

Lifestyle and Convenience

The popularity of chicken in the American diet took off in the 1970s and has increased steadily nearly every year since then, as measured by consumption of chicken products per capita, from 39 lb per person (measured on a retail weight basis) to an estimated 85 lb per person in 2011. The reputation of chicken as a low-fat alternative to beef and pork was undoubtedly a major factor in the early jump in consumption. The upward trend has been sustained, however, by the fact that chicken is well suited to the lifestyle of time-pressed consumers today because it is quick and easy to prepare and comes in a variety of forms that save consumers time and effort. Rotisserie chicken, for example, is sold fully cooked. Manufacturers have created a wide variety of heat-and-serve chicken items that are typically sold individually frozen in resealable bags, allowing the consumer to take out as many pieces as needed and keep the rest in the freezer.

Terms

Various terms are used in marketing chicken. Here is a brief explanation of some of them:

Organic: Food labeled “organic” must be in compliance with regulations of the USDA. The organic rule prohibits the use of antibiotics in animal production and requires the use of feed made from organic ingredients, so that no pesticides or chemical fertilizers are used on the corn and soybeans used to make poultry feed, among many other requirements. According to USDA, the organic food label does not indicate that the product’s safety, quality, or nutritional attributes are any higher than a conventionally produced product.

Free range: Chicken may be labeled “free range” if the animals were given access to the outdoors, usually a fenced area outside the chicken house.

Natural: Under USDA regulations, a “natural” product has no artificial ingredients, coloring ingredients, or chemical preservatives and is minimally processed, just enough to get it ready to be cooked.

Produced without hormones: The use of artificial or added hormones in the production of any poultry in the United States is prohibited by the Food and Drug Administration.

“Raised without antibiotics” or “antibiotic free”: This indicates that the flock was raised without the use of products classified as antibiotics for animal health maintenance, disease prevention, or treatment of disease.

Richard L. Lobb

Websites

Dietary Guidelines for Americans, 2010: <http://www.dietaryguidelines.gov>

National Chicken Council: <http://www.nationalchickencouncil.com>

USDA, Food Safety and Inspection Service, Fact sheet: Chicken from farm to table: http://www.fsis.usda.gov/fact_sheets

CHILD ABUSE AND NEGLECT

Child maltreatment is a major public health epidemic. Nearly 1 million children become documented victims of abuse or neglect in the United States annually, and countless more cases go unnoticed. Rates of maltreatment vary across studies and subtypes, with varying prevalence estimates for neglect (11.8%–13.7%), physical abuse (15.8%–28.4%), and sexual abuse (3.3%–32.3%), but there are no estimates for emotional abuse as a result of ongoing debate about its operational definition. More than half of all maltreated youth experience more than one type of abuse, with the highest rates of comorbidity in cases involving emotional abuse. One in 3 maltreated children is under the age of 4, with the highest victimization risk for children who are less than 1 year of age. The direct and indirect costs of maltreatment, including chronic mental and physical health problems, total \$56 billion per annum in the United States alone. Over the past 40 years, a corpus of empirical literature has documented the deleterious impact of child maltreatment on cognitive, affective, physiological, emotional, and interpersonal functioning across the life span.

The Multidimensional Nature of Maltreatment

Beginning with Henry Kempe’s landmark report *Battered-Child Syndrome* in 1962, rising public

awareness and outrage fueled scientific inquiries into the etiology and consequences of child maltreatment. Historically, sexual abuse and physical abuse have been regarded as the most pernicious forms of maltreatment and accordingly have received the most attention from researchers and government agencies. Yet more recent evidence suggests that emotional maltreatment and neglect are equally potent threats to child development. Decades of research on the consequences of maltreatment demonstrate that maltreatment interferes with normative development in multiple domains, including emotional and social development (e.g., peer rejection, aggression, emotion understanding and regulation), cognitive functioning (e.g., causal attributions, memory and attentional resources), and physiological processes (e.g., neuroendocrine functioning, immune function). Although they were primarily focused on individual maltreatment subtypes, these studies nevertheless revealed that

1. child maltreatment has multifaceted consequences;
2. child maltreatment is itself multidimensional, with different experiences contributing to distinct outcomes; and, consequently,
3. understanding maltreatment necessarily requires multilevel empirical investigations and similarly multidimensional approaches to prevention and intervention.

Differential Developmental Effects of Maltreatment

Although there are shared effects across maltreatment subtypes (e.g., interpersonal difficulties, depression, and cognitive deficits), individual subtypes may exact different developmental costs at various levels of functioning. For example, evidence points to significant differences in the emotion recognition and processing capacities of physically abused and neglected children. As a function of repeated exposure to anger and rage, physically abused children may become sensitized to negative emotional displays. In contrast, neglected children, who may have limited opportunities for emotional learning in their caregiving milieu, evidence greater difficulties discriminating

between facial expressions. Extending to the interpersonal domain, differential discriminant and detection sensitivities in physically abused and neglected children have direct implications for functioning with peers, teachers, and other social partners. Given their heightened sensitivity to negative emotional displays, physically abused children are more likely to attribute hostile intent to others' actions and, in turn, to respond with aggressive behavior. In contrast, in the context of poor emotion recognition skills, neglected children are more likely to become overwhelmed by, and consequently withdraw from, social connections. Similar disparities have been documented across a range of maltreatment experiences. Although individual types of maltreatment have been linked to a small number of specific effects (e.g., sexual abuse and later sexual dysfunction), such singular contributions are the exception rather than the rule, given the marked comorbidity across maltreatment types.

Accumulating evidence indicates that different types of maltreatment are more often concomitant than exclusive, with comorbidity estimates ranging from 46% to 90% depending on types. The high prevalence rate of co-occurring forms of maltreatment is especially troubling given evidence of a dose-response relation between the number of types of maltreatment experienced and psychological and physical health problems. Moreover, multiple types of maltreatment may both exact an additive toll on adaptation and contribute to qualitative differences in pathological outcomes. For example, research on neuroendocrine and stress regulation in maltreated children points to differential patterns of hypothalamic-pituitary-adrenal axis (regulation across maltreatment groups), both individually and in combination. Physically abused children typically evidence hypocortisolism, wherein reduced adrenocortical secretion and reactivity may eventuate in neuronal damage and/or stress-related bodily disorders. In contrast, children who have experienced both physical and sexual abuse tend to exhibit hypercortisolism, wherein chronic hyperactivity of the hypothalamic-pituitary-adrenal axis may produce abnormalities in synaptic pruning and inhibit neurogenesis. Together, these findings suggest that examining the totality of the child's maltreatment experience(s) may be more informative than efforts

to connect individual maltreatment types with specific outcomes.

Just as maltreatment is a multidimensional phenomenon with meaningful variation across subtypes (as well as within types in terms of chronicity, perpetrator identity, age of onset, etc.), so too are maltreatment effects multifaceted, with multiple documented influences both across and within levels of analysis. In recent years, maltreatment research has expanded beyond individual psychological and behavioral levels of analysis to examine neurobiological, genetic, and physiological processes, such as event-related potentials and cardiac reactivity. However, the most comprehensive (and compelling) picture of maltreatment effects stems from studies that use a multiple-levels-of-analysis approach in concert with interdisciplinary methods. Research across genetic, neurobiological, psychological, and behavioral systems bridges outdated dualisms, such as nature versus nurture and mind versus body. Recent evidence shows that the structural organization of the brain is guided in large part by stimulation from the environment, which shapes the cytoarchitecture of the cerebral cortex and, by extension, the individual's perception of, and adaptation to, the world. Given the mutually interdependent, reciprocal nature of biology and experience, multidimensional models are essential to understanding (and preventing and treating) child maltreatment.

Potential Effects of Child Maltreatment on Adult Health

As detailed above, child maltreatment initiates probabilistic pathways toward maladaptive outcomes across multiple adaptive domains. Given the special significance of early experience for later adaptation and the multilevel impact of maltreatment across psychological and neurobiological systems, it is no surprise that child abuse and neglect have enduring implications for adult physical health. Repetitive experiences of challenge and stress, which are inherent in the experience of maltreatment, can disrupt homeostatic and regulatory processes that are vital to mental and physical health. Maltreatment is associated with neuroendocrine dysregulation and with impairments in sympathetic and parasympathetic nervous system functioning. Direct physiological effects of

maltreatment may include injuries, compromised immune functions, ulcers, chronic pain, and obesity. However, maltreatment also influences physical health via indirect, yet equally pernicious, health risk pathways. Maltreated individuals are more likely to smoke, drink excessively, use illicit drugs, and engage in sexual risk behaviors. These behaviors may function as compensatory coping strategies in the wake of maltreatment-induced deficits in regulatory and cognitive processing. Further, maltreatment-induced self-representations as someone who is different, damaged, worthless, or powerless may interfere with help seeking and treatment adherence. As such, intervention programs that both increase core adaptive capacities and decrease specific health-compromising behaviors may effectively reduce the health burden of child maltreatment.

Prevention and Intervention

Although malevolent experience in the early caregiving milieu is associated with negative outcomes, these relations are probabilistic, not deterministic. The enduring capacities for resistance to negative influence and for positive change speak to the promise of early prevention and intervention efforts for fostering the developmental process of resilience. Some victims of abuse and neglect effectively negotiate the challenges of development despite having been exposed to significant threat. Empirical efforts to identify sources of risk (i.e., vulnerability factors) and strength (i.e., protective factors) that moderate pathways from maltreatment to psychological and physical outcomes point to promising targets for prevention and intervention. These studies have documented multiple levels of risk and protection within the child (e.g., reactivity, ego resiliency, self-regulatory skills, and intelligence) and in the broader environment (e.g., caregiver warmth, attachment, family stability, neighborhood safety, and school quality). These data suggest that applied efforts to prevent maltreatment or to mitigate its negative consequences must meet the multifaceted challenges and effects of child maltreatment with similarly complex intervention paradigms.

The growing knowledge base about the detrimental influence of maltreatment on subsequent functioning and the factors that mediate or moderate

these effects has informed the development of prevention and intervention programs with varying degrees of success. While substantially more effort has been invested in the development of intervention programs aimed at the treatment of child-abusing parents and abused children, evidence-based prevention programs have lagged behind. In spite of this, a few prevention efforts show significant promise. The Positive Parenting Program (Triple P), for example, adopts a public health approach to offer parenting and family support at the level of entire communities. The Triple P approach includes tiered levels of intervention that are tailored to match the unique needs of families, with the ultimate aim of reducing family risk factors associated with problematic parenting by enhancing parental competence and preventing or reducing dysfunctional parenting practices. Preliminary evidence from a randomized experimental trial demonstrated preventive effects across all 3 population indicators, including child maltreatment injuries, substantiated cases of maltreatment, and out-of-home placement rates.

Theoretically informed, research-based interventions have also demonstrated promising results at the level of individual children and families. Informed by attachment theory, efforts to place maltreated children in nurturing foster homes that are specifically designed (and trained) to promote the development of trusting relationships with new caregivers and, by extension, enhanced behavioral and biological regulation skills have demonstrated positive effects with respect to cognitive, affective, and neuroendocrine markers. Together, these interventions demonstrate that multilevel practice models will contribute to protective and promotive change across varied adaptive systems in children, families, and communities.

Conclusion

As illustrated above, the pathway between the experience of child maltreatment and its psychological and biological sequelae is far from linear. Environmental, familial, and biological factors dynamically interact with one another to influence development, with significant implications for future functioning. By attending to multiple facets of the maltreatment experience, we may elucidate the contextual characteristics that engender child abuse and neglect and develop evidence-based

prevention programs. Future efforts must focus on identifying mechanisms associated with pathways toward resilient functioning that have the potential to inform effective intervention efforts. A biodevelopmental approach that acknowledges the dynamic interaction of psychological and neurobiological domains will provide a strong foundation for future research that endeavors to prevent child abuse and neglect, promote positive parenting practices, and protect the future of all our children.

Tamar Y. Khafi and
Tuppert M. Yates

See also Injuries in Children, Unintentional; Violence Against Children

Further Readings

- Cicchetti D, Blender JA. A multiple-levels-of-analysis approach to the study of developmental processes in maltreated children. *Proc Natl Acad Sci U S A*. 2004;101(50):17325-17326.
- Cicchetti D, Toth SL. Child maltreatment. *Annu Rev Clin Psychol*. 2005;1(1):409-438.
- De Bellis MD. Developmental traumatology: the psychobiological development of maltreated children and its implications for research, treatment, and policy. *Dev Psychopathol*. 2001;13:539-564.
- Hussey JM, Chang JJ, Kotch JB. Child maltreatment in the United States: prevalence, risk factors, and adolescent health consequences. *Pediatrics*. 2006;118:933-942.
- Prinz RJ, Sanders MR, Shapiro CJ, Whitaker DJ, Lutzker JR. Population-based prevention of child maltreatment: the U.S. Triple P System Population Trial. *Prev Sci*. 2009;10(1):1-12.
- Rodgers CS, Lang AJ, LaVaye C, Satz LE, Dresselhaus TR, Stein MB. The impact of individual forms of childhood maltreatment on health behavior. *Child Abuse Negl*. 2004;28:575-586.

CHOLESTEROL, DYSLIPIDEMIA, AND LIFESTYLE

Lipids contribute to many vital functions in the body. Cholesterol is a major structural component of cell membranes (along with phospholipids) and is