Child Labor, Gender, and Health

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SYNOPSIS

It is often forgotten that child labor is part of a multi-generational problem due in part to the failure to educate girls. Although the literacy rate for women has improved over the last two decades, in many countries it is less than half that of their male counterparts. This in turn leads to nutritional deficiencies, poverty, and poor health. While many researchers address the immediate health effects of child labor on the child laborers, this article addresses the issue of child labor from a broader perspective, one that identifies child labor as a contributor to inter-generational poverty, malnutrition, and limited educational attainment. Child labor and nutrition are important issues in both educational attainment and health status.

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The pre-natal environment, early childhood environment, and health status of children are strong determinants of a child's intellectual development, educational success, and future health.[1,2] The education acquired by a child's parents, particularly a child's mother, has a strong impact on the development of a child's potential. Maternal educational attainment impacts the successful development of future generations and assures that each generation is afforded a good start in life in order to reach its fullest potential. This article examines how maternal health impacts child health and nutrition and how a child's nutritional status impacts educational achievement and attainment and future participation in the labor market. This article also examines the implications educational policies have in the elimination of child labor.[1,2]

EDUCATION FOR CHILDREN

Since the Universal Declaration of Human Rights was written in 1948,[3] there have been over 30 international treaties and other instruments delineating the right to education. Article 28 of the 1989 Convention on the Rights of the Child recognizes "the right of the child to education . . . on the basis of equal opportunity [to] make primary education compulsory and available to all."[4] Article 7 of International Labour Organization (ILO) Convention 182 assures there will be "access to free basic education, and, wherever possible and appropriate, vocational training, for all children removed from the worst forms of child labor."[5] In 2000, the United Nations launched its Education for All initiative, based on the Dakar Framework for Action, to help reduce gender disparities in educational attainment.[6]

Equal access to education is a basic right and there is growing concern that all children—specifically girls, minorities, and children from low-income families—are not afforded equal educational opportunities. The provision of education is critical, and it may require overall improvement of public health resources to assure that children are able to avail themselves of educational opportunities.[7]

Gender disparities: impact on health

In spite of the fact that the literacy rate for women has improved over the last two decades, in many countries it is less than half that of their male counterparts.[8] As shown in the Table, where gender disparities in literacy rates exist, there is a tendency towards higher mortality rates for infants and children up to 5 years of age. However, while this trend is certainly present, mortality is no doubt strongly influenced by many other factors such as the availability of food, infectious diseases, or lack of potable water.

LeVine et al. found that better educated girls participate more in society as a result of school-based interactions with their peers and with adults such as teachers or village elders; they also have greater participation in decision-making processes with regard to their health and the health of their children.[9] As their language and literacy skills improve, women are better able to understand health messages, adhere to good health practices such as breastfeeding, improve nutritional practices, comply with immunization schedules, and assure the sterilization of water.

Table. Comparison of literacy rates between males and females and the mortality rate for children younger than 5 years of age

Country	*Literacy rate 1990*		*Literacy rate 2000*		*Mortality rate per 1,000 live births (birth–age 5) 2001*
	Males	*Females*	*Males*	*Females*	
Niger	18	5	24	9	265
Pakistan	49	20	57	28	107
Afghanistan	40	12	51	21	257
Angola	56	29	—	—	208
Liberia	55	23	70	37	190
Niger	18	5	23	8	156
Nicaragua	61	61	64	64	36
Philippines	93	92	96	95	29

SOURCE: UNICEF. State of the world's children. Oxford: Oxford University Press; 2003. Also available from: URL: http://www.unicef.org/sowc03/contents/pdf/SOWC03-eng.pdf [cited 2005 Sep 2].

Literacy and language skills acquired in school impact the health of women and their children. For example, girls in school are likely to acquire the skills to be able to read health education materials that discuss such options as child spacing that can have an influence on their health and the health of their children. Behavior role modeling and exposure to positive health messages increase the chances a girl will adopt and adhere to positive health behaviors.[9] Girls who are in school longer are also more likely to delay marriage and their first pregnancy, thus reducing their total number of children.[9]

Nutritional disparities: impact on health and education

Early cognitive development is influenced by the nutritional status of both the mother and the child. Each year, nearly 500,000 women die due to the complications of pregnancy, which often leaves their older children fending for themselves.[10] Children of these women are more likely to live alone and suffer from malnutrition, and are less likely to attend school than children of two-parent households.[11,12]

More than 10 million children under the age of five die as a result of disease and malnutrition each year, with almost half dying during the first few months of life.[10] According to the United Nations International Children's Fund (UNICEF), approximately 40% of children under 5 years of age in developing nations suffer from moderate to severe stunting.[10] From 66% to 80% of the world's population is iron deficient, and 30% are anemic primarily due to iron deficiency.[13,14] A study of adolescent girls in Jamaica found that anemia was another contributor to academic underachievement.[15] Iron deficiency combines with a high prevalence of other nutritional deficiencies.[16,17]

As the most prevalent trace metal deficiency, iron deficiency anemia is also the best researched in regard to general as well as cognitive development. In addition, anemia is the most severe form of iron depletion, indicating significant

depletion of iron stores within the body. Studies of iron deficiency anemia have consistently demonstrated delayed developmental performance of infants, behavioral problems such as inattention and distractibility in early childhood, and decreased cognitive performance in school age children.[18]

Halterman et al. revealed that even iron depletion without clinical anemia has deleterious effects.[19] An analysis of 5,398 children from the National Health and Nutrition Examination Survey III provided cross-sectional data for children 6–16 years of age. Logistic regression modeling demonstrated that children with iron depletion had greater than twice the risk of scoring below average in math than children with normal iron status (odds ratio [OR]=2.3; 95% confidence interval [CI] 1.1, 4.4). This increase in risk was present even for iron-deficient children who were not anemic (OR=2.4; 95% CI 1.1, 5.2).[19]

Children who experience periods of nutritional deficiency in either the pre-natal period or after birth show signs of cognitive impairment that is reflected in diminished scholastic achievement.[20,21] Pollitt has conducted a review on the impact of hunger and overnight fasting on school performance. He concludes, "brain function is sensitive to short-term variations in the availability of nutrient supplies. Moreover, well-conducted evaluations suggest that the availability of feeding programs in public schools throughout the academic year increases the probability that children will eat breakfast and improve their educational status."[22] In a later study, Pollitt notes that this effect is likely to be greater in at-risk than in well-nourished children.[23] Other researchers have had similar results.[24]

Protein-energy under-nutrition (Kwashiorkor) has been shown to limit human potential even after correction of the nutritional deficiency. A longitudinal study by Galler et al.[25] conducted in Barbados compared the behavior and development of 129 children who suffered from severe protein malnutrition in their first year of life with 129 children of similar social backgrounds who had no history of malnutrition. The affected children, though malnourished during infancy, were born at term and had no perinatal complications that might adversely affect their development. The children were followed until 11 years of age. Though the malnourished children caught up physically in terms of growth, the IQ scores of the children who had been malnourished were on average 12 points lower than the control group, and 60% demonstrated distractibility and inattention consistent with attention deficit disorder.[25]

In 1984, Kenya experienced a severe drought and temporary food shortage during a study on mild malnutrition. Effects of the severe temporary shortages were evident in the school-age children. Specifically, the school-aged children showed a significant decline in their energy intake, age appropriate weight, activity levels, and classroom attention. These physiological and behavioral changes occurred regardless of socioeconomic status and previous levels of nutrition, suggesting that even temporary food insecurity has a measurable effect on children.[25] Another Kenyan study found that attendance in school and relative weight-for-height measures were the two strongest predictors of academic achievement, as well as indicators of socioeconomic status as measured in a national achievement test.[26,27]

Studies of Jamaican schoolchildren have shown that children who are chronically undernourished cannot function well in school.[28] Children with low weight-for-height measurements had developmental quotients lower than children with normal weight-for-height measures.[28]

While the lack of physical development from inadequate nutrition affects a child's abilities, the interaction between environmental factors and improper nutrition may be synergistic. For example, elevated blood lead levels in young children disrupt cognitive development and hinder academic performance.[29] A study in Jamaica found that children who have both high blood lead levels and low mean weight-for-height measures scored an average of 10 points lower on a developmental quotient test than children with approximately the same weight-for-height measurements who did not have high blood lead levels.[28]

Finally, in addition to the deficiencies noted above, 30% of people in iodide deficient countries still do not have access to iodized salt, and vitamin A deficiency remains the single largest cause of preventable childhood blindness.[30]

Educational attainment disparities: impact on economy

Children who live in homes where the parents, particularly the mothers, are better educated are more likely to go to school and stay in school longer. Children who live in homes with parents who received little or no education are more likely to have shorter tenures in school and begin working at an early age. This is especially the case if they do not show academic promise. An underlying factor in this problem is the level of expendable family resources. Children are often required to participate in accumulating resources for the family at an early age if the family is living in poverty. The more time they have to spend contributing to the family's resource pool, the less time they have for school.[31]

A seminal study from the early 1970s demonstrated the effect of both family income and education on outcomes. The National Collaborative Perinatal Project was conducted as an in-depth follow-up of 26,700 infants. The two factors most predictive of intellectual performance at 4 years of age were family income as represented by socioeconomic status and maternal education.[32] Duncan et al.[33] found that children born at low birthweight who lived in poverty for their first five years of life had IQs that were 9.1 points lower than low birthweight infants never subjected to poverty.[33]

A 1988 study conducted by Zill and Schoenborn uncovered a correlation between income and learning disabilities. The study found that children living in families with an annual income less than $10,000 had a 25% higher rate of emotional and behavior problems than their counterparts from families with annual incomes more than $40,000.[34]

Werner et al. initiated an ongoing longitudinal study in 1955 and has followed 6,987 children born on the island of Kauai, Hawaii.[35] Children exposed to significant perinatal stress experienced an increased incidence of neonatal health problems, learning disabilities, and mental retardation, as well as increased rates of delinquency and teen pregnancy. However, the effects of the family environment and the long-term impact of the caretaking environment were actually more powerful that the residual effect of perinatal compilations; the adverse health and educational outcomes noted above were blunted by an enriched environment in a family with high socioeconomic status.

The amount of time spent in school is directly related to the earning potential of the individual.[31,36] The longer children are in school, the more likely it is that they will be employable and have greater bargaining power. This is more of an apparent benefit for females than males in that, the greater their earning potential, the more leverage they have in the household to determine the use of that income—be it for school expenses for the children, food allocation, or health expenditures.[37]

Educational attainment is important in terms of both financial attainment, i.e., the ability to influence the pattern of household expenditure and investment, and overall economic development.[38] Handa found that maternal education played a significant role in increasing a woman's ability to positively influence her children's education in male-headed households.[37] The influence of the mother's education was more apparent in households headed by males than by females, suggesting that educational attainment of mothers in effect replicates the decision-making power women have when they head the household.[37]

Various studies have examined the dynamics surrounding the balance between school and work for children in families with few economic resources. In Latin America, studies found that children living in households of lower socioeconomic status, measured by total income of the head of household, tended to enter the workforce at an earlier age to compensate for lack of family earnings. This resulted in diminished academic performance (i.e., greater failure and grade repetition rates), resulting in an approximate 1.5 year reduction in the amount of schooling attained. Also, children who worked were more likely to have failed at least one grade in school.[39]

There is some association between the need for children to contribute to family income and academic performance, but the causal pathway is unclear. A Peruvian study found that not only the number of siblings, but also the activities of the siblings in relation to school (i.e., whether they attend or not) determines for some children the probability of their participation in school and work.[40] Specifically, children who have a larger number of younger siblings tend to have less schooling and not be of an appropriate age for their grade compared with those who have few or no younger siblings.[40] In Zambia, families with less-educated heads of households experienced greater periods of unemployment and less disposable income, thus decreasing the time children attended school in favor of working outside the home to support the family.[41]

In the Latin American, Peruvian, and Zambian studies cited above, the level of parental education was a key factor influencing whether a child would work to help support the family.[39–41] Parents who have a low educational attainment level either (*1*) work in low-paying jobs, (*2*) are unemployed due to lack of work opportunities where they live, or (*3*) have poor health which prevents them from working.[41] This places a burden on the children to help provide for their family and takes away from the time they can invest in education.

Work for pay is not the only type of labor that interferes with academic performance. When domestic work such as cooking, cleaning, and caring for younger siblings is taken into consideration, teenage girls in Mexico were found to be almost 8% less likely to attend school than boys.[42] A girl in the eighth grade in Jamaica who also works to support her family has a 46% increased risk of ultimately dropping out of school for work than a girl who does not work.[15] It is clear that young people, and particularly girls, are being forced to choose in favor of immediate economic relief for their families rather than an investment in their future and earning potential.

CONCLUSIONS

ILO Convention 182, Article 7(c) states that each member state shall "ensure access to free basic education" for all children.[43] Work that precludes a child from obtaining an education has an adverse long-term impact. There is no clear line at which it can be stated that less education is bad; however, there is no doubt that education provides a child the opportunity to make choices and remain healthy throughout her life. A girl born into poverty is less likely to be able to take full advantage of her schooling opportunities than a girl who is born into a better economic situation. This often propels her into a cycle of employment (either in or out of the home), early marriage, poor health, and subsequent childbearing.[44,45]

Nutrient deficiencies place children at risk of impaired neuro-cognitive development. The effect of massive micronutrient replacement has been clearly seen in the global campaign to eliminate iodide deficiency. Prior to the iodization of salt, entire communities would suffer from cognitive impairment due to iodide deficiency.[46,47] Without a proper developmental start, children are more apt to fail in school and join the labor force earlier, thus repeating the cycle in the next generation. Efforts to eliminate child labor ought to be integrated with global efforts to eliminate micronutrient deficiencies as well as efforts to improve maternal health.[48]

There are factors outside of the family that may dictate the participation of children in the economic activity of the family unit. School often takes second place to work in families that are dependent on children's contribution to the family income. Children who live in situations of poverty for an extended period of time often have to quit or at the very least interrupt their schooling in favor of working to support the family.

It is difficult for the family to rationalize keeping a child in school, and expending a portion of the family income on school expenses. A case study from the Paraíba region of Brazil clearly shows that education is a leading factor in the reduction of poverty.[49] Poverty reduction in earlier generations increases educational opportunities for subsequent generations.[49] While recognizing the need to work, educational policies should be in place to facilitate children attending school. These policies include free education that is not limited because of the need to purchase supplies and uniforms, unbiased education where the rights of girls and minorities are protected, and supplemental meal programs to encourage poor children to attend school and enhance their academic performance when they attend.

Recommendations

Efforts to mitigate the economic strain placed on families by school expenses have focused on systematically replacing the lost income from children who are in school, and

minimizing school-related expenses. There has also been a call to integrate efforts that combine social and economic policies, such as more employment opportunities for parents and vocational training in secondary schools in order to help families keep their children in school.[50]

Efforts to eliminate child labor should also focus on maternal health and early childhood nutrition. It is apparent that maternal morbidity and mortality and early childhood nutritional deficiencies have a lasting impact on development. The research presented here also shows that it is apparent that nutritional deficiencies and maternal mortality could be seen as an important factor contributing to child labor. Examination of child labor from a public health perspective helps to assure that some of the roots of the problem are addressed.

It is not our intent to state that problems such as economic development do not play an important role in the elimination of child labor. Rather, the elimination of child labor is part of a broad range of social and economic problems, many of which have a broad impact on early development. Public health initiatives to improve the health and welfare of women and children can be integrated into multidisciplinary efforts to eliminate child labor. Locally based efforts to improve child health through nutrition campaigns and women's development through education initiatives and income-generation projects are able to successfully deal with issues across generations.[28]

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