

Virtual Mentor

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Policy forum

Education and education policy as social determinants of health

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Education is a strong predictor of long-term health and quality of life [1]. At least one investigator [2] has argued that education *causes* health, but the pathways through which it leads to better health and longer life expectancy are not yet clearly understood. What *is* clear is that health, human development and well-being are dynamic processes that are closely related to socioeconomic status (SES) and educational attainment. An individual's health is highly correlated with his or her social position, and success in school and years of schooling are major factors in determining social and occupational status in adulthood [3].

Biological, environmental and social experiences that occur throughout the entire lifespan influence well-being and illness, but the first few years of a child's life represent a crucial period during which the roots of learning, literacy and the adaptive behaviors that sustain physical and mental health must be nourished. Data from epidemiologic research [4] suggest that these early experiences exert important influences both on adult health and, ultimately, on community and societal function [5].

Education and socioeconomic inequality as health risk factors

In clinical medicine, we learn of the importance of risk factors in understanding and managing disease. Among the best examples are tobacco smoking, lack of regular aerobic activity and other lifestyle behaviors that often begin during childhood and adolescence. Medical literature rarely informs us about the risk factors most vital to human health and development: income, education, the family environment and work conditions. Low SES together with inadequate employment, family function and educational attainment are associated with compromised health across the entire life span. Low SES alone is one of the strongest predictors of poor health and development, not just because material deprivation constrains behavior and lifestyle choices among those living in poverty, but because neuroendocrine responses to the stress that SES imposes influence psychosocial well-being [6].

Early learning: a protective factor for lifetime health

The effects of the early environment, both negative and positive, are long lasting [7]. There is a close relationship between early life conditions, performance in school, adult literacy, health status and mortality [5, 8]. Appropriate stimulation and positive early experiences have profound impact not only on the development of the neural

systems involved in cognitive, emotional, neuroendocrine and neuroimmune functions [5], but also on the expression of genetic factors that modify the effects of hormone receptors and influence an individual's response to stress throughout life [9]. This biological embedding of reaction to stress helps set developmental trajectories for acquisition of competence and coping skills and regulation of responses to new or challenging experiences [10].

Health is not distributed evenly across the population, but along a gradient, with those at lower SES levels having poorer health outcomes than those at higher levels [11, 12]. European [13] and American [14] studies indicate that children whose parents have low levels of education tend to do poorly themselves unless there are programs in place that help to mitigate the negative effects. These studies provide strong evidence that child resilience and adult health are rooted in a dynamic developmental process fostered by individual biologic, home and school influences [15].

Current U.S. policy strengths and limitations

In view of the central importance of education to human development, existing U.S. educational policies have been shown to be effective for some children but quite ineffective for others. The country's near-universal commitment to publicly supported basic education from age 5 or 6 through age 16, and the strong policy support for access to post-secondary education, results in one of the highest rates of university and post-secondary enrollment in the world. Results of the National Assessment of Educational Progress (NAEP) tests, however, reveal a range of educational attainment across state school districts that, like health status, correlates strongly with SES [16]. Poor children, especially poor black children, do not do as well as their white peers, on average, unless educated within a multi-level support system such as the one provided by the U.S. Department of Defense schools [17]. This disparity in achievement is often viewed as a failure of public schools to do their job, but our research and that of others shows that the real problem with poor educational achievement is multifactorial: the home and neighborhood environments are at least as important as what happens in the school.

Policy-related limitations on education are in part conceptual and in part political-economic. The former limitations arise from incomplete understanding of the foundational importance of early childhood influences on success in the educational system and in life. Political-economic limitations are artifacts of our country's education financing system. In the United States, education and child care are the responsibility of the state, and in most states this responsibility is passed down to municipalities. Outside of the federal programs described below, funding for early child care is largely from private sources, while primary and secondary schooling is supported by local taxation and sometimes other state tax-funded supplements. Poorer communities that must operate their schools from a tax base much smaller than their wealthier neighbors are seriously disadvantaged unless there is some kind of equalization formula.

The largest early childhood intervention programs in the United States are Head Start, created by the federal Department of Health and Human Services in 1965 for children four and five years old, and Early Head Start created in 1994 for pregnant mothers, toddlers and children up to 3 years of age. These needs-tested programs provide comprehensive child development, educational, health, nutritional, social and family services to those who qualify, but serve fewer than one million American children, a fraction of those who could benefit.

A few states have made progress in dealing with this challenge. Georgia's Bright from the Start program [18] stands out as an excellent example: by coordinating funding, intake and referral, public/private partnerships and oversight of standardized curricula, it offers integrated child care, Head Start and early learning pre-kindergarten programs, as well as group and family day care, parent and teacher education and nutrition services.

Recommendations for human development-oriented health and education policy

One of the best ways for us to improve the health of the whole population is to focus on evidence-based policies that optimize both early childhood development *and* education. In one critical sense, they are the same thing; adequate social and cognitive development in childhood is a necessary foundation for success in education, which in turn is necessary for health and success in life. Large-scale, longitudinal, well-funded research should focus on early learning and its short- and long-term health effects in different settings and populations.

The essential elements of a human development-oriented health policy for the United States would, at a minimum, include appropriate prenatal care, provision for parent training and financial support where necessary, quality child care delivered by well-qualified child development specialists, progressive introduction of elemental education beginning at a few months of age and regular assessment to ensure that developmental and cognitive milestones are being met prior to a child's entering kindergarten. The National Center for Children in Poverty [19] recommends policy to assist low-income parents in meeting such basic childhood needs as preschooling, child care and health care by raising the minimum wage, expanding the federal Earned Income Tax Credit, decreasing the payroll tax burden on low-wage workers and providing health insurance for working parents [20].

To address the achievement gap between low-income children and their more economically secure peers more preschools are needed, especially those similar to Head Start that provide comprehensive services such as immunizations and parent education [21]. The funding for most federal education programs is currently inadequate, and some programs such as professional development for early childhood educators, special education grants for infants and families, and special education preschool grants have had their budgets cut since 2005. Some funding has been eliminated, as happened to the Early Learning Opportunities Act in 2006. According to the U.S. Department of Health and Human Services Child Care Bureau

policy summary [22], funding for every federal health and human service-related program, with the exception of hurricane recovery assistance, decreased from fiscal year 2005 to 2006.

Conclusion

Health practitioners need to pay attention to risk factors of inequality and offer their patients the information and resources they need to enroll in appropriate economic, education and child care programs that benefit families living in poverty. Medical professionals are encouraged to take the same kind of policy-related action to overcome these inequalities that they take when they advocate against smoking or in support of early childhood immunization. This means advocating for positive parental support, child nurturing and effective prenatal care. These protective actions can be integrated in each region and state as well as nationally by effectively linking corresponding services with existing education programs encompassing pre-kindergarten through grade 12.

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