

*Annual Review of Developmental Psychology*  
**Practice and Policy Regarding  
Child Neglect: Lessons from  
Studies of Institutional  
Deprivation**

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### Keywords

neglect, psychosocial neglect, institutional rearing, maltreatment

### Abstract

Childhood neglect is associated with impairment across multiple domains of development. Because types of neglect co-occur and are correlated with abuse, most research cannot address the specific effects of psychosocial neglect. This limitation matters because some scholars have advocated that child protection measures should be employed only when a child is physically endangered. Here, we review evidence for the effects of psychosocial neglect on development derived from studies of young children raised in institutions. In these caregiving environments, children are physically safe and receive instrumental care, but the social, emotional, and cognitive components of caregiving are impoverished. The damaging and often lasting effects of these caregiving environments on young children's development underscore that psychosocial neglect should be considered as dangerous to child well-being as physical maltreatment. Efforts to reform child protection must do so with full appreciation of the consequences of young children's exposure to prolonged psychosocial neglect.

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## INTRODUCTION

Child neglect is often noted to be the most prevalent but least understood type of child maltreatment. For almost 40 years, scholars have decried the “neglect of neglect” in research (McSherry 2007, Stoltenborgh et al. 2013, Tingberg & Nilsson 2020, Wolock & Horowitz 1984). In this article, we suggest that the complications and controversies surrounding practices and policies regarding child neglect, especially psychosocial neglect, are profitably informed by studies of young children raised in institutions. Studies of children in these settings involve considering the effects of psychosocial deprivation (i.e., lack of adequate social, emotional, and cognitive input from caregivers) in environments that are physically safe and largely unconfounded by other types of child maltreatment. Thus, findings from these studies clarify the deleterious and long-term effects of serious psychosocial neglect even when children are not physically harmed.

Academic literature and popular media are replete with descriptions of the US child welfare system’s inadequacy in addressing neglect. Concerns about practices and policies regarding child neglect center around two major conflicting issues: overresponsive and underresponsive child protection efforts. Whereas the first concern focuses on errors of commission (unnecessary state intervention), the second relates to errors of omission (inadequate responses to endangered children).

Some scholars concerned with overreaching state intervention have argued that practices and policies regarding child protection conflate poverty and neglect (Schmidt 2021). That is, children are removed because of material deprivation rather than the negligent failure of their parent(s) to care for them. Although poverty is neither a necessary nor sufficient condition for neglect, reducing poverty has been shown to reduce maltreatment (Bywaters et al. 2016). Critically, a large

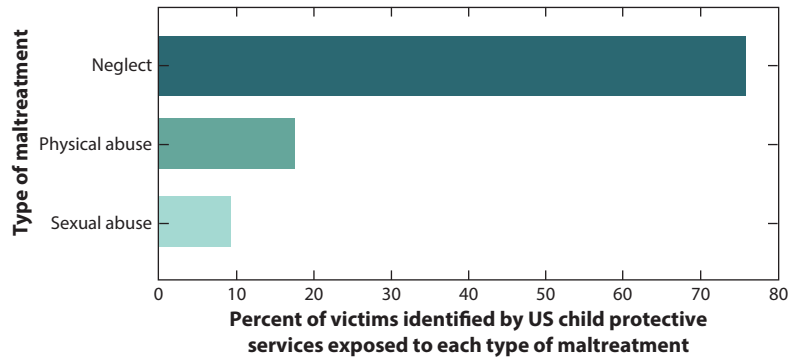
body of research indicates that neglect and poverty have distinct effects on children's outcomes across the life span, with neglect being particularly harmful. For example, in a study of over 29,000 young adults, those with a history of alleged or confirmed neglect had significantly worse outcomes in domains such as high school graduation and employment than did those without a history of maltreatment who were exposed to similar duration and depth of childhood poverty (Font & Maguire-Jack 2020). Thus, although policies that eliminate childhood poverty are urgently needed and may partially reduce the prevalence of neglect (Rostad et al. 2017), neglect is a distinct experience that requires specialized intervention. Barth et al. (2022) suggest that the extent to which a child's experience of deprivation is due to caregiver omission or factors like poverty should be considered in determining how (but not whether) to intervene.

Other scholars and policymakers have criticized child welfare for failing to act effectively when children are at risk or after they have experienced maltreatment (Bartholet 2000, Child. Advocacy Inst. 2015). These stakeholders argue that the system unduly emphasizes parental rights over children's interests. Specifically, the goal of maintaining family integrity or family preservation may sometimes prolong children's exposure to harm or return them to unsafe environments. Few could disagree that reunification is essential when meaningful family relationships exist and can be preserved while maintaining the child's well-being, but Bartholet (2000) has advocated for prompt removal of children from homes in which they are determined to have no chance of being nurtured.

A third concern related to errors of both commission and omission involves the role of systemic racism in families' interactions with child protection agencies. Specifically, Black and Indigenous families are overrepresented in the child welfare system, and some data indicate racial bias in decisions made by caseworkers and/or judges that could lead to unnecessary state intervention (Dettlaff 2021). One response to these concerns has been to advocate for abolishing foster care altogether, especially for cases of neglect (Dettlaff et al. 2020). A less radical position has been to restrict state intervention to cases in which parents threaten the physical survival of their children (Wald 2015). However, this policy could have severe negative consequences in scenarios in which children's basic survival needs are met but their psychosocial needs are neglected.

In this review, we evaluate the literature on the outcomes of young children in institutions to clarify the immediate and longer-term consequences of psychosocial neglect. We have focused this review on children in the earliest years of life because at this time, infants and young children depend on their caregivers for nearly all of the physical and psychological input that organizes their physiology, subjective experience, and behavior (Humphreys et al. 2021). Their needs for instrumental care are continual; for example, human newborns are typically fed every 3–4 hours. Early interactions between infants and their caregivers shape the nature of their attachment relationship, which, in turn, regulates how children explore the environment, seek support and comfort from others, and resolve distress (Ainsworth et al. 1978, Bowlby 1983, Braungart-Rieker et al. 2001). The intensity of caregiving demands of infants and young children may be one reason that this age group is most likely to experience neglect (US Dep. Health Hum. Serv. 2020).

Findings from research on psychosocial neglect in the early years, including studies of children exposed to institutional care, demonstrate severe and harmful consequences for child development. We suggest that a full appreciation of these effects should inform policy debates about child welfare reform. Although issues of poverty and racism are critical to consider in improving the child welfare system, preventing child maltreatment, and eliminating errors of commission, we contend that psychosocial neglect should be considered to be as dangerous to child well-being as physical maltreatment. Data from studies of children exposed to institutional care indicate that high-quality and stable foster care benefits children's development when the alternative is prolonged psychosocial neglect (Zeanah et al. 2017). Thus, foster care is the best option when psychosocial neglect is severe and intractable in the child's family of origin.



**Figure 1**

Prevalence of types of maltreatment in the United States. Data from US Dep. Health Hum. Serv. (2021).

## PREVALENCE OF NEGLECT

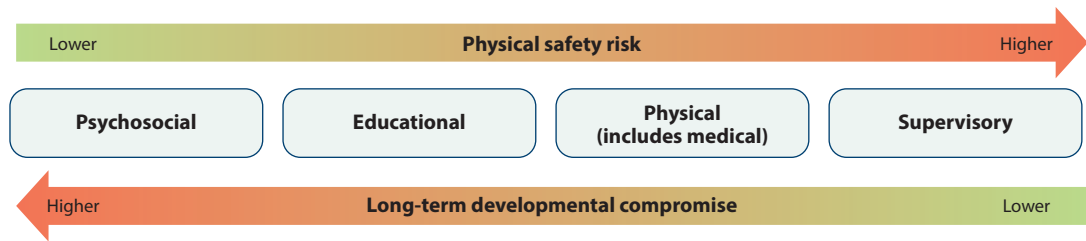
Data from within the United States and internationally have repeatedly affirmed that neglect alone or with other types of maltreatment accounts for the majority of cases of maltreatment that are identified by child protective services and affirmed by the legal system (**Figure 1**). For example, the most recent available data from the United States indicate that three-quarters (74.9%) of child victims of maltreatment were neglected, 17.5% were physically abused, and 9.3% were sexually abused (US Dep. Health Hum. Serv. 2021). In addition, 6.8% of victims are reported with an “other” type of maltreatment, a designation used by some states to refer to threatened abuse, lack of supervision, or parental substance addiction. The prevalence rates internationally were estimated to be 16.3% for physical neglect and 18.4% for emotional neglect, with no apparent gender differences, although data were scarce from low-resource countries (Stoltenborgh et al. 2013). A more recent review indicated that prevalence estimates depend on the measures used to assess neglect, varying between about 16% and 76% (Tingberg & Nilsson 2020).

## CLASSIFICATION OF NEGLECT

Although there is no standard definition of neglect (Rebbe 2018), the US Child Abuse Prevention and Treatment Act of 2010 defines neglect as “failure to act on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse or exploitation, or an act or failure to act which presents an imminent risk of serious harm” (Pub. L. 111–320, 124 Stat. 3482). Highlighting the challenge of defining the absence of appropriate care, this broad definition does not detail exactly which behaviors constitute neglect.

Researchers have classified neglect as physical (i.e., inadequate provision of food, water, shelter, clothing, or medical care), supervisory (i.e., not watching a child closely enough or leaving a child with inadequate substitute care), and educational (i.e., not ensuring the child’s school attendance) (Coohey 2003, Dubowitz et al. 2004, McLaughlin et al. 2017, Stoltenborgh et al. 2013, Welch & Bonner 2013). Psychosocial neglect occurs when caregivers fail to provide children with adequate nurturance and cognitive stimulation (King et al. 2019). **Figure 2** illustrates a modal continuum of risk to immediate physical safety and of developmental compromises associated with these types of neglect. Though lowest in risk to immediate safety, psychosocial neglect is highest in risk of long-term developmental compromise.

From a broader perspective, researchers have proposed that the core defining feature of neglect is the deprivation of needed environmental input (McLaughlin et al. 2017). For young children,



**Figure 2**

Types of child neglect and associated risk.

this needed input is caregiving that satisfies not only physical needs but also emotional, social, and cognitive needs. As advocated by Dubowitz (2013), a child-centered perspective on neglect, which defines neglect based on the child's unmet needs rather than on the caregiver's culpability, has advantages. By centering children's needs, child well-being becomes primary, and contextual factors that contribute to neglect can be recognized and addressed.

## NEGLECT IN CONTEMPORARY MODELS OF ADVERSITY

Neglect is one form of psychosocial adversity, a construct that also includes experiences such as abuse, violence, interpersonal loss, and poverty. Scholars have defined adversity as environmental exposures that are potentially hazardous to children's development (Nelson & Gabard-Durnam 2020). However, adversity is a multifactorial construct that varies in duration, chronicity, timing, and intensity. Adverse experiences also co-occur, rendering case-control research of individuals exposed to just one form of adversity practically impossible (McLaughlin et al. 2021). For example, individuals who experience neglect are significantly more likely to also experience abuse, and neglect itself is a multifaceted construct. In a recent meta-analysis of population-based samples using a self-report questionnaire to measure maltreatment, physical neglect and psychosocial neglect strongly converged ( $Z = 0.62$ ) (Matsumoto et al. 2020). The phenomenon of correlation among different types of maltreatment is one reason why understanding the effects of psychosocial neglect per se is challenging. With the goal of addressing the complexity of adversity, several theoretical models have been developed to improve how scientists conceptualize and measure adversity.

For several decades, research on childhood adversity has been dominated by the cumulative risk model, which quantifies risk by counting the number of adverse experiences to which individuals have been exposed without regard to the type of experience. The linear, nonspecific association between adverse experiences in childhood and physical and mental health disorders in adulthood is well-established at the population level though not at the individual level (Baldwin et al. 2021). Recent alternative models of adversity have focused on dimensions of experience (Belsky et al. 2012, Ellis et al. 2009, Humphreys & Zeanah 2015, McLaughlin & Sheridan 2016). In contrast to specificity models, which focus on the effects of individual adversities (e.g., the effect of physical abuse considered in isolation), dimensional models propose that there are core continuous aspects of experience that occur across multiple types of adversity. For example, McLaughlin and colleagues (McLaughlin & Sheridan 2016, McLaughlin et al. 2014, Sheridan & McLaughlin 2014) have focused on the dimension of deprivation, which involves the lack of expected environmental inputs, and the dimension of threat, which involves the presence of harmful inputs. In this framework, deprivation is the dominant dimension in neglect but is also evident in poverty (material deprivation) in the absence of neglect. Some (but not all) of the mechanisms for the effects of neglect and poverty on development are hypothesized to be shared.

Experiences involving deprivation have some effects on development that appear to be distinct from experiences of threat (Colich et al. 2020, McLaughlin et al. 2019).

Recently, Smith & Pollak (2020) offered an alternate model focused on the topology of adversity. Proposing that the way a given child experiences an event is more biologically meaningful than the type of event, these authors emphasize an individual's perception and interpretation of their exposure. They use the term topology to denote that an exposure may have a different meaning or impact depending on factors such as the features of the exposure (e.g., duration and intensity), the individual's social context (e.g., whether the child has an attachment figure who may buffer their exposure), and other individual differences (e.g., the child's temperament). Smith & Pollak's topological model is mostly uncontroversial. The idea that features of the exposure, social context, and individual differences may moderate the effects of adversity on development has been discussed and tested extensively (Ellis et al. 2011, Gee & Casey 2015, Hammen 2015, Humphreys et al. 2021, Nelson & Gabard-Durnam 2020).

Nevertheless, by contending that "an event is not adverse until the child perceives and construes it as such" (p. 82), Smith & Pollak (2020) advance a definition of adversity that is countered by many studies of neglect. Indeed, some effects of neglect unfold through experience-expectant mechanisms of neurodevelopment (McLaughlin et al. 2021) such that inadequate input during sensitive periods compromises development regardless of the child's perception (Nelson et al. 2007, Smyke et al. 2010, Vanderwert et al. 2010). For example, if exposure to speech is required for the development of brain regions implicated in language processing, then deprivation of language input will result in the failure to develop this skill irrespective of the child's perception of their deprivation. Further, cellular and molecular changes such as gene methylation (Parade et al. 2021) and telomere attrition (Drury et al. 2012) have been demonstrated to follow adverse experiences in the earliest months of life. Although there is no way at present to determine whether subjective experiences of neglect in preverbal children contribute to outcomes over and above the molecular changes resulting from objective exposure to neglect, it is implausible that an absence of environmental input is harmful only if perceived to be so by the infant or young child. Considering the child's subjective experience is important, but neglect should be treated as hazardous for the child's development independently of the child's subjective experience.

## **INSTITUTIONAL REARING AS A CONTEXT OF NEGLECT**

Though institutions for young children vary widely on key variables such as their material resources, group size, age similarities of children, staffing patterns and ratios, and degree of impersonal care, there are striking modal features that contrast strongly with the care available to children in families (Nelson et al. 2014, van IJzendoorn et al. 2020). First, institutional settings rarely permit consistent and emotionally available caregivers to develop meaningful, individualized relationships with children. Because staff work rotating shifts, the time that a staff member and child have to spend together is limited, especially if the caregiver-to-child ratio is high (as it often is) and if group size is large (as it often is). Second, institutional schedules are often not just predictable, but rigid and inflexible. In Romanian institutions for young children, for example, diapers were changed at specific intervals regardless of the needs of individual children. Third, despite rigid schedules, there are often large stretches of time during which children are left on their own (e.g., in many institutional settings, "playtime" for toddlers consists of undirected time with no adult involvement). Thus, the social, emotional, and cognitive interactions that occur routinely between caregivers and young children in families are much less likely to occur in institutional settings. In summary, these structural features result in care that is insensitive and/or inadequate, isolating, and lacking in psychological investment.

Despite being characterized by psychosocial deprivation, most institutional settings, for young children at least, are physically safe. Physical and sexual abuse were apparently rare in institutions for young children in Romania (Stativa 2000, Stativa et al. 2017). Investigators working in Bucharest, for example, conducted hundreds of hours of observations of young children living in institutions. Although they observed many instances of absent or reduced responsiveness and some insensitive caregiving, they observed no evidence of abuse or physical neglect (Nelson et al. 2014).

## SEQUELAE OF INSTITUTIONAL PSYCHOSOCIAL NEGLECT

Studies of children exposed to deprivation in institutional care inform understanding of how to define neglect from a child-centered perspective, including when intervention is necessary. When children do not have caregivers to coregulate their emotions, as is the case in institutional care, the neurobiological and behavioral systems that organize their responses to stressors and the daily environment are likely to develop atypically (Callaghan & Tottenham 2016a, Gee 2020, Hostinar & Gunnar 2013, Humphreys et al. 2021). When children are reared in environments characterized by the absence of enriching sensory, motor, linguistic, and social input, their opportunities for learning are severely constrained, and their neurocognitive development is likewise impaired (McLaughlin & Sheridan 2016, McLaughlin et al. 2017). Thus, forms of neglect that may not immediately appear to be dangerous (e.g., a pattern of unresponsiveness to a child's distress) constitute serious hazards to a child's well-being. Studies of institutionalized children provide incontrovertible evidence that even when children are physically safe, psychosocial neglect has enduring harmful consequences for development. Alternatively, children exposed to institutional care fare better following intervention, pointing to the ameliorating effects of enhancing psychosocial enrichment from caregivers.

Two major longitudinal studies of young children raised in institutions (Nelson et al. 2014, Sonuga-Barke et al. 2017) and a Lancet Commission meta-analysis on the institutionalization and deinstitutionalization of children (van IJzendoorn et al. 2020) provide the most comprehensive evidence of the effects of psychosocial deprivation on children's development. These complementary studies are summarized in **Table 1**.

The English and Romanian Adoptees (ERAS) study (Sonuga-Barke et al. 2017) and the Bucharest Early Intervention Project (BEIP) (Nelson et al. 2014) followed the child protection crisis that occurred in Romania at the turn of the twenty-first century. In the wake of the disastrous and inhumane economic policies of Nicolae Ceaușescu, over 170,000 Romanian children were estimated to reside in socially impoverished institutional care, with some kept in horrendous conditions (Nelson et al. 2014). The ERAS study is a longitudinal natural experiment of children who were adopted from Romanian institutions into supportive UK families and examines children's responses to severe early psychosocial neglect followed by placements into advantaged families. Prior to the initiation of the BEIP in 2001, foster care had only recently been legalized in Romania and had not been implemented meaningfully in Bucharest. As the only randomized controlled trial of foster care as an alternative to institutional care, the BEIP has yielded the most robust causal inferences about the effects of family-based care on recovery from severe deprivation and has informed understanding of how the timing of rescue from deprivation influences development. Finally, a recent Lancet Commission Group meta-analysis examined the institutionalization and deinstitutionalization (i.e., adoption or placement in a family) of children across the globe, providing a comprehensive estimation of the effects of institutional rearing on development (Goldman et al. 2020, van IJzendoorn et al. 2020). Below, we draw heavily upon the ERAS, the BEIP, and this meta-analysis to consider findings regarding the short- and long-term consequences of institutional care across multiple domains of development.

**Table 1** Landmark studies of the effects of institutional care and recovery from psychosocial deprivation

Study of institutional care	Design	Description
English and Romanian Adoptees Study (ERAS) (Sonuga-Barke et al. 2017)	Natural experiment	165 children adopted between 2 weeks and 43 months of age into socioeconomically advantaged households in the United Kingdom from institutions in Romania in the early 1990s Adopted English children never exposed to maltreatment served as a comparison group Assessments at 4, 6, 11, 15, and 22–25 years
Bucharest Early Intervention Project (BEIP) (Nelson et al. 2014)	Randomized controlled trial	136 Romanian children ages 6–31 months (at baseline) who had been abandoned at or near birth and placed into institutions in Bucharest, Romania Randomized to receive care as usual (typically prolonged institutional care) or to be placed with a foster family monitored by study personnel Romanian children with no histories of institutional rearing served as comparison group Assessments at 30, 42, and 54 months of age (when randomized controlled trial officially concluded) Follow-up assessments at 8, 12, and 16 years
Lancet Commission Group on Institutionalization (van IJzendoorn et al. 2020)	Meta-analysis	Synthesized evidence from 308 studies of children exposed to institutional care Quantified average effects of institutionalization, deinstitutionalization, and individual differences in institutional care on multiple domains of development ERAS included in meta-analysis but BEIP used as a reference study due to its unique experimental design

**Physical Growth**

Results from the Lancet Commission meta-analysis indicate that across the domains of physical growth (i.e., height and weight), physical health, head circumference, cognitive functioning, socioemotional functioning, and attention, institutionalization has the most severe effect on physical growth and head circumference (Hedges’ *g* ranged from 1.18 to 1.44 for growth and head circumference versus 0.29–0.81 for other outcomes) (van IJzendoorn et al. 2020). For example, in a study of children ages 23 months to 6 years residing in an institution in Romania, on average, children were in the 6th percentile for height for their age group and in the 3rd percentile for weight (Ellis et al. 2004). Nonetheless, physical growth shows substantial catch-up after deinstitutionalization; according to the meta-analysis, children, on average, reach the normal range after being adopted or transferred to a more family-like environment (van IJzendoorn et al. 2020). Data from the BEIP indicate that, compared with children randomized to care as usual, children in the foster care group grew significantly faster between the baseline assessment and age 42 months, an average span of 19 months; by 12 months postplacement, 100% of the children randomized to foster care were in the normal range for height for their age group and 90% were in the normal range for weight (Johnson et al. 2010). Among children randomized to foster care, those who experienced higher-quality caregiving demonstrated the greatest catch-up of height and weight.

**Cognitive Functioning**

The Lancet Commission meta-analysis also indicates that institutionalization is strongly associated with difficulties in cognitive functioning (Hedges’ *g* = 0.81) but that children recover following deinstitutionalization (van IJzendoorn et al. 2020). In early childhood, children participating in the BEIP who were randomized to foster care had significantly better cognitive functioning, as



measured by the Bayley Scales of Infant Development (Bayley 1993) and the Wechsler Preschool Primary Scale of Intelligence (Wechsler 2002) than did children randomized to care as usual (Nelson et al. 2007). At ages 12 and 18 years, children in the foster care group continued to demonstrate higher IQ scores than care-as-usual children; however, they had significantly lower IQ scores than a comparison group of never-institutionalized children (Almas et al. 2016; Humphreys et al. under review). Specifically, although the mean IQ scores for children assigned to foster care were approximately 7–9 points higher than those for children assigned to the care-as-usual group, their scores were low relative to typically developing children (Braaten & Norman 2006), and were, in fact, approximately 20 points lower than the mean for the never-institutionalized comparison group. Thus, while recovery of cognitive functioning occurs, there are also lasting negative effects of early psychosocial deprivation on the skills measured by IQ tests.

Children exposed to institutionalization, particularly for longer durations, also perform more poorly on tasks measuring executive function (e.g., cognitive flexibility, working memory, inhibitory control) across childhood and adolescence (Bos et al. 2009, Colvert et al. 2008, Hostinar et al. 2012, Merz et al. 2013, Pollak et al. 2010, Wade et al. 2019) and theory of mind across childhood (Colvert et al. 2008, Tarullo et al. 2007, Yagmurlu et al. 2005) than do never-institutionalized comparison children. Although the BEIP's foster care intervention improved children's IQ scores, results unfortunately indicate minimal effects on measures of executive function. For example, studies using the Cambridge Neuropsychological Test Automated Battery (Luciana & Nelson 2002) to assess visual recognition memory and learning, spatial working memory, and spatial planning found that at ages 8 and 12 years, children in both the care-as-usual and foster care groups performed more poorly compared with never-institutionalized children (Bick et al. 2018, Bos et al. 2009). In two other studies using a go/no-go and a Flanker task to measure children's inhibitory control at age 8 years, children in the foster care group did not differ from care-as-usual children on the Flanker task but made comparatively fewer errors in the go condition of the go/no-go task, possibly indicating improved ability to sustain attention and orient toward salient stimuli (McDermott et al. 2012, 2013).

## Language and Communication

Although less research has focused on language and communication than on other domains of development, institutionalization has been associated with poorer language skills and communication. For example, internationally adopted children ages 4–13 years who had spent >12 months in an English language environment had poorer language knowledge than never-institutionalized children (Eigsti et al. 2011). Further, among the adopted children, those who had spent more time in institutional care had the poorest language knowledge when controlling for the amount of time they had spent with their adoptive family. Similarly, in a longitudinal study of children ages 2–8 years, internationally adopted children performed worse on tests of general language ability and early literacy at an initial assessment and 1 year later than children raised in their biological families. Although most of the adopted children reached normative age expectations for language ability between 1 and 2 years postadoption, those exposed to more prolonged institutional care had more difficulties (Rakhlin et al. 2015). Individuals who spend the majority of their childhoods in institutional care may have persistent problems in language and communication. Adolescents and adults recruited from vocational schools in Russia who had spent an average of 10 years in institutional care had deficits in lexical and grammatical development and spelling (Kornilov et al. 2019). In a recent analysis of the effects of psychosocial deprivation on language ability, Humphreys et al. (2020b) leveraged data from the BEIP and from the Fragile Families and Child Well-Being Study (Reichman et al. 2001), a population-based birth cohort of US children. Among children in the BEIP, those with a history of institutional care had poorer receptive vocabulary at age 18 years, a

deficit that was not significantly ameliorated by foster care. Similarly, among children in the Fragile Families and Child Well-Being Study, psychosocial deprivation in one's family was associated with poorer receptive vocabulary at age 9 years even after controlling for socioeconomic status (Humphreys et al. 2020b).

### **Social and Emotional Processes**

The Lancet Commission meta-analysis found that the effects of institutional rearing on socio-emotional development were not as large as on other outcomes (Hedges'  $g = 0.32$ ; van IJzendoorn et al. 2020). Importantly, however, the authors noted several caveats for interpreting these relatively smaller effects. First, some of the studies in the meta-analysis assessed children months to years after they left institutions, after some degree of recovery presumably had occurred. Second, most studies had used parent-report questionnaires that were not designed to assess difficulties specific to children exposed to severe psychosocial deprivation. Observational assessments of young children may better capture some of the effects of institutionalization on socioemotional development. For example, observations of young children at the baseline assessment of the BEIP revealed that children living in institutions displayed significantly less positive affect in response to puppet play and an interactive peek-a-boo game than did never-institutionalized children living in families (Smyke et al. 2007). In contrast, children who were randomized to foster care subsequently expressed levels of positive affect in response to these same paradigms that were statistically indistinguishable from never-institutionalized children (Ghera et al. 2009).

Studies of attachment, assessed using the Strange Situation Procedure (Ainsworth et al. 1978), also revealed substantial differences in institutionalized children compared with noninstitutionalized children (Bakermans-Kranenburg et al. 2011, Zeanah et al. 2013). Compared to never-institutionalized children, institutionalized children have substantially lower rates of secure attachment (24% versus 62%) and higher rates of disorganized and unclassifiable attachments (57% versus 15%) (van IJzendoorn et al. 2020). At the baseline assessment in the BEIP, raters masked to intervention group assignment rated 100% of never-institutionalized toddlers but only 3% of institution-reared toddlers as having fully formed attachments to their caregivers. In addition, 35% of the children in institutions had no or minimal attachment behaviors directed towards their primary caregivers during the Strange Situation Procedure (Zeanah et al. 2005).

### **Brain Structure and Function**

Institutional rearing is associated with alterations in neurodevelopment. Specifically, compared to never-institutionalized children, children exposed to institutional care show differences in their brain structure and function. Researchers theorize that psychosocial deprivation in early life disrupts experience-expectant mechanisms of neuroplasticity, including synaptogenesis and synaptic pruning (Ho & King 2021, McLaughlin et al. 2017). Results of the Lancet Commission meta-analysis indicate that institutionalization is associated with reduced overall brain growth as inferred by head circumference (Hedges'  $g = 1.44$ ), with evidence for recovery into the normal range following deinstitutionalization (van IJzendoorn et al. 2020).

Researchers also have used magnetic resonance imaging to examine brain volumes and cortical thickness among individuals exposed to institutional care. For example, among adults in the ERAS, Romanian adoptees, especially those who experienced a longer duration of institutional care, had substantially smaller total brain volume than English adoptees not exposed to institutional care (Mackes et al. 2020). Consistent with these results, children in the BEIP exposed to institutional care had significantly smaller cortical gray matter volume at ages 8–10 years than

did never-institutionalized children (Sheridan et al. 2012). Although the foster care intervention did not significantly ameliorate gray matter volume, children randomized to foster care did show greater cortical white matter volume compared with those children who experienced more prolonged institutional care. Specifically, whereas care-as-usual children had significantly smaller white matter volume than did never-institutionalized children, children randomized to foster care were statistically indistinguishable in white matter volume from never-institutionalized children.

Focusing on stress-sensitive brain regions with high densities of glucocorticoid receptors, researchers have found that previously institutionalized adolescents have smaller prefrontal cortex volumes and that longer duration of institutional care is associated with smaller hippocampal volumes (Hodel et al. 2015). In a longitudinal study of individuals ages 4–20 years, history of institutional care was associated with smaller hippocampal volume and reduced growth rate of the amygdala, leading to smaller amygdala volume compared to never-institutionalized individuals by adolescence (VanTieghem et al. 2021). With respect to brain function, previously institutionalized children have shown greater amygdala activation in response to fearful faces than never-institutionalized children (Tottenham et al. 2011) and stronger functional connectivity (i.e., correlated activation) between the hippocampus and the ventromedial prefrontal cortex during an aversive learning task—an age-atypical profile more closely resembling adults (Silvers et al. 2016). Gee et al. (2013) also found that previously institutionalized children evidenced adult-like amygdala–medial prefrontal cortex functional connectivity, which was not observed among never-institutionalized children. These findings are consistent with the theory that hazardous experiences in early life may lead to accelerated development in some domains (Callaghan & Tottenham 2016b). Nonetheless, a recent meta-analysis and systematic review found no consistent association between adversity of any form and amygdala–prefrontal cortex connectivity (Colich et al. 2020).

Finally, several papers from the BEIP have used electroencephalograms (EEGs) to examine differences in resting brain activity between children randomized to foster care, care-as-usual children, and never-institutionalized children. At the baseline assessment when children were 6–31 months, those exposed to institutionalization had significantly lower relative alpha and beta power and significantly higher theta power than the never-institutionalized comparison group, a profile indicating more immature or delayed brain development (Marshall & Fox 2004). By age 8 years, care-as-usual children had lower alpha power than never-institutionalized children whereas children randomized to foster care were not significantly different from never-institutionalized children (Vanderwert et al. 2010). Findings were similar when children were ages 12 (Vanderwert et al. 2016) and 16 years (Debnath et al. 2020).

## Psychopathology

We have chosen to distinguish between psychopathology and social and emotional development in our discussion of the effects of institutional care, unlike in the Lancet Commission report in which these domains were considered collectively. Psychopathology is related to but distinct from socioemotional development. The predictors and course of psychopathology differ to some extent from those of impaired socioemotional development, with implications for intervention. Specifically, psychopathology calls for treatment, whereas insecure attachment or reduced positive affect may not if the child is functioning competently. The ERAS and the BEIP have used state-of-the-art structured diagnostic interviews to examine psychiatric disorders and symptom patterns among institutionalized children, providing the clearest findings about the effects of institutional care on the development of psychopathology.

The ERAS investigation described three major types of psychopathology that the authors consider deprivation-specific patterns (DSPs) of behavior (Rutter et al. 2010). The three DSPs studied were quasi-autism (social relatedness disturbances similar to those in autism), inattention/overactivity [signs of attention-deficit/hyperactivity disorder (ADHD)], and disinhibited attachment [indiscriminate social behavior now known as disinhibited social engagement disorder (DSED)]. Romanian adoptees in the ERAS who had spent more than 6 months in institutional care demonstrated persistently high rates of these three DSPs in early childhood through young adulthood (Sonuga-Barke et al. 2017). At ages 11 and 15 years, Romanian adoptees also had more internalizing and externalizing problems, as assessed by a combination of parent and teacher ratings (Rutter et al. 2010). Sign of quasi-autism (Hoksbergen et al. 2005, Levin et al. 2015), ADHD (Ames 1997, Hodges & Tizard 1989, Roy et al. 2004, Zeanah et al. 2009), and social disinhibition (Bruce et al. 2009; Chisholm 1998; Dobrova-Krol et al. 2010; Gleason et al. 2014; Hodges & Tizard 1989; Smyke et al. 2002, 2012) have been demonstrated in other samples of children who experienced early institutional deprivation.

In the BEIP, at the conclusion of the trial at age 54 months, children in both the foster care and care-as-usual groups had significantly higher rates and more severe symptoms of internalizing and externalizing disorders and ADHD (Zeanah et al. 2009). Nevertheless, those who had received the foster care intervention were significantly less likely to have internalizing disorders than children in the care-as-usual group (Zeanah et al. 2009). Children in the foster care group also had significant reductions in signs of reactive attachment disorder (RAD) and DSED at the trial's conclusion (Smyke et al. 2012). In follow-up assessments, the positive effects of the foster care intervention on children's psychopathology persisted. At ages 12 and 16 years, children in the foster care group had fewer externalizing symptoms than children who received care as usual (Humphreys et al. 2015, 2020a), and at age 12, signs of RAD and DSED were significantly lower among children randomized to foster care versus care as usual (Guyon-Harris et al. 2019a,b).

## Competence

In addition to the domain-specific analyses above, researchers have examined children's overall competence following institutional care, that is, to what extent children may function adequately despite early deprivation. In the BEIP, for example, 12-year-old children who had been randomized to foster care in early childhood were more likely to be rated as functioning competently than those randomized to the care-as-usual group (56% to 23%). To be rated as competent in this analysis, children had to function well in six of seven domains: family relations, peer relations, physical health, mental health, alcohol or drug use, school performance, and risk-taking behaviors (Humphreys et al. 2018). When examined longitudinally, maintaining competent functioning from 8 to 16 years was associated with spending less time in institutions and receiving higher-quality caregiving early in life (Guyon-Harris et al. 2021).

In the ERAS, a normality/impairment dichotomy based on seven domains of functioning (cognitive impairment, quasi-autism, inattention/overactivity, disinhibited attachment, and conduct, emotional, and peer relationship problems) found that pervasively impaired children were exclusively in the group with more than 6 months' exposure to institutional care before adoption (Kreppner et al. 2007). When comparing children who spent 6–24 months in institutional care with children who spent 24–52 months, there were no differences in rates of normality versus impairment; instead, both groups showed significantly greater rates of impairment than the group adopted prior to spending 6 months in institutional care. Patterns of normal and pervasively impaired functioning were stable from age 6 to 11 years (Kreppner et al. 2007).

## IMPLICATIONS OF STUDIES OF PSYCHOSOCIAL NEGLECT FOR POLICIES AND PRACTICE

The studies reviewed above concerning psychosocial neglect associated with institutional rearing reveal the severity and breadth of adverse outcomes across a broad range of developmental domains for affected children. These findings underscore the potential harm that psychosocial neglect involves. Here, we discuss findings in four major areas, and we consider implications for practice and policies regarding psychosocial neglect in early childhood.

### Limiting Exposure to Psychosocially Neglectful Environments

The Lancet Commission Group also meta-analyzed 89 studies examining the duration of children's stay in institutions, identifying a strong dose–response relation between length of institutional care exposure and developmental outcomes. Specifically, longer exposure to institutional rearing was associated with more developmental delays and deviations (van IJzendoorn et al. 2020). Findings from the ERAS and BEIP, considered below, also demonstrate the deleterious effects of longer exposure to the neglectful environments of institutions.

Although “dose” of institutional exposure is often operationalized as length of time in the neglectful environment (e.g., van IJzendoorn et al. 2020), the severity of the neglect within that time also matters. Though formal assessments are lacking, structural characteristics of institutional settings make it possible to infer severity of neglect. For example, at the time of the ERAS and BEIP, caregiver-to-child ratios were typically 1:12 (and sometimes greater) in Romanian institutions (Zeanah et al. 2003), whereas in a separate study of young children in residential nurseries in London, United Kingdom, the caregiver-to-child ratios were 1:3 (or even lower) (Tizard et al. 1972). The London residential nurseries were more materially advantaged than the Bucharest institutions, but caregivers in London were specifically instructed not to “attach” to children for fear that disrupting the attachment later would be harmful. On the one hand, cognitive functioning of children in the care-as-usual group in the BEIP was severely impaired at 4.5 years (see the section titled Cognitive Functioning), whereas in the London study when children were 4.5 years, IQs were in the average range in both the institutionalized and working-class home-reared groups (Tizard & Rees 1974). On the other hand, in both studies children exposed to institutional care had profound disturbances of attachment (Tizard & Hodges 1978, Tizard & Rees 1974, Zeanah et al. 2005). This pattern of findings suggests that although cognitive differences varied with the severity of psychosocial neglect in the different settings, in both settings there was a pernicious effect of institutional care on attachment.

Overall, data regarding the effects on development of both the duration and severity of deprivation in institutional care indicate that exposure to any significant duration of psychosocial neglect of any kind carries significant risk of harm. Limiting exposure to psychosocial neglect in families is imperative, and institutions are not appropriate settings for raising children (Dozier et al. 2014, Goldman et al. 2020).

### Unique Vulnerability of Early Childhood

Most research on the effects of institutional rearing involves children placed in institutions at or near birth. Understanding the effects of the timing of interventions that remove children from institutions and place them into more favorable caregiving environments is confounded by the length of exposure to institutional care. Specifically, children who are deinstitutionalized earlier in their development are also generally exposed to a shorter duration of institutional care, making it difficult to determine whether it is the earlier timing of an intervention or shorter duration of institutional care that improves children's outcomes. Despite these limitations, because the first

years of life are a period of rapid brain development in which environmental input may have an outsized effect, the timing of intervention is likely to be at least one important factor contributing to the course of recovery from psychosocial neglect. In fact, though we have little systematic research in humans about infants initially raised in favorable environments who are subsequently exposed to psychosocial neglect, findings from nonhuman primate studies suggest that later exposure is less deleterious (O'Connor & Cameron 2006, Sabatini et al. 2007).

Sensitive periods of development, or constrained windows of plasticity during which the influence of the environment on the brain and behavioral development is especially strong (Knudsen 2004), occur in a cascading fashion across early life. Different sensitive periods correspond to different forms of environmental input and learning mechanisms and engage different neural circuits and behaviors (Gabard-Durnam & McLaughlin 2020, Nelson & Gabard-Durnam 2020). Whereas the presence of key environmental input (e.g., visual input, language, nurturance) during a sensitive period engages experience-expectant mechanisms of neural plasticity, the reduction or absence of this input, as in the case of psychosocial neglect, can lead to lasting difficulties that are difficult to overcome. Exposure to key input during a sensitive period leads to rapid changes in brain function; before a sensitive period opens or after it closes, however, neural responsiveness to this input is diminished.

In addition to sensory and associative processing, infancy appears to be a sensitive period for some domains of social and emotional development, including for attachment security (Smyke et al. 2010). Although most evidence favors sensitive periods early in ontogeny, sensitive periods are not fixed but malleable to environmental and biological factors that differ between individuals (Nelson & Gabard-Durnam 2020) and may emerge later in development (Gee 2021). For example, the idea that adolescence is a sensitive period has gained traction in the scientific literature (Fuhrmann et al. 2015).

Providing evidence for the presence of sensitive periods in early life, children exposed to institutional care who are adopted or transferred to families earlier in their development generally recover better than those who leave institutional care at older ages. Findings from the ERAS indicate that Romanian adoptees who experienced less than 6 months of institutional care had similarly low levels of symptoms of DSPs as English adoptees not exposed to institutional care (Sonuga-Barke et al. 2017). Further, a study of Romanian children adopted into Canada found that children who were adopted prior to 4 months in institutional care were more likely to be securely attached than children who had spent 8 or more months in institutional care. The group with less than 4 months of exposure, in fact, was comparable to comparison children raised from birth in Canadian families (Chisholm 1998).

In the BEIP, all children randomized to foster care were placed in families in early life (between the ages of 7 and 33 months), but those placed the earliest often fared better. For example, compared with children placed later, children placed in foster care at or below age 12 months showed greater physical growth from baseline to age 42 months (Johnson et al. 2010), and children placed at or below age 24 months had higher IQ scores at age 54 months (Nelson et al. 2007), higher EEG alpha power at ages 42 months and 8 years (Marshall et al. 2008, Vanderwert et al. 2010), and more secure attachment and more organized attachments to caregivers at age 42 months (Smyke et al. 2010). Age of placement in foster care was also continuously associated with children's profiles of DSED from baseline to age 12 years (Guyon-Harris et al. 2018). From a policy perspective, a reasonable summary of these findings is the earlier the better for enhancing the caregiving environment of young children. Early intervention reduces the amount of time that children are exposed to neglect and increases the child's opportunity to receive environmental enrichment during a period when psychosocial input is especially consequential.

## Quality of Care Following Exposure to Neglect

Enhancing structural factors likely to promote caregiving quality within institutions, such as better child-to-caregiver ratios (St. Petersburg–USA Orphanage Res. Team 2008), fewer caregivers for each child (Smyke et al. 2002, St. Petersburg–USA Orphanage Res. Team 2008), and more caregiver investment in children (Smyke et al. 2002), appears to help protect children from the effects of institutional care. Still, because of the inherent limitations of institutions as care settings even in the best of circumstances, the Lancet Commission Group recommended that institutions should be eliminated as an option for maltreated and abandoned young children; instead, family care should be prioritized (Goldman et al. 2020).

Researchers in the BEIP conducted intensive observational assessments of children's interactions with their caregivers both within institutions and in foster care, operationalizing higher-quality caregiving as care that was more sensitive and cognitively stimulating, warmer, and less detached (Smyke et al. 2007). Across all children, higher quality of caregiving at age 30 months predicted fewer symptoms of multiple types of psychopathology at age 54 months, with security of attachment at 42 months mediating this association (McGoron et al. 2012). A combined measure of caregiving quality at 30 and 42 months of age also predicted IQ at age 18 years (Humphreys et al. 2022). Although higher caregiving quality was positively associated with IQ at age 18 years for both children randomized to foster care and children randomized to care as usual, caregiving quality was significantly higher for children randomized to foster care, and this improvement partially accounted for the positive impact of the intervention on IQ (Humphreys et al. 2022). Finally, BEIP participants who experienced higher-quality caregiving at 42 months of age were more likely to exhibit consistently competent behavior from middle childhood through mid-adolescence (Guyon-Harris et al. 2021).

## Stability of Placements in Foster Care

The effects on development of the stability of placements in foster care following psychosocial neglect have been examined in the BEIP in two ways. First, researchers have compared children who remained with their original study-sponsored foster families to children who have experienced one or more placement disruptions. Second, researchers have tested the association between number of placement disruptions and children's subsequent outcomes.

At ages 12 and 16 years, children randomized to the foster care intervention who remained with their original study-sponsored foster family had fewer psychiatric symptoms than those who had experienced at least one placement disruption (Humphreys et al. 2015, 2020a). The effects of placement stability were especially powerful for internalizing and externalizing symptoms but less consistent regarding ADHD symptoms. In a longitudinal analysis, children who had experienced more placement disruptions were more likely to demonstrate an elevated or persistent profile of DSED from early childhood through age 12 years (Guyon-Harris et al. 2018). When children were age 16 years, investigators found that those who remained in stable placements had more mature patterns of brain electrical activity in the alpha and theta frequency bands (Debnath et al. 2020) and had IQs that were, on average, 16 points higher than those of children who experienced disruptions (Humphreys et al. 2022). Examining disruptions continuously, BEIP investigators found that increasing numbers of disruptions were associated with increasing numbers of internalizing and externalizing behavior problems and lower IQs at age 12 years, though the latter finding was marginal after controlling for baseline cognitive level (Almas et al. 2020).

The association between placement disruptions and psychopathology is well known in the child welfare literature (Oosterman et al. 2007), but the direction of the effects in this association is somewhat unclear. Children who have serious emotional and behavior problems may precipitate placement disruptions, but disruptions may also lead to emotional and behavioral



problems. However, in the context of the BEIP, children who went on to experience one or more placement disruptions by age 12 years were indistinguishable from those who did not in terms of IQ, psychopathology, and length of exposure to institutional rearing at age 54 months, when the trial ended. These results, along with those of other studies of children placed in foster care following maltreatment (Newton et al. 2000, Rubin et al. 2007, Unrau et al. 2008), are compatible with the idea that disruptions lead to psychopathology in addition to psychopathology likely leading to disruptions. Thus, stable caregiving relationships following severe psychosocial neglect are critical for recovery.

## **TRANSLATIONAL IMPLICATIONS FOR CHILD PROTECTION**

Findings regarding the importance of limiting exposure to neglectful environments and the special vulnerability of young children point to challenges for child protection efforts. US federal legislation, such as the Family First Prevention Services Act (Pub. L. 115–123), mandates intense efforts to provide supports and services to “candidates for foster care” in order to prevent children’s removal from their families. This legislative pressure derives from a widely shared value of maintaining family integrity and limiting government intrusion into family life. But research indicates that the longer children remain in neglectful environments, the more likely they are to be harmed and the more challenging it will be for them to recover. This clash between the value of family autonomy on the one hand and the science of early adversity on the other is a pressing challenge for current child protection efforts.

Although foster care has been a government-sanctioned intervention for maltreated children for more than a century in the United States, there has been less attention to features that ensure that children who are removed from their families receive the best quality of care possible. Yet, the research reviewed above clearly indicates that quality of care may be a crucial component of efforts to enhance outcomes for children who have experienced severe early psychosocial neglect. An emerging model of foster care—the Quality Parenting Initiative—promotes foster parent commitment to their foster child and simultaneously helps foster parents to work collaboratively with the child’s biological parent (Shauffer 2012). This model has been implemented in a number of states but has yet to be formally evaluated.

Finally, evidence cited above indicates that preventing placement disruptions once foster care has been initiated is critical. According to the Casey Family Foundation, fewer than 40% of states have achieved a goal of two or fewer placements for children in foster care (Casey Fam. Programs 2018). Too often, foster placement disruptions are driven by considerations other than children’s best interests (Font 2015). In response to evidence about the harms of placement disruptions for young children, Arizona, Georgia, and Louisiana have recently passed legislation that prioritizes stability over other considerations (Gen Justice 2021, Masterson 2018).

## **FINAL CONCLUSIONS AND POLICY IMPLICATIONS**

Our review of the effects of early psychosocial neglect must be considered within the context of calls to reform the child protection system in the United States. The child protection system was created to ensure that children who are dangerously mistreated within their own families receive adequate protection and care so that they may not only survive but also thrive. In the United States, the original mission of child protection was child safety. Later, placement permanence and, more recently, child well-being were included as additional missions (Zeanah & Humphreys 2018). These efforts to protect must be balanced against a desire to respect family autonomy and to ensure that any disproportionality in state intervention is not due to implicit or explicit bias against racially or socially minoritized individuals among decision makers. Unquestionably,



the US government has a long history of forcibly separating or sanctioning the separation of families of color based on a racist agenda. The separations of American Indian children from their families through federal Indian boarding schools (Newland 2022), Black children through slavery (Johnson 2001), and, more recently, Hispanic/Latinx children at the US southern border with Mexico (Mackenzie et al. 2017) epitomize historical traumas that make placement in foster care an especially fraught experience for minoritized groups.

While fully acknowledging terrible injustices were committed in the name of child protection and that serious problems persist in some settings, it is vital that reforms are developed without dismissing or minimizing the considerable evidence demonstrating that psychosocial neglect harms children. Studies of children raised in institutions show that even when children are physically safe, the absence of stimulating, comforting, and emotion-regulating interactions with caregivers leads to developmental delays and deviations across domains, many of which are lasting. Below, we summarize the policy implications of this well-established body of evidence about the harms of psychosocial neglect.

The first policy implication relates to the types of maltreatment that require intervention. Any efforts to reform the child protection system must recognize that psychosocial neglect is a form of maltreatment that causes serious and lasting harm.

The second policy implication relates to when in children's development intervention should occur. Because human brain development is especially sensitive to the environment in the earliest years, policies should be designed to urgently respond to neglect in infancy and early childhood. Relatedly, the sooner children are removed from psychosocially neglectful environments, the more likely they are to recover.

The third policy implication concerns the nature of state care provided to maltreated children. The research shows that children who require care outside of their families of origin should be placed in families and not in group care (i.e., institutions). Further, maintaining stability for young children in high-quality placements is crucial to enhancing the well-being of children who have experienced psychosocial neglect.

With each of these policy implications, it is necessary to balance the value of family autonomy with the science of early adversity. Many children who may not be in imminent physical danger due to physical maltreatment nonetheless require help, and it is the responsibility of society to respond effectively. Although identifying psychosocial neglect may be challenging, support and intervention for families struggling with this type of maltreatment will prevent extensive suffering and allow more children to thrive.

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