

Child Poverty and the Promise of Human Capacity: Childhood as a Foundation for Healthy Aging



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ABSTRACT

The effect of child poverty and related early life experiences on adult health outcomes and patterns of aging has become a central focus of child health research and advocacy. In this article a critical review of this proliferating literature and its relevance to child health programs and policy are presented. This literature review focused on evidence of the influence of child poverty on the major contributors to adult morbidity and mortality in the United States, the mechanisms by which these associations operate, and the implications for reforming child health programs and policies. Strong and varied evidence base documents the effect of child poverty and related early life experiences and exposures on the major threats to adult health and healthy aging. Studies using a variety of methodologies, including longitudinal and cross-sectional strategies, have reported significant findings regarding cardiovascular disorders, obesity and diabetes, certain cancers, mental health conditions, osteoporosis and fractures, and possibly dementia. These relationships can operate through alterations in fetal and infant development, stress reactivity and

inflammation, the development of adverse health behaviors, the conveyance of child chronic illness into adulthood, and inadequate access to effective interventions in childhood. Although the reviewed studies document meaningful relationships between child poverty and adult outcomes, they also reveal that poverty, experiences, and behaviors in adulthood make important contributions to adult health and aging. There is strong evidence that poverty in childhood contributes significantly to adult health. Changes in the content, financing, and advocacy of current child health programs will be required to address the childhood influences on adult health and disease. Policy reforms that reduce child poverty and mitigate its developmental effects must be integrated into broader initiatives and advocacy that also attend to the health and well-being of adults.

KEYWORDS: adult health; child health; child poverty; developmental origins of health and disease

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OVERWHELMING EVIDENCE SHOWS that one's experiences in childhood can influence patterns of illness, aging, and mortality later in life. This evidence base is so deep and has emerged from so wide an array of disciplines and investigative strategies that there seems little rational basis to question this linkage between early life and adult health. The challenge in the consideration of poverty in childhood, therefore, is less to restate the veracity of the effect of child exposure on adult health than it is to make sense of this linkage in a manner that guides and ultimately motivates a coherent vision for an effective, collective response. This seems particularly important at a historical moment when child poverty and inequality are of urgent concern. This review cannot include all the pertinent studies being generated by a rapidly proliferating life-course literature. Rather, it attempts to provide a critical assessment of the most useful recent reports and reviews in the hope of generating the evidence and synoptic clarity required to guide how child health care practice and policy must change.

POVERTY, DEPRIVATION, AND CAPABILITIES

Poverty implies deprivation. However, deprivation of what remains a complex and often controversial issue. Absolute notions of poverty recognize that at some level material deprivation can be so severe that it can undermine physical efficiency and ultimately result in death. Such absolute definitions of poverty often rely on nutrition as a core requirement, as does the official poverty line in the United States. Relative definitions stress the minimum levels of resources required for social participation and how one perceives their own social or economic standing compared with others in their community or society. Although helpful for some purposes, an alternative approach articulated by Sen stresses the centrality of "capabilities," or the freedoms a person has to be or do something of fundamental value.¹ Although this approach includes such essential capabilities as access to adequate nutrition or good health, it also recognizes freedoms to address inherently social challenges, such as the avoidance of shame or humiliation,² a basic achievement first tied to the definition of poverty by Adam Smith.³ Although more comprehensive

than strategies using simple income measures, the capabilities approach has been operationalized widely and used as the basis for the United Nations Human Development Index.⁴ The capabilities approach is particularly attractive in assessing the importance of childhood as it emphasizes poverty as a process, and for our purposes, a developmental process, less defined by a monetary level per se than of freedoms to transform resources into valuable states or activities, such as being safe, having self-respect, or attaining a good job. In this manner, the capabilities approach speaks to questions of justice and underscores the human capacity to strive, adapt, and craft technical and social mechanisms that facilitate capability attainment. A broad capabilities approach also permits this critical review to address a highly diverse literature that uses a variety of poverty measures and metrics of adverse exposures that provide context for material and social deprivation in childhood. It is also a useful reminder that the metrics used to assess poverty in much of the life-course literature should in no way be considered fully adequate to capture the complexity and varied mechanisms by which economic and social deprivation shape and reshape health and well-being over the life-course.

THE EFFECT OF CHILDHOOD EXPOSURES ON ADULT HEALTH

Although several recent reviews have underscored the wide variation in the time frames, social settings, and analytic strategies used to assess the relationship between childhood socioeconomic status and adult outcomes, a large majority of studies have revealed strong inverse associations between childhood status and adult patterns of morbidity and mortality.^{5–8} In addition, recent arguments have suggested that the development of adult health and disease should be integrated into a larger framework of healthy aging.^{9–11} Therefore, this review has been focused on the adult outcomes most likely to define healthy aging, chronic illness, and functional impairment.¹²

The most extensively studied relationship between childhood socioeconomic status and adult health outcomes has been in cardiovascular conditions. Although most cardiovascular conditions are expressed symptomatically later in life, there is a growing body of evidence documenting etiologic abnormalities in childhood.^{13–15} Although the precise processes involved in this relationship are likely manifold, childhood status and experiences^{16,17} have been related to a variety of risk factors and associated conditions operating in adulthood, including hypertension,^{18–20} obesity,^{17,21,22} diabetes,^{23,24} smoking,²⁵ and biomarkers for cardiovascular disease.^{26,27} However, systematic reviews of this literature have suggested that the nature and strength of these relationships can vary^{28,29} and adult influences might be considerable.^{7,14,23,30–32}

Evidence regarding the effect of childhood socioeconomic status on overall adult cancer has been more

mixed.³³ Stomach cancer might be related to childhood infection with *Helicobacter pylori*^{34,35} and several cohort analyses have suggested that some socially related parameters, including birth weight and young child growth patterns, are related to prostate, breast, and lung cancers.³⁶ Although the known relationship between women's use of diethylstilbestrol in pregnancy and adenocarcinoma of the vagina and cervix in their daughters illustrated the potential for gestational effects on adult cancer development, several recent studies have enhanced concerns that fetal and early life exposures to endocrine disruptive drugs or toxins can increase the risk for adult-onset cancers of the breast.³⁷ Fetal exposures might also alter stem cell communities in ways that could affect breast oncogenesis.³⁸

Low childhood socioeconomic status and other adverse early exposures have been associated with long-term mental health conditions.^{39–43} Social isolation⁴⁴ and bullying¹⁷ during childhood can also affect the risk for adult depression and related disorders. However, studies also suggest a substantial influence of adult attributes or exposures.^{39,43,45,46} Minimal childhood effects were noted for later stress sensitivity and its relation to depression.^{40,47,48} The nature of these relationships is exceedingly complex and studies have suggested that parental maltreatment, parental divorce, and problems with early attachment, can affect the development of interpersonal capabilities and diminished support networks in adulthood.⁴⁹ In addition, the development of substance abuse, including of alcohol and tobacco, can have its roots in childhood and influence virtually all domains of mental health in adulthood.^{46,50,51} There is also some evidence that early influences, including cognitive and language abilities, can influence the development of dementia in the elderly.^{52,53}

Although studies of the relationship between childhood poverty and adult respiratory disease is somewhat mixed,⁵ several recent studies have reported low childhood socioeconomic status and increased childhood adversities are associated with adult respiratory conditions.^{33,54} These influences might operate through early lung development⁵⁵ or the development of asthma in children^{56–58} and adults.^{59,60} Adult osteoporosis and age-related fractures appear to be related to factors that occur in early life, childhood, and adolescence.⁶¹ Peak bone mass is gained during puberty and factors such as physical activity, diet, and tobacco use can alter these developmental processes. In addition, there is growing evidence that maternal nutrition, fetal development, and slow height attainment during childhood can also affect bone growth and ultimately patterns of osteoporosis and fracture decades later in life.^{62,63}

MECHANISMS OF EFFECT

FETAL/INFANT EXPOSURES AND EPIGENETICS

Although the evidence supporting the association of child poverty and later adult health is strong, the precise mechanisms by which this association is generated

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