concrete, programs can target each risk factor.

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