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Linking research and practice to change lives, neighborhoods, and communities

The J. McDonald Williams Institute, research arm of the Foundation for Community Empowerment, is dedicated to conducting non-partisan outcomes research and public policy evaluation related to comprehensive community revitalization of low-income urban areas.

Education Policy as Health Promotion

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Dr. Cardarelli is part of FCE's 2005-2006 Community Scholars Program. The program is designed to serve as a link between academic researchers and the community, where academic scholars are encouraged to focus their research and expertise on real-world issues that have a significant impact on urban communities. Jackson is a graduate student at the University of North Texas Health Science Center in the School of Public Health.

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EXECUTIVE SUMMARY

The association between educational attainment and health is one of the most well-documented findings in the medical literature over the last several decades. Education gives people resources to control and shape their lives in ways that promote health. As education levels increase, the prevalence of most chronic diseases decreases. In this research brief, we review the ways through which education may influence health and provide specific recommendations related to policy implications. We conclude that one of the best ways to reduce health disparities is to focus policy on optimizing both early childhood development and education, linking early child care, family support, and developmental enrichment with K-12 education in a seamless continuum.

INTRODUCTION

Despite improvements in standards of living, disparities in morbidity and mortality by socioeconomic position appear to be increasing in the United States (1). Low socioeconomic position is one of the strongest predictors of poor health and development across the life course. Education, one measure of socioeconomic position, has been linked not only to health and health behaviors, but also to a number of the other social determinants of health. As education levels increase, the prevalence of most chronic diseases decreases. Education research shows that a number of factors are associated with academic achievement, and that many of these factors are clustered in the critical years of human development between gestation and age 5. This paper explores the different relationships observed between education and health throughout the life course. The implications of this evidence for policy are also discussed. Policies that improve citizens' educational attainment levels should likewise improve their health.

HOW EDUCATIONAL ATTAINMENT AFFECTS HEALTH

Educational attainment has been shown to influence a broad array of health outcomes, including life expectancy, morbidity, and health behaviors. This is not surprising, considering that an individual's education level influences job opportunities, potential salary, social and psychological resources, and health behaviors and lifestyle, all of which are known to affect adult health. Education gives people resources to control and shape their lives in ways that promote health (2). One of the greatest influences of education on health is the strong sense of personal control that education brings, increasing both motivation to solve problems and success in doing so. Higher educational attainment increases the likelihood of maintaining a healthy lifestyle including regular exercise, moderate alcohol consumption, and avoiding smoking and being overweight.

Education has been linked to a number of specific diseases. Winkleby et al. (3) found that income, occupation, and education are all linked to biological risk factors associated with cardiovascular disease (CVD), but when each of the three social factors was adjusted for the others, only the relationship between education and CVD risk factors remained statistically significant. Another study showed that the likelihood of having a myocardial infarction (MI) was inversely associated with education, with the odds of experiencing MI decreasing with each additional level of education achieved (4).

Living in areas with low levels of education and income is correlated to increased odds of diagnosis of end-stage breast cancer in women, suggesting that less-educated women are less likely to receive an early diagnosis of breast cancer (5). People with lower education levels are more likely to have diabetes mellitus, after adjusting for age, sex, and lifestyle. These individuals are also more likely to

have poor self-reported health (6). A recent U.S. study had similar findings—that people with low levels of education are much more likely to report poor health compared with people with high levels of education (7).

These findings are remarkably consistent across developed nations. Figure 1 shows results from another recent study of 8,970 city employees, aged 40 to 60 years, living in Helsinki, Finland (8). Employees with lower levels of education were more likely to describe their health as poor, compared with those having intermediate or high levels of education. This gradient existed for both men and women, although the gradient was more pronounced in men. This is a common finding among such studies.

Finally, research has shown a link between education and lifestyle factors that have a direct impact on adult health. Individuals with lower levels of education are less likely to use preventive medical services. Women with low levels of education are less likely to get Pap smears or be screened for breast cancer than their counterparts with higher education levels (9, 10). Likewise, African American men with higher levels of education are more likely to have been informed about and screened for prostate cancer than less-educated men (11). Higher levels of educational attainment are also associated with lower prevalence of health-risk behaviors, including smoking, excessive alcohol consumption, and physical inactivity (12).

Evidence shows that educational attainment affects a number of health outcomes in a variety of ways. The exact causal pathways that lead from low academic achievement to poor health are unknown, though many have been hypothesized. Economic status, job satisfaction, social and psychological resources, and health behaviors and lifestyle have all been suggested as possible mediating factors between education and health (13). Regardless of the mechanisms involved, the observed link between education and health provides good evidence that policies that can positively affect educational attainment will likewise affect health.

CRITICAL PERIODS: CHILDHOOD AND ADOLESCENCE

Early childhood, from gestation through age 5, is

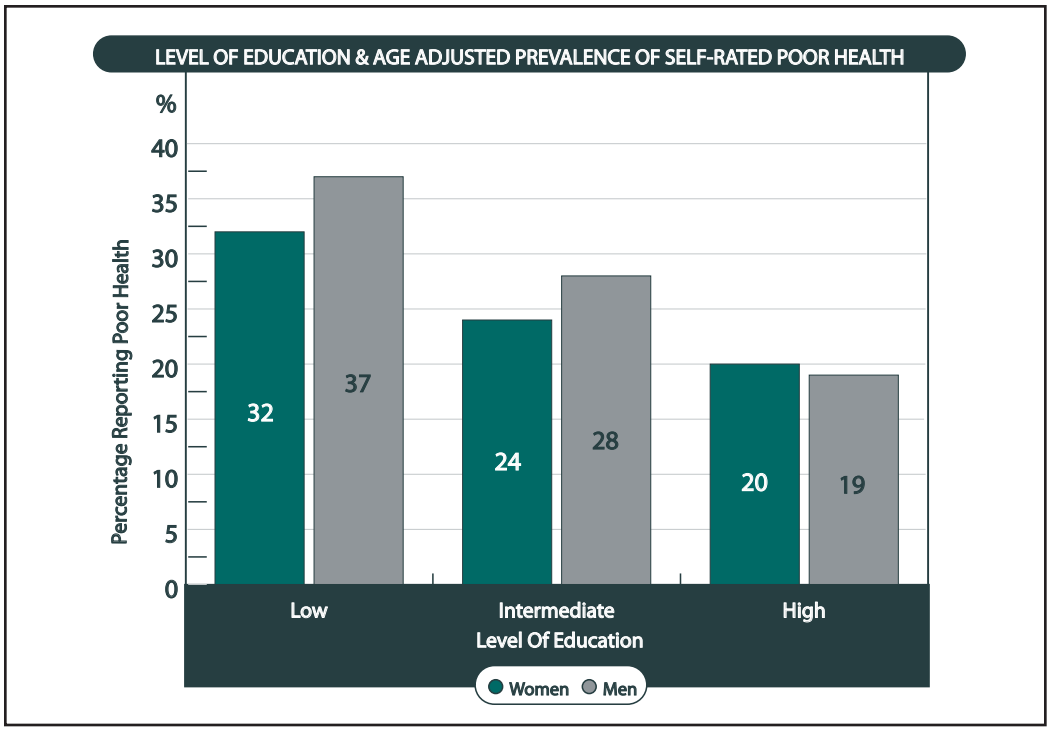

Figure 1. Level of Education and Age-Adjusted Prevalence of Self-Rated Poor Health
Source: Laaksonen et al, 2005 (8)

considered to be a critical period for both physical and cognitive development. For years, researchers in the fields of neuroscience, psychology, education, and health have worked to identify early childhood factors that affect cognitive functioning and potential academic success. Findings show that, among other things, the early development of children is influenced by physical health and nutrition.

Maternal Health

A mother's health and nutrition are the first factors to affect a child's health. Maternal weight gain and nutrition during pregnancy affect pregnancy outcomes, including full fetal development, preterm delivery, and the likelihood of having low birth weight babies (14-16). These outcomes then directly affect a child's cognitive development. For example, low birth weight is associated with lower cognitive development among adolescents between the ages of 12 and 17 (17). Additionally, toxins such as lead, alcohol, and illicit drugs can cause severe damage to a fetus (18-20), while avoiding such substances during pregnancy reduces the likelihood of having a preterm or low birth weight baby (21).

Birth through Age 3

The time from birth to age 3 is a period of extensive brain development (22). During this time, the effects of poor prenatal care can largely be overcome through appropriate nutrition and stimulation. For this reason, breastfeeding is recommended for at least the first year (23). While breast milk provides the best combination of nutrients for an infant's growth, the act of cuddling and nurturing involved in breastfeeding also provides stimulation that aids in brain development. Studies show that even after considering social and demographic factors, breastfed children are better mentally developed at 18 months than children who were fed formula (24). Even when breastfeeding is not an option, however, high nutrient diets can improve developmental outcomes of children.

Older Children

As children get older and prepare to enter school, health and nutrition continue to be critical to their educational success. Healthy children who are physically, mentally, and emotionally ready to learn when they begin formal schooling are more likely to succeed in school (25). Children with iron deficiency are more likely to underachieve in school and to have developmental and behavioral problems, and the nervous system damage caused by this deficiency may be irreversible. Children with serious chronic diseases, such as spina bifida, cancer, or congenital heart disease, are less likely to succeed in school and more likely to miss school due to poor health (26).

Healthy children who are physically, mentally, and emotionally ready to learn when they begin formal schooling are more likely to succeed in school.

Adolescence

Adolescence represents a transitional period in life, when peers tend to have more influence than parents, and children begin to make their own decisions. The health behaviors that youths choose during this phase have a significant impact on both their present and future academic success. Some of the more expected findings include observed relationships linking drug use, teen pregnancy, and violent behavior with poor academic achievement and dropping out of high school (27-30).

Educational success protects against many negative health behaviors in adolescence. For example, higher grade point average is correlated with lower rates of teenage violence perpetration (31); higher verbal intelligence is associated with postponement of sexual relationships (32); and scholastic success can reduce the relationship between poor conduct and depression (33). On the other hand, low academic achievement is associated with negative health behaviors. Repeating a grade in school is associated with tobacco smoking in junior high (34). Additionally, students with learning disabilities are more likely to attempt

suicide, smoke cigarettes, and engage in sexual activity before the age of 12 than students without learning, emotional, or mobility handicaps (35).

POLICY IMPLICATIONS

The evidence of the need for a new approach to policy in this area is highlighted in statistics showing relatively poor health status within, and significant health disparities across, the U.S. population (36, 37); very high health care costs nationally (38, 39); and significant disparities in educational attainment across the population (40, 41).

Considering the vast amount of research linking educational attainment to health outcomes and linking early childhood health and development to academic success, it stands to reason that policy aimed at improving early childhood health and development would lead to both increased educational achievement and long-term improvements in population health. This would help to create healthier, more productive citizens, improving the overall quality of life.

Policymakers do not view enhanced education programs as a way to improve health. They typically view improved access to health care as the chief method to improve health, even though countries with universal access to health care have large health disparities (42). To improve the health of Americans, policymakers must view investment in education as a long-term strategy. That is, investment made today in the quality and amount of education of young people will likely result in improved health status decades down the road.

There are no broad policies in the U.S. that explicitly recognize the links between education and health.

Another challenge to such an approach is that the federal budget does not facilitate cross-sector budget consideration (43). Finally, policymakers typically favor proposals that yield immediate results rather than those long-term in nature, allowing them to demonstrate more immediate successes to constituents.

There are no broad policies in the U.S. that explicitly recognize the links between education and health. The Educational Excellence for All Children Act (1999) and the No Child Left Behind Act (2001) intended to improve education policy, but neither was adequately funded to meet its objectives. Furthermore, both public policy acts failed to address the importance of issues related to promoting healthy childhood (44). Subsequent laws, the Leave No Child Behind Act (2003) and the Educational Excellence for All Learners Act (2003), were intended to improve educational policy, but were also not adequately funded.

Early Childhood Intervention Programs in Foreign Countries

Other developed countries have public policies that explicitly link maternal and family health, infant and child care, preschool, kindergarten, and K-12 in a seamless continuum focused on the goal of optimal human development. For example, France and Canada provide models for reducing the number of children who suffer from low-quality early child care.

France provides universal, free child care to all children between the ages of 3 and 6, and to half of the children between 3 months and 2 years of age. All teachers and teachers' assistants in these *maternelle* facilities are required to take federally-prescribed training and certification courses, which allows regulation of the quality of child care.

In Ontario, Canada, all infants are screened through a program called Healthy Babies, Healthy Children, to identify families and children at high risk for developmental problems. These families are followed up with intensive home visits until the child reaches age 2 to help promote development.

High/Scope Perry Preschool Study

Child care centers are critical places for learning and development. Unfortunately, children from

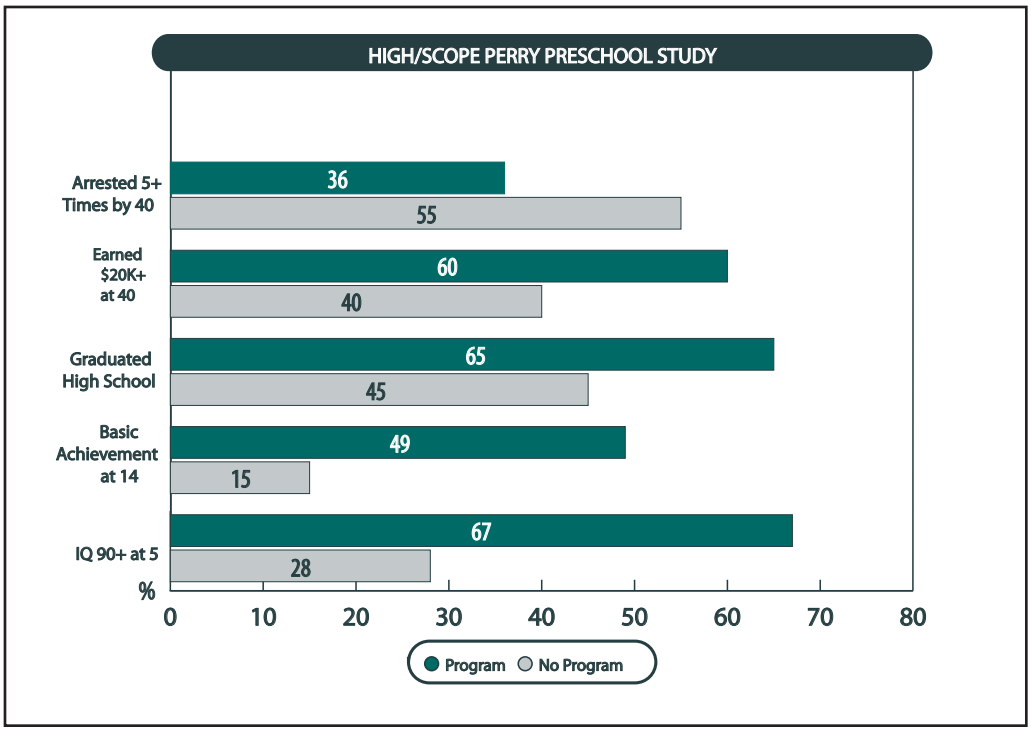

Figure 2. Major findings: High/Scope Perry Preschool Study
Source: Schweinhart et al, 2005 (45)

low socioeconomic position families—those who often have the greatest need for additional support—have historically been the least likely to have access to quality child care.

The High/Scope Perry Preschool study is a scientific experiment that set out to measure the short- and long-term effects of a high-quality preschool education program on children from such families. From 1962 to 1967, a group of low-income African American children assessed to be at high risk of school failure in Ypsilanti, Michigan, were enrolled in the study, with half the group attending the preschool program at ages 3 and 4 and the other half attending no preschool program. The group assignment was random, and the study participants were followed until age 40.

Figure 2 shows the major findings from the study. Subjects who participated in the preschool program demonstrated higher intelligence and achievement in childhood and adolescence and by age 40 earned more money and were less likely to be arrested multiple times. Investigators concluded that high-quality preschool programs for young children from low socioeconomic position families contribute to intellectual and social development in childhood and school success, economic performance, and reduced commission of crime in adulthood (45).

Early Childhood Intervention Programs in the United States

The largest targeted early childhood intervention programs in the United States are Head Start, for children 4 and 5 years old, created by the federal Department of Health and Human Services in 1965, and Early Head Start, for pregnant mothers, toddlers, and children up to 3 years of age, created in 1994. These needs-tested programs now serve slightly fewer than one million American children, providing comprehensive child development, educational, health, nutritional, social, and family services.

Services are offered either in centers or in the child's home, or both, depending on family need and preference. However, a comprehensive, seven-year national examination of Early Head Start showed that this version of early, planned interventions for mothers-to-be and very young children had only modest, but generally positive, effects on learning, and depending on the age of the mother and the number of social risk factors involved, also

on the parenting that supports the child's learning through the first three years of life (46).

Furthermore, the "Cost, Quality & Child Outcomes in Child Care Centers Study," published in 1995, found that approximately one-third of the nation's children attend child care centers that are not only low-quality, but actually detrimental to the child's development, generally due to poorly trained, underpaid staff who are responsible for too many children (47).

State-Level Early Childhood Intervention Programs

At the state level, the Texas legislature has made some attempt to integrate health and education, such as creating the 78th Legislature's Joint Committee on Nutrition and Health in Public Schools and passing the 75th Legislature's SB1, which required school districts to establish local school health advisory boards to address the health issues of each community. However, such actions were weakened by a failure to provide these organizations with any power to enforce the recommendations they made. Unless policies regarding education and health are given appropriate funding and funded entities are held accountable to predetermined quality standards and achievement goals, little real change will occur.

RECOMMENDATIONS

To improve the health of Americans, efforts should be focused on policy optimizing both early childhood development and education. Child care subsidies and child care funding should be extended to improve poor children's access to high-quality, well-regulated child care and preschools. More preschools are needed to address the achievement gap between children of low-income families and their peers. Programs such as Head Start may serve as a model for providing comprehensive services, such as immunization and parent education (48). Child care with well-developed standards and model curricula should be formally linked to the educational system in the United States.

The essential elements of an education-oriented policy to improve health for the United States should include, at a minimum: appropriate prenatal care, parental training, quality child care delivered by 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 met prior to kindergarten (13).

Early Head Start offers some of these elements to families and children who qualify for the program, but the quality of the program varies by site. The U.S. Department of Health and Human Services, which oversees the program, admits that the program does too little for children's cognitive development. In order to improve the health of Americans, versions of these programs should be universally available to all children and families who choose to take part (21).

CONCLUSION

There is a well-established relationship between education and health. As a measure of socioeconomic position, education has been clearly linked with a number of health outcomes and health behaviors, but childhood health and nutrition have also been linked to cognitive development and potential for scholastic success. Above all, it is critical that community leaders understand the link between education and health. Policy that affects educational achievement will shape the future health of a community, and likewise, policy that affects early childhood health and development will influence a generation's educational success. Therefore, these two issues must be considered simultaneously. With an understanding of this bi-directional relationship, the right education policy will result in significant benefit to the health of the U.S. population and will help reduce significant health disparities, thus improving the quality of life for all citizens.

Policy that affects educational achievement will shape the future health of a community, and likewise, policy that affects early childhood health and development will influence a generation's educational success.

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