Child Maltreatment and Childhood Injury Research: A Cognitive Behavioral Approach

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Objective Both child maltreatment and childhood injuries affect large numbers of children each year. In a seminal paper, Peterson and Brow (1994) drew parallels in the antecedents of both forms of harm and suggested a more unified approach in research efforts and intervention development. This article provides a unified cognitive model that would both guide research and inform interventions directed at parents. Methods This article overviews information-processing elements that may explain parental oversights that would increase risk to children, including maladaptive parental schema, executive functioning problems, and maladaptive appraisals. Contextual variables that may negatively impact on information processing are also included. Results Studies supporting the validity of the model are presented, and implications for interventions are drawn. Data supporting the effectiveness of cognitive enhancements to current interventions are given. Conclusions The promise of such a unified model is discussed, and obstacles to its dissemination are presented.

Key words child abuse; childhood injury; parenting; cognitive behavioral interventions.

Despite society’s deep concern for children, they still suffer many forms of harm to their health and well-being (e.g., poverty and poor nutrition). Although macro-level efforts (e.g., welfare systems, statutes to decrease safety hazards, and abuse reporting) can ameliorate their plight, behavioral science efforts that target their main caregivers—parents—are important as well (Liller & Sleet, 2004; Tremblay & Peterson, 1999). This article focuses on two areas where this has occurred: child maltreatment and unintentional childhood injuries. The first, child maltreatment, affects over 1 million children each year, with approximately 2,000 child deaths (Administration for Children Youth and Families, 2001), and parental behavior is the main target of intervention (Azar & Wolfe, 1998). Although unintentional injuries (e.g., drowning in bathtubs and poisoning) affect a much larger number of children (8 million each year with over 10,000 deaths; National Center for Injury Prevention, 2001), parental behavior is less often targeted (Tremblay & Peterson, 1999). Until recently, efforts were directed more often at improving environmental safety (e.g., playground equipment, bike helmets, and car seats), with parents merely being encouraged to use these passive environment interventions (e.g., through pamphlets, media campaigns, and subsidies for purchasing). Lizette Peterson, in whose honor this special issue was published, was an important figure in changing views that more active parent intervention could do little. She alerted us to the idea that such injuries are not always random events and are often preventable with some “foresight” by caregivers and that the application of behavioral science in intervention efforts would be fruitful (Liller & Sleet, 2004; Sleet, Liller, White, & Hopkins, 2004). She considered unintentional child injury as being on a continuum with child abuse and neglect in origin and delineated common antecedents to the parental oversights that may lead to both

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1Lizette Peterson’s death in July 2002 is a major loss to the field. The work she did on behalf of children was momentous. The first author’s professional contacts with her were always inspiring, and she was a major personal and professional support in the beginning stages of the first author’s career. She is greatly missed.
forms of harm (Peterson & Brown, 1994). Although not wanting to minimize important differences in the two, she argued for the advantages of having a more unified approach in research efforts and intervention development.

Accepting the challenge posed by Peterson, this article outlines a theory attempting to explain “parental foresight,” evidence supporting it, and its implications for intervention in both child maltreatment and childhood injury. This model utilizes constructs from human information-processing theory to explain errors in parental judgment that increase child risk. It also includes contextual variables that have been shown to disrupt human judgment further, increasing such errors. Drawing parallels between both forms of harm to children and combining them in research and preventive efforts has advantages for both fields but also is fraught with danger (e.g., a perception of blaming parents). The approach taken in this article, however, we believe, highlights how complex a task preventing harm is for parents and the need for greater societal efforts to provide parents with supports to keep the tasks within adults’ developmental “reach.”

Peterson’s Legacy: Identification of Common Antecedents in Harm to Children

Effective intervention rests on identification of antecedents to behavior(s) in question and well-validated theory. In a seminal article, Peterson and Brown (1994) delineated common categories of factors playing a role in both child maltreatment and unintentional injuries: sociocultural variables (e.g., poverty, crowding, stress, and social isolation), caregiver variables (e.g., mental illness, substance abuse, unrealistic expectations, supervisory patterns, and ineffective discipline), and child variables (e.g., age, being distractible, high in activity level, non-compliant, and impulsive). This framework laid a foundation for linking both forms of harm to children.

Similarly, maltreatment theorists, rather than seeing child abuse and neglect as divorced from other problems of parenting, argued for a continuum of parenting that included, at one end, responses or omissions of care that lead to harm (e.g., abuse and neglect) and, at the other, responses facilitating development (Azar, 1986; Azar, Barnes, & Twentyman, 1988; Azar & Wolfe, 1998). In an attempt to posit such a continuum view, Azar (1989a, 1997, 2002a) described social cognitive and behavioral parental skill deficits that underlie inadequate parenting (Table I) and that interact with contextual resources or deficiencies to produce varying levels of maladaptive responses and environmental risk to children. Pathways among these factors were also posited. Such a unified approach, as Peterson argued, provides targets for more comprehensive preventive efforts that explain failures in parental “foresight” that might lead to both maltreatment and childhood injury.

A Cognitive Behavioral Model

This cognitive behavioral (CBT) model encompasses most of the antecedent factors that Peterson and Brown (1994) outlined, but it prioritizes some as having the most promise for developing parent-based interventions. Building on the “parent factors” part of their framework, it articulates how an expanded set of cognitive factors coupled with contextual ones work in concert with behavioral skill deficits to produce risk to children. To date, intervention in childhood injury has been injury specific and not focused on processes that underlie all parental risk-reduction behavior. This model attempts to do this. It focuses on the way parents identify and generate responses to risk. Intervention directed at these “front end” processes would have the most focused impact.

The cognitive factors posited are part of a broader array of interpersonal capacities crucial not only to parenting but also to operating successfully in all relationships (Azar, 1989a, 2002a) (Table I). The parent function, as Palkovitz (1996) has said, is not simply “on” or “off” but rather is part of the flow of all tasks in adult life. The same processes needed in the workplace (e.g., social skills to interact appropriately with coworkers, ability to anticipate problems, and self-calming capacities) are not entirely separate from those required to keep children safe and to reduce the potential for angry outbursts at them. Failures in parenting that increase child risk grow out of failures in these same general capacities.

Core to implementing all these capacities is information processing: knowledge structures, executive functioning, and the cognitive products of the interaction of these two (Figure 1). Parental information processing is crucial to both keeping children safe (e.g., anticipating risks) and having the self-regulatory capacities to avoid engaging in harsh and inappropriate behaviors. It allows parents to accurately perceive information from the environment and to plan, implement, and evaluate their efforts to prevent harm to children (e.g., anticipate risks, self-regulate when their efforts fail, and identify causes of these failures) and to adapt their responses to changing situations and children’s developmental needs.

Children’s information-processing capacities also play a role, but these are not discussed, given space constraints. Moreover, given that injury risk is greatest in children’s early years, parents’ capacities probably play a greater role in injury prevention.
Parents need accurate and fine-tuned parental knowledge structures (schema) regarding appropriate behavior to expect from children and parent's role in their socialization, good executive functioning (e.g., good problem solving, perspective taking, decision-making skills, and cognitive flexibility) to orchestrate and evaluate responses, and adaptive appraisals that result from these two factors (e.g., accurate attributions of causality and appropriate appraisal of one's own and children's behavior) to allow for the appropriate choice of responses. These capacities are intrinsic to parenting more generally, including nurturing behavior, appropriate disciplining, and managing children's behavior effectively (e.g., sensitivity, clear commands, and applying appropriate and consistent consequences). Contextual stress can negatively impact on information processing. When parents' cognitive capacities are overwhelmed and/or they have overwhelming children, and/or live in chaotic environments, risks to children increase, as well as risks to themselves. Some contexts and some children can be so difficult that they tax even well-functioning parental cognitive systems and they make errors in judgments. Indeed, such factors have been associated with a higher incidence of child maltreatment and childhood injuries.

Implicit in saying that parenting is skill based is the idea that it is learned. This flies in the face of prevailing views of parenting as instinctually driven. All learning requires ideal conditions. For parents, this means a history of good caretaking, basic cognitive and behavioral skills, low stress (e.g., freedom from environmental distraction,

Table I. Sampling of Skill Areas Required to Parent

1. Parenting skills
   - Problem-solving abilities
   - A repertoire of child management skills (balance of positive and negative strategies and discipline skills)
   - Medical care and physical care skills (e.g., ability to identify needs for medical assistance and capacity to select nutritious foods)
   - Safety and emergency response skills
   - Capacities for warmth and nurturance (e.g., affective recognition/expression skills)
   - Sensitive and discriminant interational response capacities
2. Social cognitive skills
   - Perspective taking
   - Problem-solving capacities
   - Appropriate expectations regarding children's capacities
   - Cognitive reflectivity/complexity
   - Balancing short- and long-term socialization goals
   - Positive attributional style
   - Perceptual/observational skills
   - Self-efficacy
3. Self-control skills
   - Impulse control
   - Accurate/adaptive perceptions
   - A positive interpretive bias
   - Self-monitoring skills
   - Assertiveness
4. Stress management
   - Self-care skills
   - Relaxation skills
   - Recreational capacities
   - Ability to marshal and maintain a social support network
   - Positive appraisal style
   - A breadth of coping capacities (problem-focused coping, emotion-focused coping, and avoidant coping)
   - Financial planning skills
5. Social skills
   - Interpersonal problem-solving skills
   - Empathy
   - Affective recognition/expressions skills
   - Assertiveness
   - Social initiation skills
   - Capacities to respond effectively to a breadth of individuals (e.g., family, friends, employers, social workers, and children's teachers)
mental illness, or substance abuse), and supportive others who can provide scaffolding of learning (e.g., partners, extended family, and friends). Sadly, parents are expected to do their job even when these conditions are not met.

With this broad array of skills in mind and the conditions required for their development, it can be easily seen that individuals are not equally prepared for the culturally defined demands of their role, the ever-changing

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**Figure 1.** The cognitive behavioral (CBT) model.
needs of their specific children (e.g., goodness of fit), and the vicissitudes of the contexts in which they are rearing them. From this perspective, then, parents’ “failures,” rather than simply being evidence of a lack of control or of their being “disinterested” or, worse yet, “uncaring,” may in fact be the logical outcome of breakdowns in an overtaxed caretaking system (Azar et al., 1988). Indeed, in societies such as ours, where extended families are less involved in the raising of children and where community child care and other resources are limited, becoming a parent dramatically increases burdens on the cognitive and behavioral capacities of individual adults and carries more risk (i.e., tasks that may overwhelm these capacities) and make “growing into the role” slowly more difficult. Indeed, it has been questioned whether our society’s asking parents to “go it alone” is feasible.

Thus, a model of parenting that focuses on processes underlying the myriad of responses required to parent adequately and to orchestrate supportive contexts may have utility as a foundation for the development of behavioral interventions with parents, as well as the forming of effective social policy. The model proposed, therefore, has broad application.

Child Maltreatment and Unintentional Injury: Evidence for the Role of Human Information Processing

Research in both child maltreatment and unintentional injury fit nicely with the three elements of this model. The empirical work supporting these elements is reviewed, as well as studies linking these three factors to each other and to parental behaviors that would increase the risk of child maltreatment and childhood injury. Work demonstrating how contextual factors may exacerbate their impact is also provided.

Unrealistic Expectations and Perceptions of Control: Maladaptive Knowledge Structures

The first element of the CBT model involves parental knowledge structures or schemas of what to expect of children and parents’ roles in relation to them. Schemas are information structures that exist before a new stimulus is encountered, and they have both structural elements and content. Parents’ schemas grow out of their history with their own caretakers and experiences in relationships more generally (e.g., watching other parents), the media, and experiences with their own children (Azar, Nix, & Makin-Byrd, in press). Structurally, child schemas must be flexible and complex enough to deal with developmental changes and individual differences (e.g., a child with disability may require more sensitive care and monitoring). Schemas that represent even young children as functionally equivalent in capacities to those of adults, as able to take care of their own care needs (e.g., cook their own meals and get themselves to school without assistance), and to take care of those of parents as well (e.g., cross a busy street and do grocery shopping for the family), may lead to misjudgments that will end in child “failures” and threaten parents’ efficacy.

Parental role schemas must help adults to maintain a sense of control and hierarchy in parent–child transactions, such that they see themselves as “responsible” to “think” for children (i.e., anticipate risks for them and teach). More general schema elements about the self may also play a role. For example, parents who describe themselves as high on “conscientiousness” have been found to have children who engage in less risk taking and have a history of fewer injuries (Morrongiello & House, 2004). Abusing mothers appear to have an expectation of being negatively evaluated by others (Shorkey, 1980). Such an expectancy has been shown to increase self-criticism, which can disrupt cognitive processing and produce negative affect, contributing to less effective performance (Baldwin, 1997).

In addition, positive biases in child schema, as opposed to negatively toned content, help parents deal with the aversiveness (e.g., labeling children’s running across the street as independence rather than willfulness) and allow parents some leeway when they make errors (e.g., reduces negative self-evaluation when their child “embarrasses” them in public). On the other hand, schemas must not be so positive that they ignore places where improvements are needed. That is, when the child fails to obey a rule regarding a risk such as playing too near the street, the parent must be able to adjust his or her expectations (e.g., see it as incomplete learning) and engage in protective behavior with toddlers (e.g., being present when his or her child is outside and erecting a fence around the yard) and further teaching and provide appropriate consequences for rule violation with older children. Most importantly, such events should lead to parental “learning” that they cannot leave the child open to the risk. Indeed, risk increases when parents overestimate children’s integration of family rules and do not give negative consequences for safety rule violations (Peterson, Bartelstone, Kern, & Gillis, 1995). Similarly, parents who engage in abuse often argue that their children “knew” what they were doing. Such parents react with frustration and harshness, not teaching when they engage in discipline. Multiple schemas may be
activated in any one child-rearing incident (e.g., with a tantrum in a grocery store, beliefs about how children should behave in public, how much control a parent “should” have over children, and how the parent feels about the self once he or she notices that others are staring at them all may come into play), and any one of these schemas may be activated at different points in the interaction with the child, and parent may cycle through the process portrayed in Figure 1 over and over again during the course of the incident.

Peterson and Brown (1994) acknowledged the role that parental unrealistic expectations play in increasing risk of childhood injury. The CBT model above, however, prioritizes a more central role for expectations in causing child maltreatment and the inadequate monitoring of, and feedback to, children that increase injury risk. For example, failing to recognize children’s greater needs for supervision places them in a variety of risk situations (e.g., leaving them home alone). Moreover, these expectations may increase the occurrence of lax or inappropriate discipline. Failing to provide consequences for child risk-taking behavior may be due to the mistaken belief that children “know” the rule (Peterson & Brown, 1994). Similarly, too strong a belief in parents’ role as one of absolute authority would contribute to overreacting to misbehavior and seeing child noncompliance as a threat to parental adequacy, even when the noncompliance is due to lack of maturity. These expectations drive maladaptive automatized processing of events.

Unrealistic expectations in the CBT model are seen as direct contributors to specific injury events (e.g., beliefs that children have the ability to engage in self-care, such as using appliances on their own to prepare food, anticipate risks, and consider parental feelings and adjust their behavior so as not to cause any provocation so as not to cause any provocation when the parent is upset) (Azar, 1986; Azar & Twentyman, 1984). If such beliefs are held strongly, when children violate such expectancies, parents cannot blame inadequate rule acquisition or children’s development. Child failures can only be labeled as evidence of poor parenting or, worse yet, of willful negative behavior. The parent may come to feel helpless in the face of children and not respond at all or, because of their frustration, engage in overly harsh punishment which over time may escalate into abuse. Negative consequences and education about risky behavior would also not occur, both of which are crucial to rule learning.

Evidence for such unrealistic expectations of children, parental roles, and what are appropriate responses on parents’ part have been linked to both child maltreatment and childhood injury. Abusive parents and neglectful parents have been found to have a higher level of unrealistic expectations regarding the social-cognitive and physical-care abilities of children than carefully matched control mothers (Azar, Robinson, Hekimian, & Twentyman, 1984; Azar & Rohrbeck, 1986; Haskett, Scott, Grant, Ward, & Robinson, 2003). Other at-risk parent groups also show such difficulties (e.g., cognitively limited parents, Azar, 1991; substance-abusing mothers, Spieker, Gilmore, Lewis, Morrison, & Lohr, 2001).

Maltreating parents have maladaptive schema regarding their roles as parents. They more strongly believe that punishment is what a parent “should do” and that power-assertive strategies will be effective and that inductive ones will be less effective (Caselles & Milner, 2000). They have a role definition of parenting that requires them to have absolute control over their children (Peterson, Gable, Doyle, & Ewigman, 1997). This may grow out a lower perception of control as a parent (i.e., children having more power over outcomes than they do) and an overly generalized concern regarding dominance (Bugental, Blue, & Cruzcosa, 1989). It has been argued that individuals with low perceived control have stored schema regarding power that can be activated by merely anticipating child difficulties (e.g., hypersensitivity to potential dominance). These schemas have a distracting quality and may lead to inaction as well as overly harsh reactions.

Parallel findings have occurred in the childhood injury literature regarding inappropriate child and parenting schema. Parents as a group have been found to underestimate their infants’ motor abilities and curiosity (Roberts & Wright, 1982) and overestimate their children’s ability to maintain their own safety (Peterson, 1989). Peterson and her colleagues (e.g., Peterson, Mori, & Scissors, 1986) have investigated in detail children’s abilities to care for themselves when they are home alone—a situation in which childhood injury is quite common. Although both parents and their 8- to 10-year-old children believe that children are prepared to stay at home alone, Peterson et al. (1986) found that children were able to recognize only a few of their parents’ rules about what to do in a variety of common household and emergency situations; recall memory was even poorer. Latchkey children, for example, demonstrate low self-care abilities regardless of socioeconomic status (SES) or gender (Peterson, 1989). Further, Peterson noted that parents are often shocked to know of their children’s responses to questions about home safety, indicating that they expected their children to know what to do in these situations. It appears, then, that these parents’ expectations are
somewhat disconnected from the reality of their children’s abilities. At the same time, parents were confident that their children were prepared to stay home alone and that they are aware of family rules. Such an invalid belief in child rule knowledge would increase child risk.

In contrast to abusive parents, for childhood injury cases, Peterson and Brown (1994) argue that for parental role schemas that suggest lower expectation for need to act, as evidenced by lax control around childhood injuries. They describe a field study of 1,000 minor injuries where both parents and children agreed that preventive changes to the environment, change in rules, and other consequences were needed. Yet, such actions occurred after injuries in less than 3% of cases. Data suggest that some parents may mistakenly see minor injuries as “normative” events and/or beyond their control (Morrongiello & House, 2004), and this may explain their lack of action. Perceiving that children have more control over child-rearing outcomes than the parent does, for example, has been shown to be predictive of safety neglect of infants (i.e., neglect of the provisions of a physically safe environment) (Bugental & Happaney, 2004). One study found that some parents, particularly fathers, believe that minor injuries serve a developmental benefit (e.g., children “learn a lesson” and they “toughen” children up) (Lewis, DiLillo, & Peterson, 2004) and that this too may explain in part parents’ lack of action. Having this idea about minor childhood injury would lessen remedative actions following them (i.e., the parent would believe too strongly in the idea that a “good” parent lets his or her child learn by trial and error).

Overall, the evidence supports both Peterson and Brown’s (1994) and Azar’s (1986, 1997, 2002a) ideas about the role that unrealistic expectations regarding children play in potential harm to child. Thus, links between this cognitive element of the model to both abuse and neglect and childhood injury appear to exist. Schemas regarding power relationships with children, specifically concerns regarding dominance, also seem to play a role.

Problem Solving, Cognitive Complexity, and Ability to Change Set: Difficulties in Executive Functioning

Along with disturbed schema, child risk may increase with adult difficulties in executive functioning. Executive functioning involves capacities to perceive stimuli in the environment in complex enough ways to identify problems when they occur, emotionally regulate and inhibit responses, generate specified responses to those problems, prioritize, enact responses effectively, and evaluate the outcomes that result and adjust one’s behavior when responses are not effective. Executive functioning involves effortful, as opposed to automated, processing of information and has been implicated in adaptive functioning in social realms (Derryberry & Rothbart, 1997; Kochanska, Murray, Jacques, Koenig, & Vandegeesi, 1996; McEwen & Magarinos, 1997). It may be affected by constitutionally based cognitive limitations (e.g., learning disabilities and brain injuries) and contextual stress.

Typically, executive functioning occurs when stimuli present some incongruence with preconceived knowledge structures (expectations), ambiguity, or a problem to be solved. Given young children’s changing developmental needs and poor ability to communicate, parents are faced with a continuous stream of incongruence, ambiguity, and problems. (Indeed, Peterson & Brown, 1994, cited young child age as a risk.) Parents must be able to identify and anticipate risks before they happen (e.g., it requires complex perceptual abilities), to consider alternative solutions (e.g., balancing long- and short-term socialization goals for children), to regulate emotional reactions to what may be extremely aversive child behavior (e.g., prolonged crying), and, once responses are enacted, to adjust behavior as difficulties change (e.g., self-regulation, prioritization, and cognitive flexibility).

Evidence exists for deficits in these processes in child-maltreating parents. Physically abusive as well as neglectful mothers show poorer problem-solving capacities in both childrearing and nonchildrearing situations (Azar et al., 1984; Hansen, Pallotta, Tishelman, & Conaway, 1989). Parents at-risk for maltreatment have also shown deficits here. For example, intellectually low functioning parents are poorer problem solvers in childrearing situations, and the level of their deficit is associated with less synchrony in their interactions with their preschool children (Azar, 1991; Azar et al., 1999). Clearly, many forms of executive functioning (e.g., delay of gratification, self-regulation in the face of provocative behavior, and organizational abilities) are required to parent successfully and to do so calmly when child aversive responses cannot be easily resolved or when the parent is in a strained state. Even positive responses require the modulation of behavior to fit the situation. Indeed, parental sensitivity is predictive of secure attachment in infants, which in turn has been linked to their later social capacities.

Parents who are maltreating show a failure to discriminate between child behaviors and respond with
matched responses. Trickett and Kuczynski (1986) found, in a diary study, an overuse of coercion as the priority response to aversive child behavior (i.e., all aversive child responses are seen as similar and, thus, responded to similarly). This finding also suggests a lack of cognitive complexity. Wahler and Dumas (1989) posit an attentional problem in abusers that lead them to track behaviors less closely and to respond in an indiscriminative manner.

Although not yet studied in the area of childhood injury, how poorer ability to identify problematic situations and anticipate risks would lead to greater harm to children can be easily seen. Indeed, the ability to identify safety risks and correctly label them in terms of level (e.g., medical problems where home treatment is sufficient vs. ones where emergency care by a physician is needed) is often targeted in safety and medical education programs with parents (Gershater-Molko & Lutzerker, 1999). Poorer problem-solving capacities have been found among parents of children showing impulsivity problems, a common antecedent of childhood injury (Dix & Lochman, 1990; Edwards, Barkley, Laneri, Fletcher, & Metevia, 2004; Pakaslahti, Spoof, Asplund-Peltola, & Keikangas-Jarvinen, 1998), as well as among families touched by substance abuse, another antecedent of childhood injury (Hops, Tildesley, Lichtenstein, Ary, & Sherman, 1990). Cognitive complexity may play a role in childhood injury as well. “Rule shortages” appear in families about safety issues. Peterson and Saldana (1996) found that over 83% of child injuries occurred without violation of a safety rule. Often, parents regarded the child’s behavior as unacceptable but had not specifically forbidden it.

This last finding suggests that parents were sometimes inconsistent when they impose rules on their children while at home and that risk increases when they were out in the world (e.g., climbing on playground equipment). Also, the failures to take action after injuries, noted earlier, suggest that parents may be failing to evaluate the quality of their solutions and adjusting them (i.e., recognizing that not having rules did not work if the child was injured). This may have dire implications for young children who lack adult experience (e.g., well-developed schema regarding safety) and decision-making. Fine-tuned rules form a foundation for their own decision-making rules and capacities.

Another such capacity that may be linked to child risk is the ability to change set. Abusive mothers and ones at higher risk for abuse have been shown to be lower in cognitive flexibility (Nayak & Milner, 1998; Robyn & Fremouw, 1996). The “tracking” problems seen by Wahler and Dumas (1989) in maltreating parents may indicate problems in sustaining attention, one component of being able to shift set.

Again, although cognitive flexibility was not discussed by Peterson, it clearly is required to respond to environmental cues and maintaining safety for children. As children change developmentally (e.g., become more mobile), changes are needed in the home (e.g., installing barriers in risky areas). Further, parents whose children are becoming more able to think about family rules must respond to them appropriately (e.g., give them explanations of why a rule exists). Younger or special needs children (e.g., impulsive ones) require more continuous vigilance, whereas adolescents need more selective monitoring and sensitively delivered direction. Parenting in an affluent and safe suburban neighborhood (e.g., little traffic and neighbors who are willing to play a role secondary to parents) requires skills that are different from those that are required in a high-crime, urban setting (e.g., high traffic level and isolation from neighbors). In the latter, neighbors’ skills may compensate for the deficiencies of parents. Similarly, as the family moves to other environments (e.g., a playground and visiting another family’s house), parents must adjust their vigilance level to protect their children appropriately. Parental engagement and distraction both have been associated with the level of supervision parents provided children when observed in a park setting, and more engagement has been found to be negatively correlated with child nonminor injury history (Morrongiello & House, 2004). Moreover, a parent must be prepared to deal with its or her own changing needs (e.g., a parent who has been injured must enlist outside assistance to care for his or her mobile toddler).

**Negative and Maladaptive Appraisals of Child Behavior: The Products Resulting From the Operation of Both Maladaptive Schema and Weak Executive Functioning**

Peterson et al. (1995) recognized the relevance of attributions for child behavior to child injury research but did not include it as one of the contributors to injury. The CBT model, however, gives a central role to such attributions. As noted earlier, a consequence of unrealistic expectations is that parents must now explain to themselves why their child has violated expected standards. If executive functioning capacities are not strong (i.e., parents do not identify their standards as incorrect and adjust them), they may either see themselves as failures in parenting (i.e., “I can’t get my child to do the things other parents can”) (self-blaming) or see their children as deliberately withholding a response well within their capacity (child blaming). Weak executive
functioning capacities would also prevent them from generating more benign or helpful attributions (situational or developmental ones). Over time, self-blaming or child blaming would either immobilize them (e.g., lower their self-efficacy and lead to disengagement in parenting or depression) or result in impulsive, overly harsh responses.

Parental attributions of negative intent to children have been shown to influence the nature of their responses to children’s transgressions (Barnes & Azar, 1990; Dix, Ruble, & Zamarano, 1989). Perceiving one’s child as having more control over childrearing outcomes than oneself may contribute to overly harsh responses in that parents may more readily see themselves as needing to exert high levels of power assertion to have any affect. Thus, such attributions coupled with expectations of absolute control may lead to inappropriate discipline.

Failures to make attributions to lack of knowledge on the child’s part (e.g., “he’s only two, he does not understand”) would mean fewer educative responses that would move a child forward in mastering tasks. More importantly, the child’s repeated failures to meet expectations, followed by attributions of blame to the self or the child, would demoralize parents. The child may become an aversive stimulus and “living evidence” of parent’s incapacities (Azar, 1986, 1997). Clearly, a parent may be less motivated to caregive, and as a result, the child may be left unattended more, leaving him or her open to risks.

Parental negative attributions to children for aversive child behavior (e.g., negative intent and negative traits) are seen as playing an essential role in the progression toward child maltreatment (Azar, 1989a). In general, internal, negative child attributions are related to more power-assertive responses (Dix et al., 1989). Many studies have found negative attributional biases in abusive and at-risk parents (intellectually low functioning mothers, teenage mothers, and substance-abusing parents) compared to controls (Bradley & Peters, 1991; Dadds, Mullens, McAllister, & Atkinson, 2003; Dadds & Milner, 2000; Haskett et al., 2003; Larrance & Twentyman, 1983; Miller & Azar, 1996; Spieler et al., 2001), although differences do not appear under all conditions (Milner & Froody, 1994). For instance, they occur under cumulative stress (Azar, 1988).

Other appraisals of children have been studied that support the idea of a negative bias among maltreating and at-risk parents. Abusive mothers and ones identified as at-risk for being abusive expect less compliance from their children after disciplining them and judge child transgressions in many situations as more “wrongful” and their behavior generally as more negative, problematic, less adaptable, more conduct-disordered, more temperamental, more aggressive, and more hyperactive (Chilamkurti & Milner, 1993; Mash, Johnston, & Kovitz, 1983; Reid, Kavanaugh, & Baldwin, 1987). In some cases, these negative appraisals of children have been made in spite of no differences in child behavior compared to controls when rated by independent observers.

Findings also support the role of attributions for understanding injuries. Morrongiello and House (2004) found that parents who believed that their child’s health status was due to luck showed decreased supervision and had children who had experienced more injuries. Peterson et al. (1995) found that mothers’ beliefs about the causes of injury were related to whether or not they attempted to provide intervention. Mothers who attributed the injury to factors internal to the child (i.e., “it was the child’s fault”) were likely to take remediative action (e.g., lectures and discipline). On the other hand, mothers who believed that their child’s injury was due to fate were less likely to take remediative action (e.g., teaching and providing consequences). Indeed, parents living in poverty who are at greater risk of child maltreatment and unintentional childhood injury have been shown to make more external attributions for their children’s dysregulated behavior (risk taking and aggression), and thus they would do nothing in response more than do nonpoor parents (Diriwan & Azar, 2002). Bugental and Happeny (2004) have shown lower maternal perception of control in their parent–child relationship to be related to lower provision of a safe environment for infants. Overall, the evidence to date supports the relationship between maladaptive maternal attributions for child behavior and responses to that behavior that would increase the risk of injury (lax responses).

Maladaptive appraisals have been shown to increase parental anger and risk of punitive behavior, as well as lax parenting. Evidence for this is reviewed below when links among these information-processing factors and parental behavior are discussed.

Information Processing and Maladaptive Parental Responses

Evidence exists linking these information-processing problems to each other and with maladaptive parental responses. In a small sample of intellectually low functioning [intelligence quotient (IQ) less than 79] mothers, higher levels of unrealistic expectations regarding children were associated with poorer problem solving in childrearing situations, and higher levels of both these cognitive problems were associated with less synchronous
interactions with preschool children (Azar et al., 1999). Mothers with higher levels of these cognitive problems were less responsive to their children moment by moment and more discordant when they interacted with them, suggesting poorer capacity to perceive their children’s cues and respond to them. In more general samples of low SES mothers (including teenage mothers), the more unrealistic expectations parents had of children’s self-care capacities and ability to understand parental feelings and thoughts, the stronger negative intent attributions they made to children’s aversive behavior, and the stronger and more coercive the punishments they used and the less likely were they to use explanation (Azar, 1989b, 1991; Azar et al., 1999; Barnes & Azar, 1990; Dadds et al., 2003). Social workers also rated the children of young mothers who hold higher levels of such expectations as being in more jeopardy in terms of child safety and care (Azar, 1989b). Thus, unrealistic expectations and negatively biased attributions appear to contribute to harsh parenting practices, failures to engage in socialization practices that would lead to learning of rules and self-regulatory behaviors in children, and, overall, heightened child risk. Important to prevention are the findings from another study. In that study, these same relationships were found within a large group of adolescents who were not yet parents (Azar, 1990). Thus, this cluster of cognitive problems may be present before an individual becomes a parent.

Along with data linking expectations and attribution, research has also shown that low perceptions of control are associated with negative affect and increased physiological arousal when adults interact with a “difficult” child (Bugental, Blue, & Lewis, 1990; Bugental et al., 1993; Bugental, Brown, & Reiss, 1996), and these effects occur even in anticipating such an interaction (Bugental & Cortez, 1988). It has been argued that individuals with low perceived control have stored schema regarding power that can be activated by merely anticipating an interaction involving child difficulties (e.g., hypersensitive to potential dominance). Such activation may interfere with executive functioning as described above, in that when engaging in interaction with a “difficult” child, they show decrements in cognitive functioning including the inability to recall thoughts after the interaction (Bugental et al., 1996) and the use of less complex and less effective linguistic structures during the interaction (Bugental & Lewis, 1999; Bugental & Shennum, 1984). Essentially, mothers may lose the cognitive functioning capacities needed to control their negative behaviors. Indeed, some data suggest more generalized negative reactions when confronted with interactions with vulnerable others (e.g., with pets; Sims et al., 2001).

Literature has also drawn links between information-processing problems and child risk of injury. Wilson et al. (1991; as cited in Brown & Peterson, 1997) proposed that developmentally inappropriate expectations may lead to inadequate supervision and an increased risk of child injury. Peterson’s own research suggests as much: in one study, an inadequate number of rules (which may be interpreted as the result of inappropriate expectations on the part of the parent) were related to the number of injuries sustained by a child (Peterson & Saldana, 1996). Her other findings seem to predict a similar effect: latch-key children know very little about their parents’ rules for handling emergencies, although their parents expect them to be aware of numerous guidelines (Peterson, 1989). Taken to their logical conclusion, these results may indicate that the children’s lack of rule knowledge (and their parents’ inappropriate expectation of that knowledge) is related to risk of injury. Also, the types of attributions that parents make to children’s risk behavior were found to lead to differing levels of mothers’ engaging in remedative actions (Peterson et al., 1995). As noted above, lower perception of control in parent–child relationships has been linked to less provision of safety in the environment provided to infants (Bugental & Happeny, 2004). Thus, links between parental information processing and parental injury prevention behavior appear to exist.

**Context: Interactive Effects of Information Processing Factors with Stress and Social Isolation**

Work in both child maltreatment and unintentional injury highlights the association between contextual strain (stress level, financial strain, and low social support) and personal strain (mental illness and substance abuse) and harm to children. In child maltreatment, low income (Garbarino, 1976), lack of social support, and high stress (Egeland, Breitenbucher, & Rosenberg, 1980; Gaudin, Polansky, Kilpatrick, & Shilton, 1993) have all been shown to be antecedents. Other factors, including crowding, family chaos, and changes in residence have also been shown to be related to unintentional injury (Peterson & Brown, 1994). Yet, not all stressed, mentally ill, substance-abusing, and isolated parents engage in child maltreatment, and contextual strain does not translate into injuries occurring in all families. Some parents may be less able to balance their resources or the cadence with which stressors occur.

The CBT model posits that strains and lack of buffers to relieve those strains tax the capacities of even
well-functioning parents and that, coupled with higher levels of the cognitive disturbances outlined above, mis-
haps become more likely. It is clear that stress decreases cognitive functioning and performance declines occur when one must focus on multiple tasks. Distractability, narrowing of perceptual capacities, and overwhelmed problem solving under conditions of crises may lead to misjudgments or oversights. For example, negative child attributions are especially common when parents are in a negative mood state (Dix, Rheinhold, & Zamburano, 1990). Some evidence has begun to emerge that chronic levels of stress may influence brain functioning, in some cases perhaps permanently, thus producing more chronic cognitive problems in executive functions (Stein, Hanna, Koverola, Torchia, & McClarty, 1997).

Conversely, cognitive problems can exacerbate the negative effects of stress on parenting. For example, women who had less complex expectations about parenthood before their children’s birth had worse adjustment after the birth (i.e., reported higher depression, lower self-esteem, and poorer marital adjustment) (Pancer, Pratt, Hunsberger, & Gallant, 2000). This effect held even when they encountered higher levels of stress after the birth. Similarly, violations of expectation regarding the transition to parenthood (i.e., about their relationships with their spouses, physical well-being, maternal competence, and maternal satisfaction) also predict poorer maternal adjustment (Kalmuss, Davidson, & Cushman, 1992). Thus, mismatches between expected role functioning and realities would lead to a greater experience of stress.

Under conditions of low resources, situational fac-
tors may also be interpreted as safer than they actually are out of necessity (or perceived necessity). That is, lack of safety may “need” to be ignored. A single parent with an ill infant and two older children may feel that it is better to leave the infant in the care of siblings and go out into the cold on a winter night to get them food than risk the infant’s illness worsening. Also, a financially destitute parent may out of necessity elect to try to care for child illness without a physicians’ input rather than incur debt.

Also, as the earlier discussion suggests, under the ambiguity that stress may produce (e.g., interactions with an unpredictable and difficult child; Bugental et al., 1990, 1993, 1996), maladaptive schema and attributional biases may operate more strongly. In a laboratory study of the effects of stress, Azar (1988) explored the interactive impact of life stress and higher levels of maternal unrealistic expectations of children. She manipulated level of childrearing stress with nonmaltreating mothers by exposing them to a childrearing failure (e.g., they were given puzzles to teach their preschool children on which failure was highly likely, but they were given the expectancy that they would be able to teach them). It was found that mothers who were high in life event stress over the last 6 months and who had higher levels of unrealistic expectations of children were the only mothers who attributed failure to something about themselves or their child (this despite the fact the task was in fact too hard). Similarly, examining maternal cognition in disciplinary situations (a stressful situation) and using a diary methodology, researchers were able to find that mothers with higher levels of unrealistic expectations were more likely to make negative, stable, and internal child attributions and to use more power-assertive strategies and less adaptive and inductive ones (Azar et al., 1999; Barnes & Azar, 1990).

Implications for Interventions and Prevention

Behaviorally based interventions and prevention efforts targeting parents have been effective at reducing child maltreatment and childhood injury rates (Azar & Wolfe, 1998; Peterson & Brown, 1994). Cognitive theorizing regarding parenting difficulties has begun to be success-
fully integrated into these parent interventions and prevention efforts. Targets include efforts to challenge and restructure parental schema regarding children and their role as parents and improve problem-solving capacities, as well as working on negative biases in their appraisals of their children’s behavior (Azar, 1989a; Azar & Twentyman, 1984; Azar et al., in press; Barth, Blythe, Schinke, Stevens, & Schilling, 1983; Bugental & Johnston, 2000; Milner, 2003). Azar (1989a, 1997) describes the challenging of expectations regarding children and biased attributional processes, using CBT strategies. Azar and Cote (in press) and Barth et al. (1983), for example, provide scripts for cognitive restruc-
turing where distortions are identified and gently challenged. Role plays, experimenttion (e.g., demonstra-
ations of children’s incapacies using Piagetian conservation tasks as an example), and reframing can also be used. In some cases, misattributions made to children can be clinically conceived as failures to distin-
guish the child from other related adults in their lives with whom the parent has conflicted relationships. For example, in the midst of an aggressive tantrum, a child may not be distinguished from his or her absent father whom he or she resembles and who battered and devalued the mother. With this association comes a heighten harshness which will be diffused if the clinician can help
the parent to see the overgeneralized response she is having and help her discriminate the child from these more aversive figures in her life. This process is what social cognitive theorist call changing a schema through subtyping (Fiske & Taylor, 1991). Similarly, alternative attributions might be gently offered to the mother when a negative bias emerges in her interpretations (e.g., “How awful it must be to feel your child is intentionally trying to embarrass you in the store . . . . I wonder if there is another explanation for why he acted that way?”). Similar challenging can occur around safety hazards (e.g., “he knows what to do when I am not at home with him after school”). These may be reframed similarly (e.g., “it sure would be nice if he could remember the rules when you are not around and it is really hard to find a babysitter for him, but I wonder if . . . ”). The key again is repeated gentle challenging.

Peterson et al. (1997) also highlighted the need to challenge conflicts between cultural and religious beliefs and therapy goals, using persuasion (e.g., challenging of role schema such as “a good mother is one who maintains strong and absolute control over her children, usually by physical force”) and attempting to increase flexibility in thinking about childrearing and in behavioral responses. Provision of counterintuitive information is described by Azar and her colleagues above (e.g., “your attention is your child's paycheck, paying too much attention to your child's negative behavior by yelling at them rewards it”). Extensive use of such metaphors is useful (e.g., “children's good behavior is like a plant and their bad behaviors are weeds, which will you water?—time out is like 'weed killer'”; “producing change using harsh punishment is like hitting something too hard with a hammer, you get results but may split the wood”; Peterson et al., 1997; “asking your child to do that would be like me asking you to fix a carburetor and threatening you with punishment if you cannot”; Azar, 1989a). Metaphors enhance persuasion by helping organize and process a large amount of information (Sopory & Dillard, 2002), thus compensating for poor executive functioning and facilitating learning.

Executive functioning capacities themselves can also be targeted. Problem-solving training has been included in behavioral parent training (Azar, 1989a; Azar & Wolfe, 1998; Stern & Azar, 1998). It includes identification skills (What is the problem? Whose problem is it?), generation of alternative solutions, consideration of the potential effects of each, response selection, enactment of responses, and evaluation of their effects. Role plays are useful, as well as videotaped interactions, for teaching “thinking” skills in a more relaxed setting than in live conflicts with children (i.e., reduces arousal and the distractability that may interfere with new skill mastery). Anger and stress management training emphasize cognitive flexibility (e.g., “He is only two—it won't work this time, but maybe next time”; “what else can I do?”). Work on safety, hygiene, and medical care decisions focuses on identification capacities and response generation (Lutzker et al., 1998). Therapist modeling and multiple trials with visual checks are used (e.g., pictures of various levels of child injury symptoms).

CBT interventions have been successful with maltreating parents (Azar & Twentyman, 1984; Kolko, 1996) and clinical populations at risk of childhood injury (e.g., parents of aggressive youth (Stern & Azar, 1998) and disruptive childhood disorders (Johnston, 1996)). Prevention work targeting parental thinking in at-risk parents (targeting appraisal, problem solving, self-efficacy, attributions, and religious and cultural beliefs), in addition to behavioral skills, has shown reductions in harsh discipline, child maltreatment, and childhood injury, as well as shown improvements in children's health outcomes (Bugental et al., 2002; Olds et al., 1998; Peterson et al., 1997; Peterson, Tremblay, Ewigman, & Popkey, 2002; Sanders et al., in press).

These preliminary studies suggest that targeting cognitive factors along with behavioral changes will have beneficial effects in reducing harm to children and may even impact positively on child health. Clearly, more work is needed to replicate these effects. Dissemination, however, may be a problem. To date, most programs offered to parents in both child maltreatment and injury prevention have been either watered-down combinations of personal counseling or didactic parenting classes (United States Advisory Board on Child Abuse and Neglect, 1995). Some evidence suggests that little intervention at all occurs. “Cognitive” problems within societies may be at fault (Azar, 2002b). Parenting is still seen as an instinctually driven and not requiring complex learning processes. In addition, those most in need of services are the poor, and society has been ambivalent in its willingness to provide supports to such individuals (e.g., seeing them as helpless and hopeless; Azar, 1996). Such biased schemas interfere with “adaptive” policy. Cognitive work is needed on a more grand scale to counteract such forces (e.g., media campaigns and work with legislators). The CBT model emphasizes the idea that overwhelmed parents have more difficulty carrying out their jobs in the same way that overtaxed traffic controllers or other professional groups charged with monitoring of others do. That is, seeing parenting as involving complex cognitive capacities elevates the role.
and would foster more complex and sensitive actions on society's part.

The unified approach suggested by Peterson and Brown (1994) offered future directions for work in maltreatment and unintentional injury. The cognitive approach attempts to operationalize such a unified approach and provides more refined directions for research and intervention work. It must be emphasized, however, that no amount of parental supervision and foresight can prevent all harm to children. Environmental changes, therefore, need to continue to be instituted (e.g., requiring car seats and use of smoke detectors), especially for parents whose lives and circumstances of living tax even a well-functioning cognitive system (Tremblay & Peterson, 1999). Subsidized child care, support groups, and crisis lines may all reduce maltreatment, as well as childhood injuries, by reducing parental stress. Prevention, however, that targets cognitive functioning may work in conjunction with environmental scaffolding to increase parental “foresight” capacities and reduce child risk further.

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