Is Psychological Maltreatment as Harmful as Other Forms of Child Abuse and Neglect? A Research Review

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United States state statutes demonstrate a clear hierarchy in how harmful the different forms of child maltreatment are perceived (see Baker, 2019). Child sexual abuse is in all state statutes, is reported to child protective services (CPS) and the police, is assumed without need for evidence when there is harm to the child, and is a felony in which perpetrators risk conviction. Psychological maltreatment (PM), also known as emotional abuse and neglect or mental cruelty, is treated very differently across states. Six states do not include it in their statutes, and over half report few or no identified cases in the National Child Abuse and Neglect Data System (U.S. Department of Health & Human Services [USDHHS], 2016). In those statutes that do report cases, two thirds require evidence of emotional harm to substantiate a case (Baker, 2019; Baker & Brassard, 2019).

Research does not support this prioritizing of one form of child maltreatment over another. This article presents the evidence (briefly) for considering PM the equal in harm to child sexual abuse, physical abuse, and physical neglect and potentially more harmful in causing depression, lifelong suicide risk, and thinking disorders. A longer presentation is available in the *APSAC Monograph on Psychological Maltreatment* (Brassard, Hart, Baker, & Chiel, 2019).

The publication of the Adverse Childhood Experiences Study (ACE; Felitti et al., 1998) of 13,000+ adult members of the Kaiser Health Plan in San Diego, and subsequent publications by this group, have had immense influence on how seriously child maltreatment (and PM in particular) is taken by scholars, the health care system, and policy makers in the United States and around the world. Their original work tied the retrospective report of four forms of child maltreatment (emotional, sexual, physical abuse, and battered mother) and three characteristics of household dysfunction (household substance abuse, household mental illness, incarcerated household member) to many of the leading causes of death in adults (e.g., ischemic heart disease, cancer), promiscuity, unintended pregnancy, sexually transmitted diseases, smoking, early smoking onset, alcoholism, drug abuse, depression, and suicide attempts (Anda et al., 1999; Dube et al., 2001; Felitti et al., 1998; Hillis, Anda, Felitti, Nordenberg, & Marchbanks, 2000). Each of the ACEs conferred increased risk, and there was a dose-reponse relationship in that the more adverse childhood events reported the greater the likelihood of experiencing an adverse health outcome, particularly for those reporting four or more adverse childhood events, who were more at risk for each negative outcome and more different types of negative outcomes. They replicated their findings in four cohorts with birth dates back to 1900, showing that the ACE-adverse outcomes relationship was generally impervious to secular changes (Dube et al., 2003). The ACE questionnaire and adaptations of it have been used in hundreds of studies around the world, replicating the original findings (e.g., Bellis, Hughes, Leckenby, Perkins,

& Lowey, 2014; Campbell, Walker, & Egede, 2016; Kessler et. al, 2010).

Of importance in regard to psychological maltreatment is that emotional abuse, assessed on the ACE questionnaire with from two to three items assessing spurning and terrorizing (e.g., "How often did a parent, stepparent, or adult in the home swear at you, insult you, or put you down"), held its own as an equivalently strong ACE in terms of predicting health adverse outcomes (Anda et al., 1999). It had the highest odds ratio among the ACEs "for both a lifetime history of depressive disorders and recent depressive disorders" (Chapman et al., 2004, p. 221) as well as lifetime attempted suicide (Dube et al., 2001), and it was one of the three highest relative risk ratios for unintended pregnancy (Dietz et al., 1999). When treated as an emotional climate factor, emotional abuse interacted significantly to enhance risk with other forms of child maltreatment and increased risk as a sole variable (Edwards, Holden, Felitti, & Anda, 2003).

On the one hand, the ACE and ACE-related studies have brought attention to PM as an important adversity, but on the other hand the methodology of using retrospective reports, as opposed to prospective identification of child maltreatment, is controversial and may bias findings. Prospective measures of childhood maltreatment, such CPS records and parental interview in childhood, are weakly correlated with later recall of maltreatment by the same individuals (see Baldwin, Reuben, Newbury, & Danese, 2019, for a recent meta-analysis). This has led one leading researcher, Widom (2019), to question the use of retrospective reports altogether:

> From a scientific perspective, cross-sectional studies based on retrospective reports cannot demonstrate that childhood adversities cause particular outcomes. From a clinical perspective, these new findings do not negate the importance of listening to what a patient says, but they suggest that caution should be used in assuming that these retrospective reports accurately represent experiences, rather than perceptions, interpretations, or existential recollections. (p. 568)

Even though prospective reports are generally considered more valid, the problems with bias in CPS records are also well known: children who were identified likely experienced more severe maltreatment than those not identified, those reported to CPS are only a small percentage of those maltreated, PM is still not identified in many jurisdictions, and cases reported are more often from low-income families, who are more heavily surveilled by government employees (Baldwin, Reuben, et al., 2019; Kobulsky, Kepple, & Jedwab, 2018; Newbury et al., 2018). For these reasons, retrospective accounts cannot be completely disregarded. If valid, both types of reports should relate to increased psychopathology and other adverse outcomes in the same individuals, whether assessed with self-reports or other objective measures. Some studies testing these hypotheses have found similar outcomes for both types of reports (e.g., Baldwin, Reuben, et al., 2019; Tajima, Herrenkohl, Huang, & Whitney, 2004), while others have found them only for prospective reports (Osborn & Widom, 2019). Both types of reports under identify victims. For example, Baldwin, Reuben, et al. (2019) found that more than half of prospective victims did not report having been maltreated retrospectively, which is similar to the percentage of individuals reporting maltreatment retrospectively who did not have a prospective report. What is important is that the research and clinical communities need to be aware that retrospective recall often does not match contemporary evidence of maltreatment.

Does Child Maltreatment Contribute to Adverse Events in a Causal Fashion?

The ACE authors have argued forcefully that child maltreatment (and other forms of childhood trauma) is *causally* related to adverse outcomes across the lifespan, drawing on converging evidence from epidemiology, neurobiology, and prospective studies that carefully assessed all forms of maltreatment in childhood (through parental reports, observations over time, CPS reports, or substantiation) and adverse events in later life (Anda, Felitti, & Bremner, 2006). The assumption that maltreatment creates adverse outcomes and must be prevented, stopped when identified, and treated underlies our field. However,

this assumption of causality is controversial among scientists and still a work in progress (Moffitt & the Klaus-Grawe 2012 Think Tank, 2013).

Criteria for establishing causation include the strength and consistency of a relationship between a causal variable and outcome, specificity of effect, a clear temporal sequence of experienced condition and adverse effect, a dose-response curve, plausibility, well-developed theoretical models of the mechanisms involved, and the ruling out of all other explanations (Hardy et al., 2016; Hill, 2015; Schaefer et al., 2017). Most of these criteria have been met except for the ruling out of all other explanations. Child maltreatment co-occurs with many other risk factors, both environmental (e.g., poverty) and genetic (e.g., impulsivity) that increase exposure to adverse environmental events. Experimental evidence in nonhuman animals demonstrates that high levels of stress in childhood cause adverse changes in the brain and body (e.g., telomere erosion, inflammation). This work is highly suggestive that humans would respond in the same way, but such studies are unethical in humans (some would argue in nonhumans as well), leaving researchers with the option of demonstrating causality through inference from observational prospective studies and possibly experimental clinical treatments that result in significant psychological, behavioral, and biological changes in a healthier direction (Moffitt & the Klaus-Grawe 2012 Think Tank, 2013).

Schaefer et al. (2017) conducted a prospective study offering some of the strongest observational evidence for causality between childhood victimization (including PM) and adult psychopathology. They used the genetically informed Environmental Risk (E-Risk) Longitudinal Twin Study of 2,232 English and Welch same-sex twins born 1994–1995 and chosen to be representative of United Kingdom newborns in 1990 in order to test the hypothesis that victimization in adolescence, based on young adult report, would predict psychopathology at age 18, controlling for childhood victimization (carefully assessed on four occasions). *Psychopathology* was defined as mother- and teacher-rated internalizing, externalizing, and thought-disorder scores on the Achenbach System of Empirically-Based Assessment (ASEBA; Achenbach, 2009). Victimization in adolescence *did* predict increases in psychopathology controlling for pre-existing psychopathology at earlier ages. All types of victimization increased the risk of all types of psychopathology in a dose-response relationship. Child maltreatment was significantly more predictive of adverse outcomes than the other types of victimization (e.g., Internet/phone, crime). There were no consistent patterns of sex differences in the relationship between victimization and psychopathology.

The E-Risk authors used multi-informants about victimization history (self, mother, co-twin), and so the source of information did not bias reports of victimization and their design allowed the researchers to examine the degree to which genes influenced exposure to victimization (and thus psychopathology) as opposed to victimization causing psychopathology. While monozygotic (MZ or identical) twins were more similar in their victimization experiences than dizygotic (DZ) twins, which indicates genetic effects on environmental exposures, both MZ and DZ twins discordant for victimization differed significantly in their degree of psychopathology at age 18. The exposed twin had more psychopathology in young adulthood. This indicated that the association between victimization and psychopathology "could not be fully explained by shared family-wide environmental factors or genetic factors, suggesting the possibility of an environmentally mediated pathway from greater victimization exposure in adolescence to more psychiatric symptoms in early adulthood" (p. 363). Because there were too few twins discordant for victimization, they could not test for which specific types of victimization predicted early-adult psychopathology, independent of shared family-wide and genetic risk factors. The authors concluded that their findings "approached causal inference by systematically ruling out noncausal explanations" (p. 352). An accumulation of such studies is needed to establish causality.

Are All Forms of Child Maltreatment Equivalently and Nonspecifically Harmful?

Recently there has been a call to acknowledge that all

forms of CM are equivalently harmful and nonspecific in the types of psychopathology that they are related to or seem to causally promote. There is some research to support this position, but it is not conclusive. Illustrative of this call is the E-Risk article by Schaefer et al. (2017) reviewed above. Both childhood and adolescent victimization contributed independently and cumulatively to mental health at age 18. Internalizing, externalizing, and thought problems were all elevated in a dose-response relationship to total victimization across both developmental periods.

Vachon, Krueger, Rogosch, and Cicchetti (2015) is a second example of a large, careful study concluding that all forms of child maltreatment are equivalent in harm and nonspecific. This study used 27 years of data from the Mt. Hope summer camps (years 1986–2012). Participants were half male, 60% African American, and all in their first year attending the summer camp. Forms of maltreatment were coded with the Modified Maltreatment Classification System (CPS records, all child welfare records, maternal interview) and assessment of harm was based on comparing maltreated children (substantiated by CPS) with not maltreated children matched on SES. Psychopathology and social competence were assessed with peer reports, counselor reports, and self-reports from the week at summer camp. Emotional abuse, neglect, and physical abuse were highly correlated $r = .82$; therefore, they had to be treated as a common factor in analyses. The authors found that all forms of child maltreatment caused significant harm and equivalent harm. Effects of child maltreatment were general (i.e., not specific in terms of psychopathology). There was no moderation of effects by sex or race/ethnicity. There was a strong dose-response effect: the presence of any type of child maltreatment, the more variety of child maltreatment, the more events of child maltreatment, and the more severe the child maltreatment the more psychopathology. The researchers concluded that

> because different types of child abuse have equivalent, broad, and universal effects, effective treatments for maltreatment of any sort are likely to have comprehensive psychological benefits. Population-level prevention and intervention strategies should emphasize emotional abuse, which occurs with high frequency but is less punishable than other types of child maltreatment. (p. 1135)

While both of these studies found equivalent and nonspecific harm in relationship to child maltreatment exposure, there are aspects of each study's design that limited its ability to identify unique effects from experiencing each form of maltreatment. The E-Risk study had too few twins discordant for victimization to test for which specific types of victimization predicted early-adult psychopathology independent of shared family-wide and genetic risk factors. Also, the sample was living in the community with their families and thus represented a healthier group than children being raised in foster care or institutions. The Mt. Hope study had a low-SES, CPS-substantiated sample of children who had typically experienced multiple forms of abuse and neglect. This demographic made it impossible to tease out the unique experience of one form of maltreatment from another. For example, only 14 children in their sample had experienced only sexual abuse; however, 143 had experienced sexual abuse and one or more other forms of child abuse and neglect. Only 117 of the 730 children experiencing emotional maltreatment had experienced uniquely that form of maltreatment with no other forms present.

Unique Relationships Between PM and Adverse Events

All forms of child maltreatment are significantly related to adverse outcomes. All forms of child maltreatment are related to increases in the risk of psychopathology in clear dose-response fashion, with multiple forms of maltreatment exposure having an even greater effect size than the component sum would predict (e.g., Teicher, Samson, Polcari, & McGreenery, 2006). But, even with the common adversity of poor treatment by caregivers, there is strong evidence of unique effects from the form of maltreatment children experience. A sample of these findings relative to PM is described in the next section. Before presenting these studies, it is important to acknowledge that many factors influence the specific effects of PM (or any other form of child maltreatment) on a given child. Children's age or their developmental stage may make them more or less vulnerable to PM. Children's genes influence how sensitive they are to the psychosocial environment (good *and* bad), which makes them more or less likely to suffer harm as a result of PM than their siblings or other children (Belsky & Pluess, 2013).

Children also differ in their environments, which may mitigate (e.g., caring and competent teachers; Lynch & Cicchetti, 1992) or intensify the effects of PM (e.g., violent neighborhoods).

The definition of *emotional disturbance* in the United States (federal) Individuals with Disabilities Act as Amended (IDEAA, 2004; United States Congress [USC], 2004) is used to organize research related to the adverse impact of the forms of PM described in Table 1 of this issue of the *Advisor* (Hart & Brassard, 2019). This IDEAA definition is brief and yet incorporates psychological criteria for major mental disorders and interpersonal, cognitive, emotional, and behavior problems (American Psychiatric Association, 2013). The IDEAA framework for harm includes five categories. Representative research findings are provided under each category of harm to illustrate the range and quality of research support for the form of psychological maltreatment that falls within each category:

Problems of Intrapersonal (Within the Individual) Thoughts, Feelings, and Behaviors

The relationship between PM and depression and negative cognitive style is very strong. This is true in studies that assess maltreatment prospectively and those that assess it cross-sectionally or retrospectively. For example, the Adverse Childhood Experiences Study (ACEs; Chapman et al., 2004), a retrospective study, found that "childhood emotional abuse posed the greatest risk of the ACEs for both a lifetime history of depressive disorders and recent depressive disorders." A number of studies have looked at negative cognitive styles (e.g., pessimism) as a precursor to depression. In an example, van Harmelen, de Jong, Glashouwer, Spinhoven, Penninx, and Elzinga (2010) found that child abuse was significantly associated with negative explicit and automatic self-associations using the Netherlands Study of Depression and Anxiety (N = 2,981). Child emotional maltreatment had the strongest significant link, when compared with child sexual and physical abuse, and mediated the relationship between child abuse and negative self-association. The Dutch group also found that "childhood adversities" (which included maltreatment) predicted affective disorders significantly better than lifetime negative events (Spinhoven et al., 2010) after controlling for lifetime DSM-IV diagnoses and clustering of adversities. Emotional neglect was statistically the most powerful predictive form of the childhood adversities and was associated specifically with diagnoses of depressive disorder and social phobia. Moreover, Paterniti, Sterner, Caldwell, and Bisserbe (2017) found that childhood emotional neglect predicted depression recurrence in a followed sample of patients (N = 238) at a mood disorders clinic.

Norman et al. (2012) performed a systematic review and exhaustive meta-analysis of the international literature on the long-term health consequences of nonsexual forms of child maltreatment. The authors included only those studies that measured each form of maltreatment separately. They found robust evidence that child emotional abuse is *causally related* to depressive disorders, anxiety disorders, suicide attempts, drug use, and sexually transmitted diseases/sexually risky behavior, approximately doubling the risk for adverse mental health outcomes when mediating variables are taken into consideration. Notably, most of the studies they reviewed used a cross sectional or retrospective methodology to assess child maltreatment.

Fortunately, there are a number of prospective studies that assess child maltreatment through parent report, observation, CPS records or a combination of these methods and then follow children longitudinally. Many of these have found similar conclusions about the relationship between PM and internalizing disorders. For example, Spinazzola et al. (2014) used a sample of 5,616 children (average age 11–12 years) with a lifetime history of exposure to maltreatment from the National Child Traumatic Stress Network Core Data Set to explore the effects of maltreatment on psychopathology. They found that children with emotional abuse and neglect exhibited significantly greater baseline problems in the area of internalizing disorders than the other forms of maltreatment, separately and combined. It was the strongest and the most consistent predictor of depression, generalized anxiety disorder, social anxiety disorders, and attachment problems.

McGee, Wolfe, and Wilson (1997), using a Canadian CPS sample of 160 adolescents, found that youth who had been substantiated for PM by CPS in childhood and who reported PM on interview as a teen had the greatest levels of internalizing problems in the sample of maltreated youth. This relationship held even when controlling for demographic variables and negative life events. The Lehigh Longitudinal Study found that only severe emotional abuse in childhood (and not sexual or physical abuse) had direct effects on adult outcomes classes for substance misuse and depression. Children exposed to emotional abuse were significantly more likely to have comorbid substance misuse and internalizing problems into their fourth decade even when controlling for depression and substance misuse in adolescence (Skinner et al., 2016). Vachon et al. (2015) found that, similarly to other forms of maltreatment in a CPS substantiated sample, PM predicted a significant increase in the likelihood of internalizing problems compared with nonmaltreated LSES peers.

There is a large literature linking child maltreatment (in addition to depression and anxiety) with suicidality; some evidence suggests that this relationship is likely causal. Using the E-Risk sample, Baldwin, Arseneault et al. (2019) found that each additional exposure to victimization doubled the odds that "adolescents would experience suicidal thoughts and self-harm and tripled the odds of attempting suicide—and was consistent across different informants and victimization types." The authors concluded that victimization was "likely a causal factor in suicidal ideation and self-harm" (p. 512) but that family-wide genetic vulnerabilities (e.g., poor emotion regulation, impulsivity) and unsupportive environments also played a major role.

Among the various forms of maltreatment, PM, in particular, shows very strong links to suicidal behavior and nonsuicidal self-injury (NSSI) in cross-sectional and retrospective studies. A recent meta-analysis of 15 international studies (Liu et al., 2017) found that suicidal behavior and childhood abuse were closely linked in both the total population and in clinical groups, with emotional abuse having the strongest effect among the five subtypes of child maltreatment (it more than doubled the risk). The relationship between PM and suicidal behavior was strongest in the chronic schizophrenic patients. Seff and Stork (2019) had similar findings, tying emotional abuse in particular to suicidal behavior, controlling for other forms of maltreatment. These authors used the Violence Against Children Surveys administered to nationally representative samples of 13–24-year-olds in three low- and middle-incomes countries: Tanzania, Kenya, and Haiti. In a large epidemiological sample of over 14,000 mainland Chinese adolescents from four major regions of the country, all forms of maltreatment were associated with significantly higher risk of NSSI (2.5 to 4 times higher); however, when all forms of maltreatment were entered simultaneously into the regression equation, physical abuse, emotional abuse, and sexual abuse remained significant (Wan, Chen, Sun, & Tao, 2015). Croyle and Waltz (2007) found only emotional abuse related to NSSIs.

Emotional Problems and Symptoms

Caslini et al. (2016) conducted a systematic review and meta-analysis of child maltreatment and eating disorder studies. They found that child PM and physical abuse were significantly associated with bulimia nervosa and binge eating disorder in the six retrospective studies meeting their criteria for inclusion in the analysis. In regard to PM, the authors speculated it played a causal role in the development of eating disorders because of its high prevalence and its influence on "dissociative coping styles, self-control through self-starvation, and emotion regulation" (p. 86).

Child maltreatment and thinking disorders are strongly linked. As reviewed above, the E-Risk study found that victimization in adolescence was related in a dose-response fashion to a significantly higher incidence of thought disorders as well as internalizing and externalizing problems. Many other studies have found this dose-response relationship between maltreatment and thought disorders. For example, child maltreatment is related to retrospective reports of significantly higher reports of dissociative symptoms in both community samples and samples with psychotic disorders, such as schizophrenia (e.g., Goff, Brotman, Kindlon, Waites, & Amico, 1991; Lange et al., 1999; Mulder, Beautrais, Joyce, & Fergusson, 1998).

A number of studies have found PM significantly more predictive of psychotic symptoms than other forms of maltreatment. For example, Varese et al. (2012) conducted a meta-analysis of patient-control, prospective, and cross-sectional studies on the relationship between "childhood adversities" (which they defined as all five forms of CM, bullying, and parental death) and psychosis. They found an estimated population attributable risk of 33% (16%-47%) with findings similar across all three research designs. All types of adversity were statistically related to an increased risk of psychosis although emotional abuse had the highest odds ratio (3.40) followed by physical abuse (2.95). Using an Australian prebirth cohort (N=3752) that gathered information on CPS-substantiated cases (birth to age 14), Abajobir et al. (2017) found that exposure to any child maltreatment, particularly emotional abuse and neglect, significantly increased the likelihood of self-reported hallucinations, lifetime delusions, and lifetime psychotic events when assessed at age 21 as opposed to those not maltreated. Notably, most maltreated individuals did not report psychotic experiences. In other studies, PM was related to a significantly increased risk for dissociative symptoms in community samples after controlling for other forms of maltreatment (e.g., Mulder et al., 1998; Teicher & Vitaliano, 2011). Similar findings on the strong, significant relationship between childhood PM and dissociative symptoms in adulthood are found in Braehler et al., (2013); Brunner, Parzer, Schuld, and Resch (2000); Lange et al. (1999); Mulder et al. (1998); and Schalinski and Teicher (2015).

Social Competency Problems and Antisocial Functioning

PM's strong relationship with social competency problems is seen in the area of parenting an individual's own children. For example, Bailey, DeOliveira, Wolfe, Evans, and Hartwick (2012) queried a sample of high-risk mothers about their child maltreatment experiences, their parenting competency, and stress followed by structured observations of their parenting. Retrospective reports of witnessing family violence (a form of PM) and other emotional maltreatment in childhood were significantly related to mothers' observed hostility toward their children, even after controlling for other forms of potentially traumatizing adult experiences. Parenting competence and its relationship to self-reported childhood trauma was examined in a sample of low- and high-risk parents with intellectual disabilities (ID; McGaw, Scully, & Pritchard, 2010). Having a CPS referral and being referred to a specialist parenting group for help was not associated with IQ, relationship status, parental age, or employment. Instead, it was associated with parental reports of childhood trauma (particularly emotional abuse and physical neglect), parents having additional special needs beyond low IQ, and raising a child with a disability.

While PM alone, or in combination with other forms of maltreatment, seems particularly tied to internalizing and thinking problems, emotional abuse combined with physical abuse (a common pairing), is associated with conduct-related problems such as delinquency and sexual risk behaviors (Norman et al., 2012). For example, Berzenski and Yates (2011) demonstrated this relationship with a sample of 2,000+ college students who completed measures of their childhood abuse history (but not neglect), current psychopathology, dating violence perpetration, substance use, and risky sexual behavior. Using Latent Class Analysis, the authors identified patterns of maltreatment experiences. The entire sample consisted of maltreated and nonmaltreated clusters, with the maltreatment cluster having four subgroups mapping onto the four types of child maltreatment. Of those experiencing multiple forms of maltreatment, there were four subgroups: Hostile Home (domestic violence and emotional abuse), Violent Home (domestic violence and physical abuse), Harsh Parenting (physical and emotional abuse), and Sexual Abuse (sexual abuse alone or with any other form of maltreatment). Participants who experienced any form of emotional abuse (with or without other forms of maltreatment) reported significantly higher psychopathology than any group that did not include emotional abuse. Conduct problems occurred most frequently in the Harsh Parenting group, particularly substance abuse, and especially among young men. Prospective studies have also found a strong link between emotional and physical abuse and conduct problems. Emotional abuse in childhood (based on maternal interview at the time) predicted self-reported criminal behavior in a sample of 365 adults from the

Lehigh Longitudinal Study. Physical abuse predicted adult criminality indirectly through childhood antisocial behavior while emotional abuse predicted adult crime directly and indirectly through childhood conduct problems (Jung, Herrenkohl, Lee, Klika, & Skinner, 2015). In a prospective study of LSES high-risk families and community two-parent families, Maughan, Pickles, and Quinton (1995) found that maternal hostility in childhood (based on interview of mother and observer ratings of hostile and rejecting behavior) predicted contemporaneous teacher-rated behavior problems, diagnosed conduct disorders (based on parental interview), and poor adjustment in adulthood (poor social functioning, problems at work, and criminal history). With maternal hostility in the statistical model, parental psychiatric disorder, maternal lack of warmth, marital discord, and paternal hostility were not significant predictors of childhood conduct problems or adult antisocial behavior.
Only parental criminality added significantly to the prediction beyond maternal hostility. Fifty percent of children, male and female, with hostile mothers in both the high-risk and the community samples had childhood conduct problems. The best-fitting model suggested that maternal hostility led to the development of conduct problems and, in turn, the presence of conduct problems in childhood predicted poor adult functioning.
Substance abuse and PM have been strongly linked in both retrospective (e.g., Berzenski & Yates, 2011; Norman et al., 2012) and prospective studies such as the Lehigh Longitudinal Study (Jung et al., 2015) and Australian pre-birth cohort described earlier (Abajobir et al., 2017), even when controlling for other forms of maltreatment.

Learning Problems and Behavioral Problems

There is a large cross-sectional and prospective literature showing that emotional and physical neglect are strongly related to cognitive deficits, including lower IQ and neuropsychological deficits. Psychological abuse is either unrelated or shows a weaker relationship to cognitive functioning than other forms of maltreatment; however, it is related to behavioral problems that adversely effect schooling and educational outcomes (see reviews by O'Higgins, Sebba, & Gardner, 2017; Romano, Babchishin, Marquis, & Frechette, 2014).

One of the most powerful demonstrations of the relationship between emotional neglect and cognitive decline comes from the Minnesota Longitudinal Study of Risk and Adaptation. Egeland, Sroufe, and Erickson (1983) used repeated home and laboratory observational methods and CPS reports from infancy on to identify child maltreatment in a prospective longitudinal study. High-risk mothers (N= 267) were recruited prior to the birth of their first child and the families followed forward in time. At 18 months, children with psychologically unavailable caregivers showed anger, noncompliance, and low-positive affect during problem-solving tasks and a significant decline on the Bayley Scales of Infant Development, with average developmental quotients at 12 months declining to well below average at 18 months. By preschool, children with a psychologically unavailable caregiver or one who was hostile/verbally aggressive had more teacher/caregiver reported psychopathological behavior than other high-risk controls. All of the maltreatment groups were significantly more noncompliant, avoidant, and negative with their caregiver and less persistent and enthusiastic in learning than nonmaltreated control children (Egeland & Erickson, 1987; Pianta, Egeland, & Erickson, 1989).

Another prospective study showing a relationship between emotional neglect and cognitive functioning is a 1958 British birth cohort study (N=8,928) by Geoffroy, Pereira, Li, and Power (2016). Psychological and physical neglect in childhood (ages 7 and 11) significantly predicted (a) low childhood cognitive functioning (math, reading and IQ), (b) poor age 42 educational qualifications, and (c) lower age 50 memory and processing speed scores, controlling for a comprehensive set of covariates including mental health. Psychological abuse was not related to cognitive functioning, and the other forms of abuse (physical, sexual, and witnessing domestic violence) were not related after controlling for other confounding variables. All forms of maltreatment were related to more childhood behavioral problems and adult depressive symptoms, controlling for numerous confounding variables.

Other studies showing a negative effect on learning from neglect, but not emotional abuse, include an Australian population-based cohort study that linked CPS records (e.g., unsubstantiated maltreatment, substantiated maltreatment, out of home placements), disability records, and health records for 46,000+ children (Maclean, Taylor, & O'Donnell, 2016). The predictor variables were maltreatment allegations (emotional, sexual and physical abuse, and neglect), controlling for other risk factors (e.g., maternal smoking, maternal mental health contacts of any type). The dependent variable was low reading achievement on the national third-grade reading test. Emotional abuse was no longer significantly related to poor reading after controlling for other risk factors, but sexual and physical abuse and neglect were related, such as a 50% increased odds of low reading achievement. A separate western Australia linkage study of 19,000+ kindergarten-age children related all previous CPS reports to performance on an extensive school readiness battery (Bell, Bayliss, Glauert, & Ohan, 2018). All forms of substantiated maltreatment were related to lower readiness as were unsubstantiated physical abuse and neglect. Unsubstantiated emotional and sexual abuse were not related to test scores.

A recent study, on the one hand, has not supported a causal relationship between cognitive deficits and maltreatment. Danese et al. (2017) examined two birth cohorts: The E-Risk study born in 1995–1996 and the Dunedin New Zealand birth cohort born in 1972–1973. They confirmed the relationship of victimization (particularly neglect and physical abuse) with pervasive cognitive deficits in IQ in childhood and adulthood and with neuropsychological deficits in adulthood. However, after removing from the analyses children who were maltreated in early childhood, and then controlling for family SES, early childhood intellect/language ability, and maternal IQ (in one study), the relationship between victimization and cognitive deficits was mostly nonsignificant. The authors concluded that cognitive deficits in maltreated children and adults should be viewed as risk factors for victimization and not the result of maltreatment. More work of this quality is needed to resolve this question.

On the other hand, the E-Risk study found strong support for child maltreatment having a possible causal relationship with poor educational qualifications at age 18 and not being in education, training, or work at that age (Jaffe et al., 2018). Maltreated children were twice as likely to have poor educational qualifications (e.g., school leaving certificate). After controlling for sex, family SES, parental psychopathology, and IQ at age 5, the relationship was diminished; however, it was still significant. The authors concluded that the relationship between maltreatment and poor educational outcomes was not due to being raised in a poor neighborhood or of having a low IQ. It was also not due to being more vulnerable to psychopathology because one's parents had mental illness with poor educational or occupational prospects as the result. Instead, their findings were consistent with "maltreatment jeopardizes education and employment prospects by increasing the risk of poor mental health in childhood" (p. 1146). The researchers did not have enough twins discordant for maltreatment to test for the specific effects of each form of maltreatment.

Physical Health Problems/Adverse Biological Changes

Most of the evidence in this category comes from retrospective studies like ACEs because longitudinal studies before the 1970s did not routinely assess for child maltreatment and some major studies did not include PM until the 2000s (e.g., E-Risk). The original ACEs studies statistically tied the retrospective report of all forms of child maltreatment to many of the leading causes of death in adults (e.g., ischemic heart disease, cancer), promiscuity, unintended pregnancy, sexually transmitted diseases, smoking, and early smoking onset as well as psychopathology reviewed above.

An example of a prospective study relating PM to health problems is the 21-year follow-up of a large Australian sample tracked prior to birth into adulthood (N = 2,661, original sample of 7,223). Child abuse and neglect were substantiated for ages from birth to 14, and height was measured in young adulthood. Physical and emotional abuse and neglect were significantly related to a deficit in height after a comprehensive set of perinatal and family confounding factors were controlled, with each additional child maltreatment report related to a 0.03

cm decrease in the height of the young adult (Abajobir, Kisely, Williams, Strathearn, & Najman, 2017). The same authors revealed a relationship between child maltreatment prior to age 14, particularly emotional abuse, and self-report of physician-diagnosed asthma at age 21 (Abajobir et al., 2017).

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Another recent example is from the Japan Environment and Children's Study, "an ongoing nationwide population-based birth-cohort study designed to determine environmental factors during and after pregnancy that affect the development, health, or wellbeing of children" (Komoria et al., 2019, p. 193). Controlling for 16 potentially confounding variables (e.g., noisy environment, smoking during pregnancy) in the 79,985 mother–infant pairs with complete data, the authors found that maternal reported verbal abuse by her partner during pregnancy was significantly associated with a hearing referral for the infant after two failed screening in the first week of life (adjusted odds ratio: 1.44; 95% confidence interval: 1.05–1.98). About 60% of infants failing the initial screening were diagnosed with hearing loss and the remaining 40% with immature auditory development. Physical abuse of mother by partner was not related to hearing referral. The authors proposed multiple causal pathways through which verbal abuse may cause hearing impairment and concluded that "these data suggest that a loud, non-maternal voice experienced in conjunction with maternal tachycardia likely create an environment that is uncomfortable for fetuses and therefore may negatively affect auditory function development in the child during gestation and after birth" (p. 199).

Summary and Conclusion

The studies presented above are not exhaustive. Rather, they are intended to provide a brief overview of the breadth, depth, and international representation of the voluminous research that now exists on the effects of PM, alone or in combination with other forms of child maltreatment, on child and later adult functioning. As the recent publication dates indicate, researchers across the world from different disciplines are now recognizing the lifelong, multi-domain relationship between childhood PM and including it as a variable in a myriad of studies on risk factors for mental, physical, and social maladaptation across the lifespan. This recognition by the research community has been long in coming, but the evidence on the likely harmful effects is now indisputable. Nonetheless, many parents, child welfare personnel, health care professionals, judges, educators, and the general public are still unaware of how harmful PM is and the many ways it is related to impairments in human functioning, especially when the PM is chronic and severe.

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