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Early Abuse and Neglect as Risk Factors for the Development of Criminal and Antisocial Behavior

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Patricia K. Kerig and Stephen P. Becker

Introduction

A wealth of research attests to the significant role that childhood abuse and neglect play in the development of criminal and antisocial behavior (CAB). From a developmental psychopathology perspective, these adverse childhood experiences deprive children of the “average expectable environment” (Cicchetti & Valentino, 2006) that is needed for adaptive functioning and thus leave youth vulnerable to the interpersonal, cognitive, emotional, and biological factors that contribute to antisociality. After first describing the many different forms that such maltreatment might take, this chapter reviews the empirical evidence regarding the underlying mechanisms linking early abuse and neglect to CAB, as well as the particular issues related to adolescence, gender, “crossover youth” involved with both the child welfare and juvenile justice systems, and juvenile psychopathy.

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Definitions

The term “child abuse,” also called maltreatment, encompasses a wide range of experiences and is defined differently in various cultures and legal jurisdictions. Thus, it is challenging to fix clearly in our sites the target of empirical inquiry in the research conducted on this topic. However, attempts to derive internationally agreed-upon definitions have been made, including the following widely accepted guideline from the World Health Organization (2006):

Child abuse or maltreatment constitutes all forms of physical and/or emotional ill-treatment, sexual abuse, neglect, or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child’s health, survival, development, or dignity in the context of a relationship of responsibility, trust or power (p. 9).

Noteworthy in this definition, as well as those in most legal statutes, is that these are kinds of harm that are perpetrated by adults in positions of care over children, such as parents, teachers, and religious figures, rather than hurtful experiences that children might undergo at the hands of peers.

Types of Abuse

Among the specific types of maltreatment that have been distinguished in the research on criminal and antisocial behavior (CAB) are *physical abuse* (e.g., beating, kicking, burning); *sexual abuse* (e.g., fondling, intercourse, exposure to

pornography); *psychological or emotional abuse* (e.g., rejecting, demeaning, terrorizing); *neglect* (e.g., failing to provide adequate food, shelter, medical care); *exposure to domestic violence*, which is found to negatively affect children even when they themselves are not the direct victims of violence in the home; and *exploitation* (e.g., burdening a child with demands beyond his or her developmental capacities, such as in child labor, child soldiering, indentured servitude) (Barnett, Manly, & Cicchetti, 1993; Graham-Bermann & Edleson, 2001; World Health Organization, 2006). Some forms of abuse cross categories in ways that may obscure them from view; for example, youth who are engaged in prostitution may be perceived by social welfare and juvenile justice systems as being perpetrators of crime rather than, more accurately, as victims of commercial sexual exploitation and abuse (Mitchell, Finkelhor, & Wolak, 2010).

Although some research has demonstrated that these specific forms of abuse have distinct associations with child outcomes, including CAB, it also is the case that the various types of maltreatment often co-occur, a phenomenon termed *polyvictimization* (Finkelhor, Shattuck, Turner, Ormrod, & Hamby, 2011). For example, Finkelhor, Turner, Ormrod, and Hamby (2009) conducted a telephone survey with a nationally representative sample of over 4500 US youth and found that almost two-thirds had experienced more than one form of abuse, and almost a third of those had experienced five or more types of victimization. A recent replication conducted in Canada (Cyr et al., 2013) found similar results, with over half of children reporting between 1 and 3 forms of victimization.

Dimensions of Abuse

As the examples of each type of abuse listed above suggest, children's experiences of each form of maltreatment may vary widely along a number of dimensions that determine how deeply and pervasively they affect children's development (Kerig, Ludlow, & Wenar, 2012; Trickett & McBride-Chang, 1995). These dimensions

include *frequency and duration* (e.g., whether the child endures a single episode versus chronic and repeated maltreatment), as well as *violence or threats of violence* and *severity* (e.g., whether physical abuse results in a bruise versus a need for hospitalization; whether sexual abuse involves visual exposure to an adult's genitals versus penetration). In addition, the *developmental period* in which children undergo maltreatment may moderate its effects on children's functioning, as may the *relationship with the abuser*. For example, children who experience maltreatment at the hands of an adult on whom they rely for trust and care, termed *betrayal trauma*, demonstrate the most negative outcomes (Freyd, 1996; Martin, Cromer, DePrince, & Freyd, 2013).

Theoretical Rationales for Linking Early Abuse and Neglect to the Development of Criminal and Antisocial Behavior

The Developmental Psychopathology Perspective

From a developmental psychopathology perspective, abuse and neglect are viewed as violations of the *average expectable environment* (Cicchetti & Valentino, 2006) that is needed to support a child's healthy biological, emotional, social, and cognitive development. In particular, the "safe base" provided by a secure attachment relationship is seen as fundamental to the child's ability to acquire a number of fundamental developmental capacities that, in interaction with one another, protect against the development of criminal and antisocial behavior. These include, among others, capacities for basic trust, ego resilience, self-control, emotion regulation, empathy, perspective-taking, social understanding, interpersonal problem-solving, mastery motivation, executive functions, and moral judgment, all of which are compromised by abuse and neglect (Cicchetti & Toth, 2005; Cicchetti & Valentino, 2006; Kerig, Ludlow & Wenar, 2012). Children who enjoy a secure attachment to a caregiver also

are less likely to engage in coercive exchanges with their caregivers or to provoke the caregivers' use of the kind of power assertive techniques that are predictive of antisocial behavior in the transition from infancy to school age (Kochanska & Kim, 2013). In this way, the transactional perspective inherent to the developmental psychopathology framework attunes us to complex ways in which risk factors interact, such as when maltreated children's dysregulated behavior provokes further ill-treatment at the hands of impatient and irritated parents. Or, to take another example, youth whose affect regulation skills have been disrupted by physical abuse or whose social skills have been blunted by neglect may be perceived negatively and rejected by peers (Kim & Cicchetti, 2010). Such peer rejection may, in turn, provoke youths' withdrawal from prosocial environments such as school (Ladd, Herald-Brown, & Reiser, 2008) and interfere with the development of the academic and interpersonal skills that could provide alternatives to antisocial behavior as a source of adolescent self-expression (Fergusson, Swain-Campbell, & Horwood, 2002). Moreover, in viewing the individual holistically as an integrated system, the developmental psychopathology perspective also highlights the importance of considering biological factors that are affected by maltreatment and contribute to the development of CAB—including genetic, neuropsychological, psychophysiological, neurochemical, and epigenetic variables—again, as these interact with environmental, social, and intrapersonal variables. We will return to discussion of these biological factors later in this chapter.

Stage-Salient Issues Another tenet of the developmental psychopathology perspective is that the impact of adverse experiences differs as a function of the developmental tasks or stage-salient issues that the child is navigating at that point in the life span and which are thus most susceptible to disruption (Cicchetti, 2006; Erickson, Korfmacher, & Egeland, 1992; Kerig,

Ludlow & Wenar, 2012). For example, in infancy, the effects of maltreatment have important implications for increasing insecurity and disorganization in attachment relationships with caregivers, whereas in toddlerhood the effects of maltreatment are seen particularly in deviations in the development of the self-system and capacities for autonomy. In the school-age years, maltreated children demonstrate difficulties in accomplishing the stage-salient tasks of forming positive peer relationships and achieving mastery in school and extracurricular activities. In turn, adolescents with a history of early abuse are more vulnerable to becoming pulled into a variety of high-risk behaviors, including engaging in substance abuse and entering precociously into sexually intimate relationships with antisocial and abusive dating partners. As Egeland and colleagues (2002) summarize: "Maladaptation represents a deflection in normal development that may initiate a deviant pathway toward a variety of problems. Thus the effects of maltreatment on stage-salient developmental issues and the notion of developmental pathways may help to explain the link between early maltreatment and psychopathology" (p. 250).

Social Learning Theory

Among the social learning principles proposed to explain the link between childhood maltreatment and delinquency are differential reinforcement and modeling (Akers, 2009). Children who are victims or observers of violence in the home may model their parents' behavior, particularly when they perceive that such violence is accompanied by rewards such as acquiescence to one's wishes and interpersonal dominance over others. The fact that fathers are disproportionately the perpetrators of family violence might inspire boys to differentially imitate the models they present (Kerig, 1999), thus contributing to an increased vulnerability to delinquency amongst maltreated boys.

Control Theory

Control theory proposes that self-control over natural human urges, including the use of force or immoral means to meet self-serving ends, is achieved through the fostering of bonds with others—initially with parents and then generalized to the wider society (Hirschi, 1969). Maltreatment may serve to disrupt those early bonds and interfere with the kind of empathically attuned attachment that has been empirically demonstrated to increase children's internalization of parental values and intrinsic motivation to behave prosocially (Kochanska & Aksan, 2007).

General Strain Theory

General strain theory (GST) (Agnew, 1985) has been widely utilized as a theoretical basis for understanding the mechanisms linking maltreatment and delinquency. GST posits that being born into an aversive environment, one colored by "relationships in which others are not treating the individual as he or she would like to be treated" (Agnew, 1997, p. 103), acts as a significant source of strain for young people, one to which they may have few skills to successfully adapt. Such experiences generate strong negative effect, particularly among adolescents who are more likely than younger children to respond to adversities with anger, frustration, and problem behavior (Agnew, 1997). Negative emotion, in turn, "increases the individual's level of felt injury, creates a desire for retaliation/revenge, energizes the individual to action, and lowers inhibitions" against engaging in misbehavior or even violence (Agnew, 1992, p. 60). Delinquent behavior may arise as a function of adolescents' maladaptive attempts to cope with, or even to escape from, maltreating environments. Moreover, these disruptive behaviors generate additional strain through their negative effects on parent-child and peer relationships, decreased educational and occupational opportunities, and the increasingly likelihood of engaging in problem behaviors into adulthood. As described by

Haynie, Petts, Maimon, and Piquero (2009), "exposure to violence is likely to reduce social bonds, constrain the accumulation of human and social capital, and expose adolescents to scripts of behavior that facilitate future involvement in problematic behavior" (Haynie et al., 2009, p. 283). Support for this theory has been offered in a number of investigations showing that negative affect is both a common consequence of trauma and a predictor of delinquency (Aseltine, Gore & Gordon, 2000; Brezina, 1998; Haynie et al., 2009; Maschi, 2006; Maschi et al., 2008).

GST also has been used to explain the fact that there are gender differences in the prevalence rates of delinquency (Broidy & Agnew, 1997). The theory posits that, whereas the negative effect of anger is seen as the driving force behind antisocial behavior (Agnew, 1992), for girls anger "is likely to be accompanied by feelings of guilt, depression, and anxiety ... [which] reduce the likelihood of other-directed crime" (Agnew, 2001, p. 322).

Developmental Traumatology

Although in many respects integrated within the larger umbrella of developmental psychopathology, trauma-specific theories have been posited that target the ways in which posttraumatic reactions following experiences such as maltreatment might interfere with normative development in ways that lead to antisocial behavior specifically as opposed to psychopathology more generally (Ford & Blaustein, 2013; Ford, Chapman, Mack, & Pearson, 2006; Kerig & Becker, 2010). Posttraumatic reactions—including hypervigilance to cues associated with threat, traumatic re-experiencing, and attempts to avoid reminders of traumatic experiences, particularly through the numbing of emotional responses—have all been implicated in the dysregulation of affect and behavior that contribute to criminal and antisocial behavior (Bennett, Kerig, Chaplo, McGee, & Baucom, 2014; Kerig, Vanderzee, Becker, & Ward, 2013; Kerig, Ward, Vanderzee, & Arnzen Moeddel, 2009). Of particular interest are symptoms that are only

recently recognized in the diagnosis of posttraumatic stress disorder (PTSD), although in fact inspired by observations of delinquent youth (Pynoos et al., 2009), which are characterized by ways in which traumatized young people might throw themselves heedlessly into risky, dangerous, or self-destructive activities such as through engagement in violent, norm-violating, or antisocial behavior. Whether such behaviors emerge as a function of a posttraumatic defiance against the acknowledgement of vulnerability (Ford et al., 2006) or dysfunctions in the capacity to recognize risk amongst those who have been victimized (Orcutt, Erickson, & Wolfe, 2002) will be an important question for future research.

Empirical Evidence Linking Early Abuse and Neglect to the Development of Criminal and Antisocial Behavior

Before proceeding with our review, it must be acknowledged that the literature linking maltreatment to antisocial behavior is vast, with most large-scale longitudinal studies of developmental psychopathology including measures of related constructs of interest, including externalizing, aggression, conduct disorder, and problem behavior. In addition, major studies of the long-term sequelae of child abuse into adulthood measure other negative behaviors that might be precursors to or co-occur with criminal behavior, such as anger, substance use, and intimate partner violence (Anda et al., 2006). Thus, to keep to a manageable scale, the current review is selective to key studies that are illustrative or that have had an important impact on the field and favors those that include measures of criminal behavior per se such as involvement in the juvenile justice (JJ) or adult criminal systems, rather than self- or caregiver reports of adolescent misbehavior. In addition, there are large literatures related to the developmental consequences of children's exposure to violence or trauma as broadly conceived; however, in the present review, we focus on those studies that

allow us to differentiate child outcomes specifically associated with parental abuse or neglect.

Evidence from Longitudinal Studies

A large body of cross-sectional research provides evidence that abuse and neglect are correlated with delinquency and that rates of childhood abuse and neglect are disproportionately high among youth who are involved in the juvenile justice system (for reviews, see Kerig & Becker, 2010, 2012). However, more persuasive are prospective longitudinal studies that can establish that child abuse is a *precursor* and risk factor that increases the likelihood of CAB over the course of development. The most recent meta-analysis on this topic identified 18 studies, 9 of which were prospective and longitudinal (Wilson, Stover, & Berkowitz, 2009). The studies reviewed assessed a wide range of experiences associated with exposure to violence prior to age 12, including but not restricted to abuse and neglect. The results of the meta-analysis indicated overall large effect sizes amongst those studies assessing violence exposure and antisocial behavior concurrently but only small effect sizes amongst those involving prospective longitudinal research. However, closer inspection of the results indicates that, for studies examining direct victimization via physical or sexual abuse, the effect sizes were moderate rather than small, and were obscured by the inclusion of witnessing and victimization in the same category. For example, among the methodologically rigorous studies cited is that of Stouthamer-Loeber, Loeber, Wei, Farrington, and Wikström (2002) which followed 503 boys with substantiated maltreatment over the course of 7 years and found that almost 50 % were involved in serious persistent delinquency by age 13, in contrast to 19 % of the matched controls. It is also notable that the majority of studies included in Wilson and colleagues' meta-analysis assessed "delinquent" behavior via self-report than actual criminality or juvenile justice involvement.

Moreover, a number of notable studies were not included in Wilson and colleagues' meta-analysis and others have been published since it was conducted. Among these, Ryan and Testa (2005) examined official records collected on 18,676 children in the state of Illinois with substantiated reports of maltreatment who were followed from birth to age 18. Findings showed that abused children averaged 47 % higher rates of delinquency in adolescence than did their nonabused peers. In turn, Lansford et al. (2007) followed 465 children from kindergarten to adulthood and found that those with parent-reported abuse at an early age were more likely than their peers to be arrested in adolescence as well as to perpetrate violence in romantic relationships. Similarly, Mersky and Reynolds (2007) examined official records gathered on 1,404 youth tracked from ages 5 to 24 and found that maltreated youth had significantly higher rates of violent, but not nonviolent, delinquency. By a similar token, data from the Add Health Study following a large group of over 11,000 school-age children over 6 years indicated that each unit increase in family or caregiver physical abuse raised the probability of contact with the criminal justice system by 15 % (Haynie et al., 2009). Further, using data from a birth cohort of close to 1,000 children followed from birth to age 25 in New Zealand, Fergusson, McLeod, and Horwood (2013) found that exposure to self-reported sexual and physical abuse in childhood was associated with a wide variety of negative outcomes, including conduct disorder and antisocial personality.

In addition, studies focused on all-female samples have shown that childhood physical and sexual abuse are associated with an increased severity of delinquency over the course of 7 years (Cernkovich, Lanctôt, & Giordano, 2008) and that sexual abuse predicts girls' higher risk for later delinquency over the course of six (Trickett & Gordis, 2004) and even 23 years (Trickett, Noll, & Putnam, 2011) in comparison to their non-abused peers. Another study examined trajectories of offending among a sample of 499 girls who had been incarcerated in adolescence and whose case files provided information about

childhood victimization (Coleman, Kim, Mitchell-Herzfeld, & Shady, 2009). At a follow-up when the young women were age 28, the investigators found that the combined experience of physical and sexual abuse was a significant predictor of recidivism, particularly in combination with other risk factors such as family dysfunction and out-of-home placement.

An especially important program of research has been conducted by Widom (2003) and her colleagues, who have conducted a series of prospective studies using data collected from large cohorts of children with documented cases of neglect or physical or sexual abuse prior to age 11, compared with matched control groups. In follow-ups conducted when participants were approximately 33 years old, initial findings showed that those abused or neglected as children had 55 % higher rates of arrest for nonviolent crimes than did those in the control group whereas the risk of violent crime was increased 96 %; moreover, the maltreated children began their criminal careers on average a year younger than their peers and were more likely to become chronic offenders (Maxfield & Widom, 1996). Subsequent analyses based on a sample of 1,190 participants found that, after controlling for other risk factors, including parental substance abuse, criminality, poverty, and ethnicity, it was only the abused and neglected girls, not boys, who were at higher risk for engaging in violent offenses and abusing substances (Widom & White, 1997). A further replication and extension of this research based on a different geographical region found that those who were abused or neglected in childhood were 4.8 times more likely to be arrested as juveniles, 2 times more likely to be arrested in adulthood, and 11 times more likely to commit a violent crime, in comparison to those not maltreated in childhood (English, Widom, & Brandford, 2002). Further analyses also revealed gender differences in these effects. After controlling for other risk factors such as socioeconomic status and parental criminality, child maltreatment was found to be associated with adult criminal violence via different pathways for men and women (Widom, Schuck, & White, 2006). Whereas childhood

maltreatment had direct associations with adult violent offending for men, for women this relationship was mediated by problematic alcohol use. This is an important issue for future research to examine, and brings us to the important question of the intervening mechanisms that might account for the link between maltreatment and delinquency.

Intervening Mechanisms

In addition to Widom and colleagues, other researchers also have attempted to identify the intervening mechanisms that might explain the link between childhood maltreatment and later delinquency. For example, in studies following maltreated children from infancy through adolescence, Egeland, Yates, Appleyard, and van Dulmen (2002) demonstrated that physical abuse, but not neglect, was associated with alienation in preschool, which then predicted externalizing problems in elementary school, which ultimately predicted antisocial behavior in adolescence. In turn, using national survey data that assessed more than 2,000 boys over a period of 1.5 years, Brezina (1998) found that reduced commitment to school, increased deviancy-approving attitudes, and increased anger mediated the significant association between self-reported maltreatment and self-reported delinquent behaviors. In turn, the quality of relationships with both parents and friends was implicated in Salzinger, Rosario, and Feldman's (2007) 6-year follow-up of a sample of 100 children with substantiated physical abuse compared to matched controls. Their results indicated that lack of positive attachments to parents and ongoing parental verbal and physical abuse during adolescence mediated the association between childhood maltreatment and adolescent self-reported violent delinquency. In contrast, friendship quality acted as a moderator such that for abused—but not non-abused—youth, lower levels of delinquency among friends significantly decreased the risk of violent delinquency while physical and violent abuse by best friends exacerbated the risk. Turning to the

case of girls specifically, Feiring, Miller-Johnson, and Cleland (2007) found that, among sexually abused girls followed over the course of 7 years, abuse-related stigma, including shame and self-blame, was associated with delinquent behavior through the mediators of anger and involvement with antisocial peers.

Further, running away from home, which may represent a youth's way to cope with or escape from parental abuse, in and of itself appears to increase the risk of delinquency by thrusting youth into the company of antisocial peers and increasing the likelihood that they will resort to "survival crimes" such as theft, prostitution, and drug dealing in order to subsist on the streets (Chesney-Lind & Pasko, 2004; Kaufman & Widom, 1999; Kerig & Becker, 2012). Empirical research supports the hypothesis that running away mediates the association between maltreatment and delinquency (Tyler, Johnson, & Brownridge, 2008). For example, data from the Add Health study show that abuse in the home is associated with a greater risk of precocious exits from normative adolescent roles, including running away (Haynie et al., 2009). Moreover, Kim, Tajima, Herrenkohl, and Huang (2009) followed 416 youth from preschool to adolescence and found that parent and youth reports of physical and psychological abuse were predictive of youth's running away and that running away was predictive of later delinquency, as well as further revictimization.

In keeping with the multifaceted developmental psychopathology framework, Burnette, Oshri, Lax, Richards, and Ragbeer (2012) examined the intersections of temperament, emotion dysregulation, and peer relations as mediators of the association between harsh parenting (verbal and physical aggression) and antisocial behavior. The 1,639 youth were aged between 9 and 12 at the outset of the study and were followed over the course of three waves, each 2.5 years apart. Results showed that the combination of harsh parenting, a disinhibited temperament (low behavioral control and high sensation seeking), emotion dysregulation, and association with deviant peers predicted youths' involvement in antisocial behavior.

Posttraumatic Reactions As noted previously, theories derived from a developmental traumatology perspective propose that posttraumatic reactions play a role in the association between early maltreatment and later delinquency. Research to date has confirmed that youth who have experienced interpersonal traumas (Kerig et al., 2009, 2013) and polyvictimization (Ford, Elhai, Connor, & Frueh, 2010) are at increased risk for delinquency, and that symptoms of PTSD help to account for this association, particularly symptoms associated with emotional numbing (i.e., difficulty identifying or experiencing one's feelings) and dysphoric arousal (i.e., irritability, poor sleep, difficulty concentrating) (Bennett et al., 2014). However, for the purposes of the current review, major limitations of this research to date include the lack of specificity to parental maltreatment per se and reliance on a cross-sectional research design such that the necessary temporal associations are not established that would demonstrate PTSD to be causal in the maltreatment—posttraumatic reactions—delinquency chain.

Biological Processes as Mediators of the Association Between Abuse and CAB A growing body of research suggests that maltreatment-related trauma may have effects on biological systems that are involved in responding to stress, regulating behavior, and managing emotions in ways that directly increase the risk of CAB (Cicchetti, Rogosch, & Thibodeau, 2012; Davies, Sturge-Apple, & Cicchetti, 2011; Ford, 2009; Mead, Beauchaine, & Shannon, 2010). Markers of these effects may be seen at the level of genes, neuroendocrine functioning, neurotransmitters, and neuropsychological deficits. However, conceptualizations of the role of biology in behavior increasingly utilize complex interactional models that take into account not just genes, for example, but candidate gene \times environment interactions (see Beaver, Schwartz, & Gajos, 2015).

A landmark study based on the Dunedin longitudinal sample (Caspi et al., 2002) showed that a functional polymorphism in the gene encoding the neurotransmitter-metabolizing enzyme

monoamine oxidase A (MAOA) moderated the effects of maltreatment on boys' CAB. Maltreated boys with a genotype conferring low levels of MAOA expression were 2.8 times more likely to develop conduct disorder in childhood and 9.8 times more likely to be convicted of a violent crime in adulthood than were their peers; in contrast, among males with the high MAOA activity genotype, maltreatment was not associated with an increase in the likelihood of developing conduct disorder or committing a violent offense. Similarly, data utilizing retrospective reports from adults have shown that low-activity MAOA alleles predispose individuals to develop symptoms of antisocial personality disorder in the context of childhood maltreatment, whereas high-activity MAOA alleles are associated with symptoms of major depression (Beach et al., 2013).

Following up these results, Cicchetti et al. (2012) investigated gene \times environment interactions in a sample of 627 children with confirmed histories of parental abuse by collecting assays of three candidate genes previously implicated in antisocial behavior and/or maltreatment: TPH11, which is involved in the synthesis of serotonin; 5-HTTLPR, which also regulates the availability of serotonin in the brain; and MAOA. The results highlight the importance of gene \times environment interactions in that the genetic polymorphisms were related to an increased risk of antisocial behavior only among children who were maltreated. The developmental timing of maltreatment also emerged as important and interacted with 5-HTTLPR to predict the most negative outcomes, as did the type of maltreatment: among children who were homozygous for the short-short allele genotype of 5-HTTLPR, those who experienced sexual and/or physical abuse were at significantly higher risk for antisocial behavior than those who had experienced emotional maltreatment or neglect.

However, other research has indicated that, above and beyond the genetic transmission of antisociality—which accounts for as much as 50 % of the association between parental physical abuse and children's antisocial behavior—maltreatment predicts an increased risk for

CAB over and above the influence of genes. To demonstrate this, Jaffee, Caspi, Moffitt, and Taylor (2004) collected data on 1,116 twin pairs followed from ages 5 to 7. Results showed that physical maltreatment predicted an increased risk of child antisocial behavior, as measured by maternal and teacher report, in a clear temporal and dose-response association, and the effects were independent of genetic factors. Although there was evidence for a passive gene-environment correlation, in that antisocial parents were those most likely to maltreat their children and the children of these parents had the highest rates of antisocial behavior, the effects of maltreatment remained consistent when these factors were controlled.

One of the biological underpinnings to this research that is ripe for future exploration is that of epigenetics (Beach et al., 2013; Mehta et al., 2013). Newer biological models are evidencing that genes are not something that children “have” but rather that genes can be modified—turned on and off—by experiences. Thus, the picture may be a more complicated one in which maltreating parents set the stage for children’s vulnerability to developing CAB in the aftermath of abuse by rearing them in ways that increase the expression of genes associated with criminal and antisocial behavior.

Distinguishing Among Types of Maltreatment

With notable exceptions, relatively few of the studies we have identified compare the associations between CAB and diverse forms of maltreatment (e.g., physical versus emotional versus sexual abuse, exposure to violence versus exploitation or neglect), sometimes because the topic of investigation is limited to only one form of maltreatment, such as sexual abuse (e.g., Feiring et al., 2007; Trickett & Gordis, 2004), or at other times because various types of abuse are collapsed into larger categories (e.g., Cicchetti et al., 2012). Still other research has differentiated only between physical abuse and neglect, with findings sometimes supporting a slightly

increased risk of violent offending amongst children who suffered physical abuse (Widom, 2003), whereas other studies suggest that the effects of physical abuse and neglect are equivalent (Mersky & Reynolds, 2007).

One more finely discriminating comparative study was conducted by Cohen, Smailes, and Brown (2004), utilizing official Child Protection Agency and arrest records for a national cohort of individuals born between 1965 and 1974 and followed up 25 years later. Their results showed that the highest rates of adult arrest were among those with substantiated childhood physical abuse and the lowest rates amongst those who had been victims of neglect, whereas violent crimes against persons were most prevalent amongst those who had been sexually abused in childhood. A similar pattern emerged from Herrera and McCloskey’s (2003) follow-up of a sample of girls over 6 years, in which child sexual abuse was found to be the strongest predictor of both violent and nonviolent offending, whereas physically abused girls were those most likely to assault their parents. In contrast, witnessing domestic violence was not predictive of delinquency once the effects of physical and sexual abuse were accounted for. Most recently, data from a study of 195 children of Navy families referred for allegations of maltreatment were analyzed to create three distinct latent classes (Grasso et al., 2013). Those children who had experienced sexual abuse in combination with physical abuse and exposure to interparental violence committed three times the number of self-reported delinquent behaviors than children who had experienced physical abuse and/or interparental violence in the absence of sexual abuse.

Different forms of abuse also may have different effects depending on youth gender. For example, Tyler et al. (2008) followed a sample of 360 high-risk youth over a period of 6 years and found that adolescent self-reports of serious delinquency were predicted by childhood neglect for boys and by physical abuse for girls. The reasons for this gender difference are not immediately obvious, but this is a pattern that warrants further investigation and is in need of replication.

Timing Matters: Why Are Adolescents Especially Vulnerable?

Returning to the importance of stage-salient issues, some research suggests that maltreatment that begins or extends into the adolescent years has particularly malevolent associations with youth antisocial behavior (Ireland, Smith, & Thornberry, 2002; Stewart, Livingston, & Dennison, 2008). For example, youth who have reached adolescence when they first come to the attention of child welfare authorities are at higher risk of involvement with the juvenile justice system, both in regard to beginning their antisocial careers earlier with their first offense (Ireland et al., 2002) and for continuing on an antisocial pathway as recidivists (Ryan et al., 2013). Four hypotheses have been proposed to help explain why the timing of maltreatment matters in the development of delinquency. Smith, Thornberry, and Ireland (2004) propose two possibilities: that children may be more “developmentally resilient” than adolescents, in that the short-term negative effects of abuse and neglect may resolve once the maltreatment is redressed; or that child protection services’ interventions may be less available for and less effective with adolescents than younger children. In turn, Stewart et al. (2008) suggest that adolescence represents a time of particular vulnerability given the additional stresses and developmental challenges associated with that phase of life. Youth who endure the additional burden of maltreatment while attempting to navigate the difficult transitions of this stage may experience disruptions in important sources of resilience, such as academic functioning and peer relationships, which in turn increase their risk of antisocial behavior and delinquency. In contrast, Ryan and colleagues (2013) propose that maltreatment in adolescence is in fact a different entity from childhood maltreatment that itself has distinct implications for development. For example, in the case of neglect, the kinds of parental disregard that would draw the attention of child welfare authorities are likely to be more severe in the case of an adolescent than would be the typical

kinds of inadequate supervision that constitute neglect of a young child. In other words, whereas neglect of a young child might involve an act of omission—a parent failing to provide adequate food or care, for example—neglect of an adolescent—such as a parent locking the child out of the home after a heated argument—might be better construed as an act of commission. Furthermore, Ryan and colleagues point out, “at the agency level, social service systems would respond to these scenarios differently, as young children are often viewed as troubled and older children are more often viewed as troublesome” (p. 462).

Suggestive evidence to this effect is drawn by Ryan, Herz, Hernandez, and Marshall (2007) who found, in a large database drawn from records in Los Angeles County, that youth who entered the juvenile justice system from the child welfare system were significantly less likely to receive probation than their peers and were instead more likely to be sent to correctional placements, even after controlling for the severity of their offenses. Of additional concern was the overrepresentation of African-American youth amongst those involved simultaneously with child welfare and juvenile justice. This leads us to consider the increasingly recognized problem of “crossover” (Herz, Ryan, & Bilchik, 2010) youth who are dually involved in the child welfare and juvenile justice systems, and who also are disproportionately minority youth.

Crossover Youth: Child Welfare Involvement as a Risk Factor for Delinquency Among Maltreated Children

For many maltreated children, an additional conundrum that must be reckoned with is that reporting of the abuse to the authorities, and children’s subsequent involvement in the child welfare system, may have iatrogenic effects that increase subsequent delinquency. There are a number of potential reasons for this link, including children’s reactions to being removed from

their families, but one strongly implicated is the ensuing instability in placement that often characterizes children's experience in the foster care system, particularly when those children exhibit the kinds of challenging behaviors that often follow from abuse. In this regard, Jonson-Reid and Barth (2000a) prospectively followed 79,139 children first placed in foster care in California between the ages of 12 and 15. The investigators found that girls with foster care histories entered the JJ system at rates 10 times higher than girls in the general population, whereas boys who spent time in foster care entered JJ at rates 5 times higher than those in the general population. Those most likely to become incarcerated were those who had multiple placements and terms in care. Moreover those who were supervised by probation had an increased likelihood of being incarcerated for a serious or violent offense. These authors also utilized official records on 159,539 California school-aged children who had been reported for abuse or neglect after age 6 and followed through their 18th year (Jonson-Reid & Barth, 2000b). Their findings showed that children reported for neglect were more likely to later be incarcerated for delinquency than were those reported for physical or sexual abuse. In addition, rates of incarceration for girls were highest amongst those who were placed in foster home or group care. Subsequently, Ryan and Testa (2005) found that, among a sample of 18,676 maltreated children referred to the foster care system, placement instability increased the risk of delinquency for boys, whereas, in their study, this effect did not hold for girls. Another suggestive finding from this large database is that, among crossover youth, only 8 % had experienced an arrest before becoming involved in the child welfare system, whereas 56 % recidivated, in contrast to only 41 % of their peers who were involved only in the juvenile justice system. Moreover, 32 % of dually involved youth had a subsequent referral for maltreatment following their first arrest, suggesting that involvement in the child welfare system was not a protective factor for them.

However, also important to note is that not all youth are referred to the child welfare system

because of maltreatment; some of these youth are placed into care due to severe behavioral problems, and evidence suggests that these youth are even more likely to go on to experience an arrest than those youth placed in care due to maltreatment (Ryan, 2012).

Unraveling Gender Differences in the Associations Between Child Abuse and CAB

Cross-sectional studies show that the prevalence of child maltreatment is particularly high amongst JJ-involved girls, who are more likely than their male peers to have been the direct victims rather than mere observers of family violence (e.g., Cauffman, Feldman, Waterman, & Steiner, 1998; Kerig et al., 2009, 2013). Moreover, some research suggests that maltreatment is more strongly predictive of delinquency amongst girls than boys (Widom & White, 1997). In attempting to understand this gender difference, one factor worth noting is that girls are vastly overrepresented amongst the detained youth who have experienced one specific form of maltreatment, and that is sexual abuse (e.g., Abram et al., 2004; Ford, Hartman, Hawke, & Chapman, 2008; Kerig, Arnzen Moeddel, & Becker, 2011; Kerig et al., 2013; Martin, Martin, Dell, Davis, & Guerrieri, 2008; Wareham & Dembo, 2007; Wood, Foy, Layne, Pynoos, & James, 2002; for a review, see Kerig & Becker, 2012). Longitudinal research, in turn, suggests that sexual abuse is a form of maltreatment with unique and pernicious effects on a young person's development (Fergusson et al., 2013; Fergusson, Boden, & Horwood, 2008; Trickett, Negri, Ji, & Peckins, 2011; Walsh, Galea, & Koenen, 2012), particularly CAB (Cohen et al., 2004; Grasso et al., 2013). As noted above, research also has substantiated that sexual abuse is a risk factor implicated in delinquency amongst girls (Feiring et al., 2007; Trickett, Noll & Putnam, 2011) and, although the comparisons are not always available, some research does suggest that sexual abuse is differentially predictive of girls' delinquency in comparison to other forms of

maltreatment (Herrera & McCloskey, 2003). A particularly compelling finding comes from the National Survey of Adolescents (Begle et al., 2011), in which telephone surveys were conducted with a national probability sample of mostly urban youth. Over the course of a 15-month follow-up, the investigators found that victimization (physical abuse, sexual abuse, and witnessing violence) was associated with delinquency and other high-risk behaviors but that this relationship was bidirectional for boys and unidirectional for girls. For boys, victimization early in life increased the likelihood of delinquency which, in turn, increased the risk for experiencing physical abuse or assault; in contrast, for girls, sexual abuse alone was associated with a 6 times greater likelihood of engaging in rather than refraining from delinquency and risky behaviors.

However, a complicating factor in drawing definitive conclusions about gender differences from studies of the association between child maltreatment and delinquency is that girls display delinquent behaviors at lower rates than boys and are thus underrepresented, and sometimes completely absent, from studies of juvenile justice-involved or incarcerated youth. Although rising arrest rates for girls have increased research attention to the factors underlying delinquency (Zahn et al., 2008), some of the research inspired by the gender-responsive movement has included only girls in the samples, and thus the question of whether there are gender-specific risks or protective factors for girls' and boys' antisocial behavior cannot always be answered (Kerig & Schindler, 2013). The question also has arisen as to whether we are capturing antisocial girls in our net. For example, CAB in girls may take a more covert form, such as relational aggression, which does not lead to legal sanctions and the identification of misbehaving girls as "antisocial" (Maccoby, 2004). Attention to other outcomes than overtly criminal behavior may be more relevant to the study of girls' antisociality, including perpetration of violence against intimate partners (Ehrensaft et al., 2003; Feiring, Simon, Cleland, & Barrett, 2012) or other forms of impulse under-control, such as

those implicated in self-harming behavior and borderline personality traits (Beauchaine, Klein, Crowell, Derbidge, & Gatzke-Kopp, 2009; Burnette & Reppucci, 2009).

On the other side of the coin is the argument that the misbehaviors for which girls often are labeled delinquent represent not so much a drive toward antisociality but toward survival in abusive contexts. Girls are disproportionately represented amongst those whose violations of the law are characterized as "survival crimes"—running away from home; living on the streets; participating in substance use and drug dealing; and engaging in prostitution or petty theft—problem behaviors which are, not coincidentally, predicted by an abusive or neglectful home life (Chesney-Lind & Belknap, 2004; Kaufman & Widom, 1999; Kerig & Becker, 2012; Kerig & Schindler, 2013). As Lanctôt and Le Blanc (2002) point out, girls and women tend toward misbehaviors that put their own safety at risk rather than the safety of others. Although risky behaviors, disregard of one's own safety, and self-harming have long been recognized as symptoms consequent to trauma (Pat-Horenczyk et al., 2007), particularly among victims of sexual abuse (Orcutt et al., 2002; Weierich & Nock, 2008), as noted previously, only recently has this dimension been included in the diagnostic criteria for PTSD. Of note, delinquent girls displaying elevated rates of PTSD symptoms are particularly likely to recidivate and have ongoing contact with the juvenile justice system (Becker, Kerig, Lim, & Ezechukwu, 2013).

Nonetheless, among youth identified as delinquent and adults involved with the criminal justice system, evidence suggests that certain risk factors are more prevalent for females than males. One of these is childhood abuse and neglect. As Lanctôt and Le Blanc (2002) point out, "The existence of a relationship between child abuse and juvenile delinquency is not a new idea. Despite this link . . . it is . . . disturbing, however, how little attention the child-abuse-victim-to-offender link has received and how it has often focused on boys. Consideration of the risk of abuse appears to be essential in order to improve our understanding of females'

involvement in deviance. This link between victimization and deviance has been nearly invisible in mainstream and gender-differences criminological theories” (p. 175).

Callous-Unemotional Traits and Juvenile Psychopathy

Another stream of research has revealed that one of the strongest predictors of serious, violent, and recalcitrant offending across the life span is the presence of psychopathic or callous-unemotional (CU) traits (Frick, Ray, Thornton, & Kahn, 2013), hence their inclusion in the newest diagnostic manual as a subtype of conduct disorder (Kahn, Frick, Youngstrom, Findling, & Youngstrom, 2012). Although high-CU youth represent only a small subset of those involved in the JJ system, they thus are an important group to identify and divert. The original conceptualization of CU traits suggested that such traits were inherent and arose independently of childhood adversity (Wootton, Frick, Shelton, & Silverthorn, 1997), and callous features have been shown to moderate the association between harsh parenting and antisocial behavior such that children with this affective deficit are relatively less impacted by parental abuse (Edens, Skopp, & Cahill, 2008). In contrast, other research suggests that there may indeed be an association between CU and childhood maltreatment. For example, both longitudinal (Lang, Klinteberg, & Alm, 2002; Weiler & Widom, 1996) and cross-sectional (Campbell, Porter, & Santor, 2004) studies have demonstrated higher levels of self-reported psychopathic traits amongst those with histories of childhood abuse. However, other investigations of detained youth have found the associations among abuse, callousness, and delinquency to hold only for boys and not girls (Krischer & Sevecke, 2008). Instead, it has been argued, it is victimization that accounts for the apparent link between psychopathic traits and violent offending amongst girls (Odgers, Reppucci, & Moretti, 2005).

An alternative perspective has focused on the construct of “secondary psychopathy” (Karpman, 1941; Porter, 1996) or “acquired

callousness” (Kerig & Becker, 2010) which proposes that in addition to the inherent affective deficits associated with “primary psychopathy,” there is a second pathway by which callousness traits might arise, and that is maltreatment. As Karpman originally suggested, individuals who have been maltreated may cultivate a mask of callousness and withdrawal of empathy as a kind of protective shield against their own painful emotions. However, unlike those in the inherently callous group, they are capable of a full range of feelings and in fact are differentiated by a quite uncharacteristically non-psychopathic-like level of anxiety. As Ford et al. (2006) have proposed, cultivating a callous veneer may begin as a strategy for “survival coping” among youth who have been chronically victimized but ultimately may lead in fact to reduced capacities for empathic engagement with others. Research to date differentiating this second group of high-CU youth has indeed found that they are more likely to have a history of victimization (Tatar, Kimonis, Kennealy, Skeem, & Cauffman, 2012; Vaughn, Edens, Howard, & Smith, 2009) particularly in the form of child abuse (Kimonis, Frick, Cauffman, Goldweber, & Skeem, 2012). Further, traumatic victimization has been demonstrated to be associated with CU traits among JJ-involved youth (Bennett & Kerig, 2014), and this association is mediated through the mechanism of emotional numbing (Bennett et al., 2014; Kerig, Bennett, Thompson, & Becker, 2012).

Summary

- A wealth of cross-sectional and prospective longitudinal research lends support to the idea that early abuse and neglect significantly increase the likelihood of CAB in childhood, adolescence, and adulthood.
- Gender differences have emerged in these findings, with some studies suggesting that girls might be more vulnerable to these effects, particularly when the type of maltreatment under study is sexual abuse and the form of CAB assessed is violence offending.

- Some research also suggests that adolescents may be especially vulnerable to the negative effects of maltreatment, particularly in regard to the outcome of CAB.
- Interventions for maltreatment that remove children from their homes and place them in the foster care system may be associated with an exacerbated risk of CAB.
- Although originally conceptualized an inherent quality that emerged independently from the qualities of a child's upbringing, new research indicates that childhood psychopathy or callous-unemotional traits also might arise through the secondary pathway of maltreatment.

Future Research Needs

- Prospective, longitudinal, multidimensional research is needed to test theories regarding the mechanisms of effect by which early abuse and neglect contributes to CAB.
- The inclusion of both genders in the samples investigated will contribute much-needed information regarding the extent to which the effects of childhood maltreatment are equally predictive of CAB, and via the same pathways, for girls and boys.
- Further fine-tuning is needed regarding the differential contributions to CAB of particular forms of maltreatment (e.g., physical abuse, sexual abuse, emotional abuse, neglect, exposure to family violence, exploitation) for boys versus girls.
- Further research also is needed that controls for other variables that might account for or obscure the associations between childhood abuse and CAB (e.g., parent antisociality, substance abuse, socioeconomic status, community violence, associations with deviant peers).
- Research on the gene \times environment contributions to the development of CAB is promising, particularly that from an epigenetic perspective which reveals how biological processes reciprocally influence and are influenced by adverse childhood experiences.

Recommended Readings

- Begle, A. M., Hanson, R. F., Danielson, C. K., McCart, M. R., Ruggiero, K. J., Amstadter, A. B., et al. (2011). Longitudinal pathways of victimization, substance use, and delinquency: Findings from the National Survey of Adolescents. *Addictive Behaviors, 36*(7), 682–689.
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