

The Invisible Problem

Malnutrition in the U.S. and its cognitive, physical,
and psychosocial effects in the critical developmental years

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An emaciated child leans against the concrete wall in his small village in Ethiopia. His legs are too weak to sustain the weight of his wasted body. His stomach protrudes though he has been hungry since birth. Paper-thin skin is drawn taut across every rib, warranting a second look to confirm this is a living human being and not a skeleton. The child's brittle arms hang uselessly by his side as flies eagerly crawl over his eyeballs; he is too weak to blink them away.

Meanwhile, 7,000 miles around the world in the United States, a child of the same age, Bill, sits on the edge of a chair in the principal's office. He stares off into space blankly and the principal calls his name four times before she can get his attention. She asks a series of questions "why won't you make the effort to play with your classmates?" "Bill? Are you listening to me?" "Bill, why haven't you done any of the assignment in two weeks?" Bill continues to stare off, not defiantly, just staring with no answer. Frustrated by his lack of response, the principal irately jots down "noncompliant, major behavioral problems and issues with authority, failing all subjects and will be held back." She shoves the paper into her file and excuses Bill.

Bill saunters back to his classroom where the class is in a reading lesson. He sits with the slow-paced readers where he barely reads two grade levels below his peers. In class, he does not speak and IQ tests label him developmentally challenged, with 20% lower functioning than his peers. The teacher often forgets he is in the classroom. After all, she should be helping the other children with promise of succeeding, and not wasting her time on Bill whose "genetic defects" limit his academic performance.

Bill does not have long attention span, higher language skills, and analytical skills due to his decreased brain capacity. But Bill also does not have enough iron in his diet, which is essential for the development of his motor skills (which is why he is hesitant to interact with his

peers) and language functioning (which discourages him from speaking in class and limits his ability to read at his grade level) (Cunningham, 2006). He does not have Vitamin A which causes a weakened immune system, making him susceptible to infections and common illnesses such as the flu. As a result he has missed too many days of school. He did not receive proper iodine nutrition as an infant which is why his brain capacity is smaller at 20% fewer brain cells than his healthy peers (Lloyd-Still, 1976, p. 18). This is not a genetic defect. It is a result of his environment. Bill's mother works as a waitress seven nights a week and survives by buying cheap foods that are highly processed and lacking any nutritious content. Even if she were educated in the deleterious effects of iron and iodine deficiencies, she cannot enforce healthy eating habits due to her long work hours.

Bill and the Ethiopian child seem worlds apart, but they are both prisoners of malnutrition. Malnutrition is the number one risk to global health, killing more people than AIDS, malaria and tuberculosis combined ("Reducing Risk, Promoting Health," 2002). However, the United States is only familiar with the first picture, and people speak indignantly about the injustices of having hungry children in a world of plenty. Whether it is a "10 cent-a-day" commercial urging people to adopt a starving child in Africa or the front page of *The National Geographic*, the malnutrition plaguing developing countries is not unknown in modern society. But the second picture barely elicits a response because it is not easily identifiable. However, the reality of millions of malnourished children in the developing and developed world is as dire as a child dying from hunger in Africa. These children who live are so robbed of essential nutrients and minerals that failure is inevitable. Media coverage and emotional and political tugs of the first picture have overshadowed the disturbing problem of malnutrition in the United States. A seeming paradox, malnutrition is a pervasive disease in our wealthy society. It

halts the cognitive and physical development of over 38 million Americans (nearly 12% of the U.S. population). Of these malnourished Americans, 13 million are children under the age of twelve (“Frontline Issues,” 2006, p. 10). These numbers do not come from a radical left-wing organization with an anti-U.S. bias. Instead, it is reported by the United States Department of Agriculture (USDA)! The immensity of this problem is not exaggerated. Malnutrition exists in the U.S. Though it is not killing children, it is condemning them to a life of inadequacy. They are left with few resources on which to thrive.

In 1998, National Public Radio announced that a shocking one in ten Americans regularly uses a food bank or soup kitchen to eat. Despite powerful data supporting the widespread prevalence of malnutrition in the United States, we are still in persistent denial. The word “hunger” was not spoken once in President Bush’s 2001 inaugural address because to acknowledge malnutrition in America “is to confess that we have failed in meeting the most sensitive and painful of human needs” (Schwartz-Nobel, 2002, p. 5). Even worse, Ronald Reagan said in 1985 that “the hungry are too ignorant to know where to get [food]” (Schwartz-Nobel, 2002, p. 14). America’s prosperity blinds us to the growing epidemic. Schwartz-Nobel cites Amartya Sen, a Nobel Prize winner in economics, in stating that a country’s GDP is no indicator of a healthy population who is fully nourished (Schwartz-Nobel, 2002, p. 23).

Malnutrition is devastating in the United States; especially among intrauterine to age four children. Developmentally, this is the most critical age (Lloyd-Still, 1976, p. 16). The irreversible damage wrought on cognitive, physical, and social development impacts a child’s entire life, limiting lifetime functioning and achievement.

Malnutrition defined

Malnutrition is not synonymous with hunger, which is defined as deficiency of calories (“Malnutrition Matters”). Malnutrition can exist with or without hunger. For instance, obesity is the intake of excessive calories. Even where there is no hunger, the diet may lack essential minerals and vitamins. This causes malnutrition. On the other hand, long-term hunger from skipping meals or inability to obtain sufficient food can also lead to malnutrition over time (“Hunger in the United States,” 2006). A child is malnourished if his or her body does not take in an adequate amount of one or more nutrients the absence of which can stunt physical and mental health (“Frontline Issues,” 2006, p. 6). A child is considered malnourished if, but not only if, he falls 80% below weight of the average for his height and severely malnourished if he falls below 70% of the expected weight for height. Since children grow quickly and need many nutrients to fuel their growth, they are more susceptible to malnutrition than adults (Malnutrition Definition).

Height and weight ratios are not the only consequences of malnutrition. The USDA uses the definitions of *food security* and *food insecurity* to calculate the number of people who are malnourished. Food security is assured access to enough nutritious food in order to sustain a healthy and active life. The three aspects of food security include food availability, food access, and appropriate food use. Food availability is the amount of food supply in a country or community. Food access determines if people are able to get the food. The U.S. has plenty of food availability, but people who do not have the money to purchase available food do not have food access. And lastly, appropriate food use is if a person knows what a healthy diet consists of. Food use depends on nutrition education. Bill’s mother does not know to buy foods high in

vitamins and minerals for her growing son. To her, as long as Bill is not hungry, he is healthy (“Frontline Issues,” 2006, p. 6).

Food insecurity is the violation of these three aspects which results in a condition where the ability to acquire safe and nutritious food in a socially acceptable way is uncertain (“Frontline Issues,” 2006, p. 6). Long term food insecurity leads to malnutrition. The number of malnourished Americans reported by the USDA was collected through a survey about food insecurity (Nord, Andrews and Carlson, 2005).

Extreme cases of malnutrition are marasmus and kwashiorkor. Marasmus arises when a child’s body is so severely wasted that the heart, blood, and internal organs are too weak to function. As a result, the slightest of infection can be fatal (Greene, 1977, p. 21-23).

Kwashiorkor arises when the diet lacks in proteins relative to calories. It gives the child’s body a swollen look. Though the child appears plump, he is actually severely malnourished.

Kwashiorkor also lowers resistance to fighting infection and disturbs the levels of salts and minerals (Greene, 1977, p. 21). This leaves a child defenseless against the smallest of ills.

However, these two manifestations of malnutrition are mostly seen in Africa, such as the Ethiopian child described above, who suffers from kwashiorkor. Though marasmus and kwashiorkor are not problems for the U.S., other less physically obvious impacts of malnutrition are. Unfortunately, its severity is underestimated since effects of mineral and vitamin deficiency are less obvious.

Widespread impacts of Malnutrition

Without proper nutrition, a child’s immune system is compromised, leaving him prone to infection and disease. A host of problems ranging from obesity to iron deficiency impair the

development of children, disabling them little by little. These effects are pervasive in the United States though the public is blinded to them because focus is placed on hunger statistics and not micronutrient deficiency.

Obesity is a growing problem in this country. One theory of the cause of this phenomenon is the increasing prevalence of high fat foods in diets. Low-income families will sacrifice quality for quantity when grocery shopping. Calories curb hunger, but provide few nutrients. Another theory links obesity with poverty. It states that obesity is especially common in impoverished homes. Incomes are low and unstable so each meal is not a guarantee. Chronic food deprivation inhibits the person's ability to regulate amounts of food consumed. A person then overeats because he does not know when his next meal will be ("Frontline Issues," 2006, p. 75-76). The second theory is dubious since an obese person has not been deprived of calories for long. Obesity is caused by continual intake of excess calories. Nonetheless, in the U.S., 9 million children are overweight and 65% of adults are overweight. Though not all overweight people are malnourished, a large percentage of obese Americans overlap with the 38 million malnourished people reported by the USDA. This is worrisome because obesity causes Type 2 Diabetes, stroke, hypertension, cardiovascular disease, osteoporosis and breast, colon, endometrial cancer ("Frontline Issues," 2006, p. 70).

Iron deficiency is the most prevalent form of nutrient deficiency. Iron Deficient Anemia affects 10% of American children between the ages of one and two. It leaves children prone to infection, which in turn leads to a higher risk of premature death ("Frontline Issues," 2006, p., 72). The Center for Disease Control reports that IDA causes increased susceptibility to lead poisoning in children ("Hunger in the United States," 2006). Cognitive and physical impairments are also effects of IDA. It limits a child's ability to learn, read, and do mathematics.

This causes him to fall further behind in school with little hope of recovery. Bill, sitting in the principal's office, is not physically starving. Because his diet lacks iron, he is unable to focus in class. The teacher becomes frustrated and pays him only negative attention. This cycle is exponentially detrimental to Bill's cognitive development. He falls further and further behind, withdrawing from his academic environment, which is why we find him in the principal's office. In the long term, IDA lowers the productivity of adults, affecting their wages and the nation's productivity. To quantify the effects of IDA, the most seriously affected developing countries suffer up to a 2% loss in GDP as a result of IDA. This is very detrimental for the economy of a struggling country (Vitamin Mineral Deficiency, p.2).

Iodine Deficiency Disorder (IDD) affects one third of the world. Its most devastating affects are on pregnant women and preschool children. IDD causes miscarriages, stillbirths, and maternal death. If serious enough, IDD can cause irreversible mental retardation in children ("Frontline Issues," 2006, p. 72). It is also responsible for anemia in children ("Frontline Issues," 2006, p. 31). Anemia decreases hemoglobin and red blood cells which are essential for carrying oxygen throughout the body. Less oxygen to cells, tissues, and organs diminish their capability to function ("Kids Health for Parents, 2007). A child suffering from IDD would be less physically active and able to interact with his environment. The result is less exploration and cognitive stimulation.

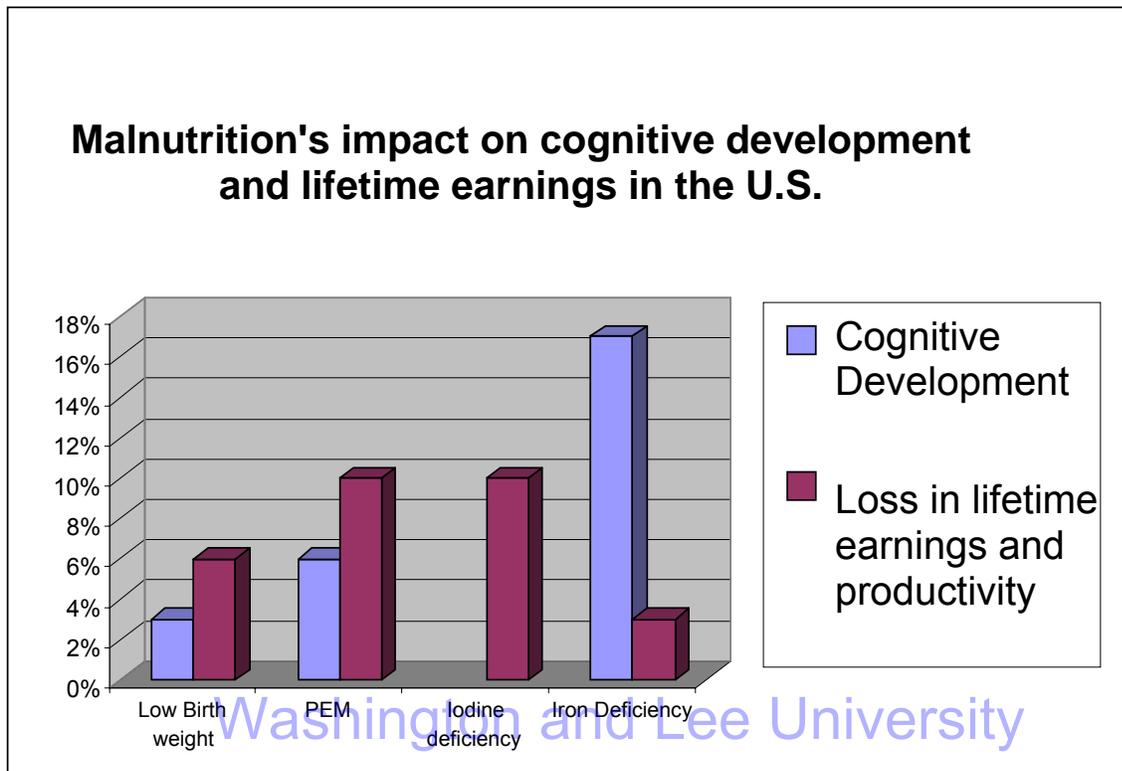
Vitamin A Deficiency (VAD) and Protein Energy Malnutrition (PEM) are leading forms of global nutrient deficiencies. Worldwide, VAD affects 100-140 million children between birth and age five. It causes blindness in its toddler victims and is responsible for 1.2 million child deaths ("Frontline Issues," 2006, p. 72). PEM is caused when not enough energy-rich foods are consumed. Worldwide, a shocking one in four children under the age of five suffers from PEM.

It is highly correlated with smaller stature, poorer school performance, and lower scores on psychological development tests (“Frontline Issues,” 2006, p. 74-75). Therefore academic performance is not a reflection of natural intelligence but of a lack of proper nutrition. VAD and PEM affect many children in the United States who live in food insecure households, but specific statistics are not available.

The specified health problems are only a sampling of the debilitating effects of malnutrition. Other micronutrient deficiencies released by UNICEF include Zinc, Folate, Calcium, Riboflavin, and Vitamin B6 and B12 (“Frontline Issues,” 2006, p. 72). Zinc deficiency affects about one third of the world’s population and is responsible for 16% of respiratory tract infections, 18% of malaria, and 10% of diarrhoeal disease world-wide (Reducing Risk, Promoting Health, 55). World Food Report 2002 reports that micronutrient deficiencies are number eight in the top ten risks to health worldwide (World Food Programme). They impair intellectual development, lead to ill health and early death, and limit people’s physical and mental potential (“Frontline Issues,” 2006, p., 72).

In the U.S., economists Alderman, Behrman, Horton and Ross have quantified the effects of the four most common deficiencies on cognitive development and total loss in lifetime earnings and productivity. These deficiencies are PEM, iodine deficiency, iron deficiency, and low birth weight. The first three deficiencies are direct effects of malnutrition. Though not all cases of low birth weight are caused by malnutrition, many are results of poor nutrition. Malnutrition results in at least 3% lower cognitive development than in healthy children and in the case of iron deficiency, a devastating 19% loss in cognitive development. Malnutrition can lead to up to 11% loss in lifetime earnings and productivity. Once again, the circularity of poverty is seen in the data. Low-income households are more likely to be malnourished, and

malnourished people earn less due to lower levels of cognitive development (“Reducing Risk, Promoting Healthy Life,” 2002, p. 52-56).



At what point in life do the effects of malnutrition appear?

Intrauterine environment

Children are the future of society. Since development begins before birth, nutrition in the intrauterine stage determines the health and survival of a future generation. A fetus's health and well-being are directly dependent on his mother. Therefore intrauterine malnutrition policies must include fetus and mother since the mother's nutrition is the nutrition of the fetus.

Malnutrition, like poverty, is inherently cyclical. It is difficult to pinpoint the starting point or cause. However, the pre-natal stage is the most logical place to begin study of malnutrition. This stage is the most critical for developmental process. Once a critical period for

development has passed, the handicaps are permanent for the rest of life. In addition, if malnutrition can be prevented for one generation, the cycle from generation to generation can be reduced.

Malnutrition during pregnancy stunts intrauterine growth and causes low birth weight, creating more complications (Green, 96-97). Low birth weight is a major determinant of mortality and morbidity (Hoet and Hanson, 1999, p. 623). Even if the infants survive, physical and cognitive developments are permanently handicapped.

Cardiovascular development is stunted throughout the lifetime. At birth, malnourished infants have higher arterial blood pressure and exaggerated blood pressure response (Hoet and Hanson, 1999, p. 618). This leads to unstable fetal heart rates. Since the heart pumps blood filled with essential nutrients for development to all parts of the bodies, especially organs, an unstable heart rate will stunt physical development. Adults who suffered prenatal malnutrition have an increased risk of developing cardiovascular diseases, such as hypertension, coronary heart disease, and stroke (Hoet and Hanson, 1999, p. 617).

If the mother has a low protein diet during pregnancy, kidney weight and the number of mature glomeruli (capillaries in the kidney to receive blood flow) is significantly reduced. The kidney is responsible for excreting waste products produced by metabolism, homeostasis, acid-based balance and stabilization of blood pressure. In a study conducted on rats by Cheek and Hill (1975), the results showed that remedial diets after birth did not result in improvements. In the experiment, when rats were fed a normal diet fourteen days after birth, no gains were made in kidney weight (Hoet and Hanson, 1999, p. 623). In this case, prevention is more important than treatment.

Intrauterine malnutrition also inhibits cognitive development. Brain blood vessel density is reduced and remains reduced even after a normal postnatal diet (Hoet and Hanson, 1999, p. 623). Without proper nutrients due to decreased blood flow, the infant will have up to 20% fewer cerebrum-brain stem cells and 35% fewer levels of cerebellum DNA (Lloyd-Still, 1976, p. 8). From birth, malnourished infants start life at a disadvantage with less brain capacity and fewer physical capabilities.

The postnatal environment

Malnutrition for infants is not an isolated case. Instead, the infants come from a legacy of malnutrition: their parents. Socioeconomic status is a major determinant for malnutrition and vice versa (Greene, 1977, p. 11). For adult malnourished males, work output is reduced due. When men are the bread winner, family income is reduced. A reduced income pushes the family into a lower socioeconomic status and decreases the ability of the family to purchase an adequate diet. The father's malnutrition has an adverse effect on nutrition for the whole family due to financial ability to provide (Greene, 1977, p. 101). In single mother households where females are the bread winner, the reduced work output and income effect still holds true.

A mother's nutrition affects the nutrition of the child both pre-natally and post-natally. Therefore, mothers of malnourished infants are likely to be malnourished themselves. A major determinant of malnutrition in women is lower levels of education. For example, Bill's mother wants her child to be healthy, but does not know how to feed him a nutritious diet. In addition, malnourished and uneducated mothers are less energetic and able to provide good care in the form of verbal reinforcement or interaction with the infant (Greene, 1977, p. 100). The result is less environmental stimulation for the baby. Even worse, since infants are born malnourished,

they are less responsive and attentive to environmental stimuli. Rehabilitation has not proved successful in reversing this defect (Greene, 1977, p. 25). Malnourished mothers already give little environmental stimuli to their malnourished infants. In addition, the mother pays less attention to an inattentive infant. These low levels of interaction lead to developmental retardation (Greene, 1977, p. 33). Causes beget effects and effects beget causes in the cyclical nature of malnutrition and poverty. Unsurprisingly, malnutrition is passed from generation to generation. However, this “inheritance” of malnutrition is not due to genetics, but to environment.

Period of Cognitive Development

The first four years of a child’s life is the most critical time for development. By age 2, a child’s brain has grown to 80% of its full development (Schwartz-Nobel 3). Malnutrition in these early stages prevents the brain from growing to its full capacity. With a smaller brain capacity, there is a decreased propensity to acquire new information, limiting the learning curve for a child’s entire life (Strupp and Levitsky, 1993). Past age two, the compromised weight and size of the brain may not be recoverable.

With up to a 20% smaller brain capacity than his nourished peers, malnutrition forces the child to enter the education system behind the starting line. Once in school, the effects of malnutrition, such as Protein Energy Malnutrition and iron deficiency are difficulty in memorization, short attention span, and analytical skills. These obstacles greatly decrease the malnourished child’s potential for academic achievement (Pollitt and Lewis).

Furthermore, this impaired cognitive development and malnutrition prevents a child from interacting with people and their surroundings. This lack of exploration translates to a less

stimulating environment for the child (“Hunger in the United States,” 2006). With decreased cognitive capability and lack of interaction with the environment, the child enters school behind healthy peers. Children will continue to lag behind in all years of school. This lag persists into the work force. This loss costs the individual as well as the nation. According to the Tufts University Center on Hunger, Poverty and Nutrition Policy, research shows that malnutrition during these critical development years results in lifelong lost knowledge, brainpower, and productivity (“Hunger in the United States,” 2006).

Period of Psychosocial Development

As a child grows older, malnutrition manifests itself in psychosocial development. A study by Levitsky and Strupp in 1995 observed that malnourished animals have increased emotionality and anxiety. This raised level of emotional instability causes extreme stress in new situations and can greatly hinder social functioning. For example, Bill cannot adjust to the first day of school and is flustered from the beginning. By the time he adjusts to his new teacher, peers, and classroom, he has already lost weeks of learning. This is not the only stressful situation Bill will experience in school. In class tests and important standardized tests will also elicit higher levels of anxiety. . Without the ability to handle normal social interactions, Bill cannot advance far in society (Strupp and Levitsky, 1993).

Furthermore, since the mind and body’s energies are focused on staying alive, there is a marked decrease in intrinsic motivation to accomplish anything more than the minimum for survival. In the U.S, a shocking 15% to 55% of children suffer from psychosocial failure to thrive (Karp, 1993, p. 6). Most of these children live in poverty stricken homes ridden with food insecurity.

Causes of Malnutrition

Environment, not genetics

Three intertwined factors are important in understanding the effects of malnutrition on children: behavior, genetics, and environment. Behavior of a child is a major determinate of success in school and in work. A child who does not interact with his environment to learn will develop more slowly than a child who has gusto for exploration. An inattentive child who does not complete homework assignments will score lower in school. These behaviors are directly correlated with achievement rates, but behavior is not the root problem of failure for malnourished children. Behavior manifests improper nutrition, which cannot be blamed on the child.

Though the effects of malnutrition and genetic defects can be identical, malnutrition is not caused by genetics. Unlike genetics, malnutrition can be changed. For example, if a child is born with 20% lower brain capacity due to DNA, nothing can prevent or alter this biological fact. However, if a child is born with 20% lower brain capacity due to malnutrition, the child does not have a genetic defect. With proper nutrition, biologically the child has the potential to develop 100% brain capacity. However, genetic capacity cannot materialize if the environment suppresses it.

This leads to the third factor: environment. By no fault of the malnourished child, he is born into an environment that lacks the essential building blocks of life. His environment does not provide the proper nutrition for cognitive, physical, and psychosocial development. The behavior of the child follows from a nutrient deficient environment. And the environment is responsible for malnutrition.

Earlier, parents in the postnatal environment are seen as contributors to the malnutrition of their child. This new understanding of environment as the cause of malnutrition removes the bulk of the blame from parents. The parents are malnourished and affected by their own environment. Only if a parent withholds adequate nourishment from their children when he/she has the knowledge and capability to provide the nutritious diet, is the parent to blame for the child's malnutrition. However, it is more likely that a malnourished parent lacks knowledge, energy, and means to provide a less stimulating and nourishing environment for the child.

The disadvantaged environment of malnourished children results in an unfair playing field. It is as if the malnourished child is paired against a healthy peer in a bike race. The healthy child is given a new 10-speed bike and placed right on the edge of the starting line with arrows pointing to the course. The malnourished child is given a bike with no wheels. He starts the race in the middle of the forest, far from the path with no direction. Malnutrition robs children of the actual tools to compete in the race (reflected in absence of wheels). No matter how hard the child studies or tries in school, no matter how hard the child pedals, it will be to no avail since the most important part of the bike is missing. The child will still only have 80% of brain cells to use, but even this 80% lacks the minerals it requires to retain the information. A malnourished child is less attentive so teachers and parents pay less attention to him and offer less direction in life. This is not a fair race.

One environmental factor: marketing

At least unlike genetics, environment can be changed. The child can be given a bike with wheels and a straight path. One reversible environmental factor in the U.S is marketing. The slow population growth and sedentary lifestyle of Americans causes the food industry to turn

towards highly processed and less nutritious foods to boost sales. As a result, the amount of processed foods in the American diet has risen from 10% in 1941 to 50% in 1971 (Lloyd-Still, 1976, p. 169). Food companies especially target children through their advertisements. In 1999, children were exposed to 40,000 television commercials a year, 10,000 of which were for food and beverages. The food industry invests \$15 billion annually in advertising to children (“Frontline Issues,” 2006, p. 52). These brightly packaged foods appeal to children and are often cheaper, making it difficult for parents to choose to buy healthy foods. Such factors lead to misinformation and children no longer know how to eat nutritiously. There is no national nutrition education program offered to provide information on healthy eating. Bill’s mother works all day so he spends his time in front of the television. He sees no commercials marketing fruits and vegetables and is misled in what he should be eating. Instead, he watches thousands of commercials for foods lacking nutritious content. Undoubtedly these commercials will influence him to eat the nutrient-poor foods his mother has purchased.

The cycle

The USDA’s 2005 survey indicates a strong correlation between poverty and malnutrition. Only 5% of households 185% above the poverty line were food insecure while 36% of households under the poverty line were food insecure (Nord et. al., 2005). The World Bank concluded that “reducing malnutrition is central to reducing poverty” (“Combating Malnutrition: Time to Act,” 2003).

Malnutrition is an important cause of the cycle of poverty. Its most detrimental repercussion is on a child’s cognitive development which has devastating effects on his education. Malnutrition decreases educational attainment which is a determinant of poverty.

Cognitive, physical, and psychosocial failure to thrive decrease lifetime earnings, pushing a person further into poverty. In the case of malnutrition, poverty is not caused by behavioral or genetic problems, but by environmental factors beyond control of the individual, and poverty is one of those factors.

Justice Demands Remedies

In poverty debates, arguments turn to the deserving versus the undeserving poor. For malnutrition, every case should be treated with equal weight since malnutrition is not caused by genetics but by living in a “powerful environment” (Karp, 1993, p. 4). Individuals are powerless to alter their environment. The government cannot control genetics, but it can affect the environment. The United States is more powerful than ever and has the **ability** to meet all the nutritional needs of this country (Malnutrition.org); therefore, justice requires us to meet the needs.

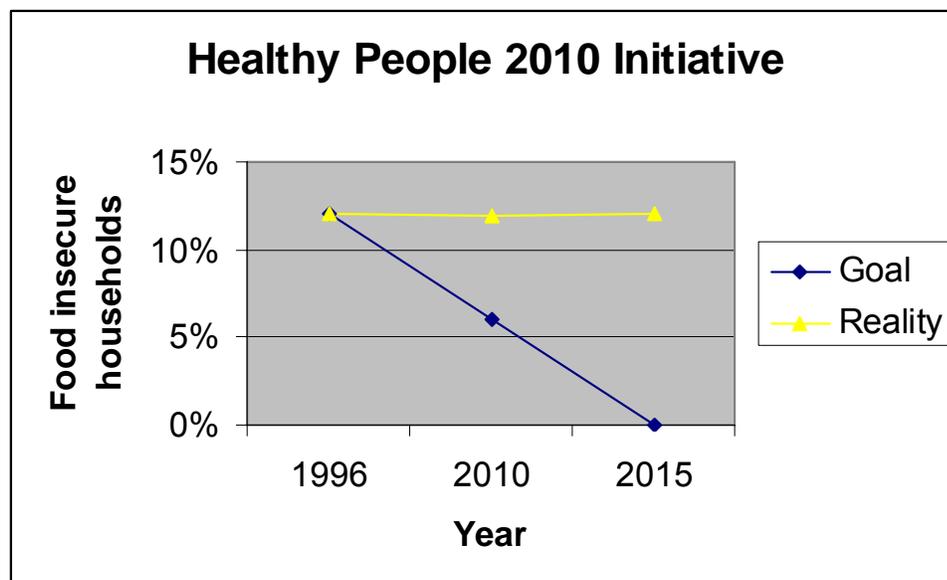
The U.S. Declaration of Independence states that every person is guaranteed life, liberty, and the pursuit of happiness. Essentially, the U.S. guarantees the right of each individual the means to flourish. To flourish means a person is autonomous and has a purpose of his own. Malnutrition enslaves a person to the limitations of physical and cognitive development. Without proper nutrition, there is no foundation on which to build autonomy and thus flourish. By eradicating this disease, the poor can finally move toward self-reliance (Pogge, 2002, p. 27-31). Social justice presents two reasons why the government must fight malnutrition. First, moral progress in the Western world has set the norm that continued poverty should not be ignored. The minimal means for flourishing is a human right (Pogge, 2002, p. 38). Those who are flourishing in the U.S. do so because of the environment they were born into by chance.

Everyone deserves the same chance. Second, economic and technical advances in resources are able to address malnutrition without an undue burden on ourselves (Pogge, 2002, p. 31-37).

Pogge argues that social justice only requires the government to do no harm through negative duties. I differ with Pogge when discussing malnutrition. Social justice requires positive duties of government so that all environments offer the same opportunities for nutrition. We should raise the malnourished to the level of the healthy.

The Reality in the U.S.

In 1996, the United States Department of Health and Human Services made the *Healthy People 2010 Initiative*. It is a commitment to cut domestic food insecurity by one half in 2010 and to completely end malnutrition by 2015. In the year this initiative was formed, 12% of the U.S. population lived in food insecure households. The goal was to decrease this number to 6% by 2010. However, in 2006, food insecurity was virtually unchanged at 11.9% (“Frontline Issues,” 2006, p. 6-7). It is shameful that we have been at a standstill for the last decade.



Malnutrition is not caused by a virus or by bacteria. It is a disease **caused by humans**. We have been silent for too long and as a result, over 13 million American children are malnourished. They account for 38% of the hungry in the U.S. (Schwartz-Nobel, 2002, p. 15). Gabriela Mistral is a Nobel Prize winning poet from Chile who understood the effects of poverty and malnutrition first hand. In her book "*Su Nombre es Hoy*", Mistral eloquently states, "We are guilty of many errors and many faults, but our worst crime is abandoning the children, neglecting the foundation of life. Many of the things we need can wait. The child cannot. Right now is the time his bones are being formed, his blood is being made and his senses are being developed. To him we cannot answer "Tomorrow". His name is "Today."" ("Make Every Mother and Child Count," 2005).

Policy Implications

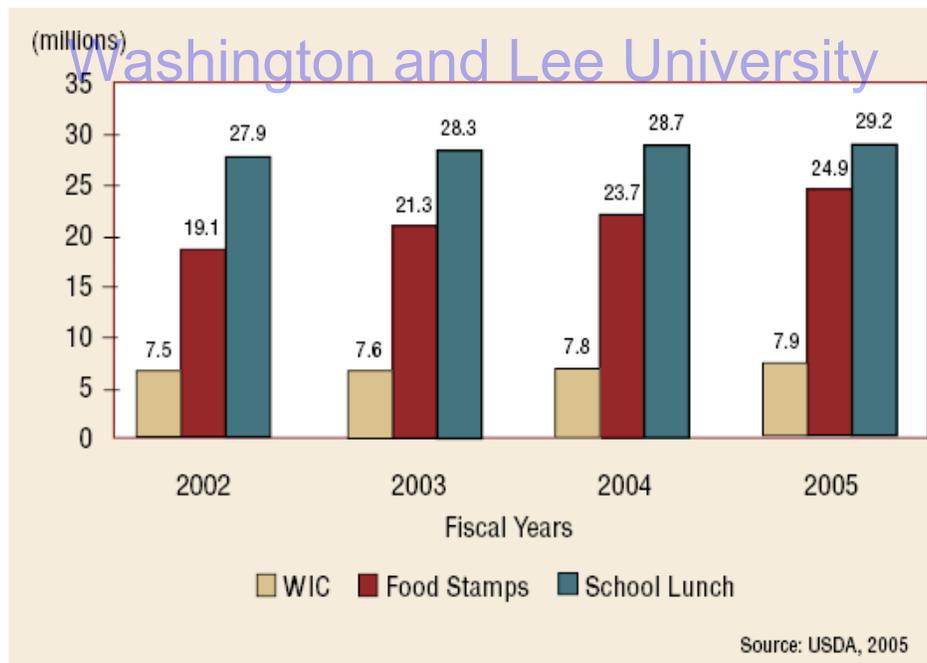
Need for change

America is the richest nation in the world. Unlike developing nations, the U.S. does not suffer from inadequate food supply. Instead, the U.S. suffers from food access and adequate food use. With a vibrant economy, the government is able to provide the basic nutrition needs for each citizen. Yet there has been no action to rectify malnutrition. The U.S. is not fulfilling social justice to provide the basic human right of flourishing. There are a number of policies that can be implemented to change the environment causing malnutrition. My policy recommendations address using readily available resources to change the environment in which malnourished children live.

Current anti-hunger programs

The main governmental anti-hunger programs are the Food Stamp Program (FSP), National School Lunch Program (NSLP), and Special Supplemental Nutrition Program for Women, Infants and Children (WIC). People served through the U.S. nutrition assistance programs have increased at a very slow rate for the past five years. In 2005, 24.9 million people benefited from Food Stamps, 29.2 million children were served free school lunches, and 7.9 million people used WIC (“Frontline Issues,” 2006, p. 10). WIC serves a smaller percentage of the total child population because it serves children up to age five. WIC serves half of all American infants and 25% of children between ages one and four (“Frontline Issues,” 2006, p. 43). FSP and NSLP serve a different cohort which accounts for the difference in figures.

Figure 1.2 People Served Through U.S. Nutrition Assistance Programs



(“Frontline Issues,” 2006, p. 10)

Participation in these programs has proven effective in decreasing food insecurity and malnutrition. Levedahl and Oliveira (2006), agricultural economists with the Food and Rural

Economics Division of the USDA report the findings in their paper “Dietary Impacts of Food Assistance Programs.” Food Assistance Programs increase both quantity and quality of food consumed. One dollar of Food Stamp benefits increases food expenditures by 26 cents. Expenditures do not increase by the entire dollar amount because recipients substitute a portion of the benefits for food that would have been consumed anyway. Therefore 74 cents of each dollar of Food Stamp benefits can now be used on nonfood expenditures such as housing, helping combat other aspects of poverty. In addition, Basiotis, et. al. (1998) found that Food Stamp benefits increase the probability of consuming the recommended levels of three of five food groups defined by the Food Guide Pyramid. This is due in part to increased spending on food at home, which is less expensive. This translates to greater nutrients per dollar of food expenditures (Levedahl and Oliveira, 2006, p. 312-315). Besides increased expenditures on food, the USDA also tracked nutrient intake of FSP participants. For twelve of sixteen nutrients, FSP participants had greater daily intake than non-FSP.

Average 1-day intake as a percentage of RDA by FSP participants in 1989/1991

Nutrient	FSP	non-FSP
Protein	185	155
Vitamin A (IU)	123	133
Vitamin C	157	153
Thiamin	136	124
Riboflavin	143	131
Niacin	130	123
Vitamin B-6	98	89
Vitamin B-12	284	250
Calcium	84	83
Phosphorus	124	125
Magnesium	111	93
Iron	107	112
Vitamin E	85	80
Vitamin A (μg RE)	110	110
Folate	193	161
Zinc	80	75

(Levedahl and Oliveira, 2006, p. 316)

National School Lunch Program has also shown positive nutritional impacts on students. NSLP participants have greater daily consumption of food energy, protein, ten vitamins and minerals (calcium, iron, niacin, thiamine, riboflavin, vitamins A, B-6, and B-12, magnesium, and phosphorus) (Levedahl and Oliveira, 2006, p. 318).

WIC has been successful in providing nutrients to its target population of women, infants, and children. The National WIC Evaluation commissioned by USDA's Food and Nutrition service in 1986 found promising results. It found:

- Pregnant women in WIC had greater intake of ten micronutrients.
- Infants in WIC had greater intake of iron and vitamin C and there was less probability the infant was on a low iron, vitamin A and C diet.
- Children in WIC had greater intake of iron, vitamin C and B-6, thiamin, and niacin
- WIC households did not have greater expenditures, but a greater proportion of income was spent on WIC approved nutritious foods. Though food expenditure did not increase, food composition was more nutritious (Levedahl and Oliveira, 2006, p. 320-321).

Increase participation rates

The results of major food assistance programs from the last 30 years are very promising. They significantly increase nutrient consumption, providing strong evidence to increase enrollment rates in the program. The government need not look far to expand programs since not all who are eligible for benefits are participating. Thirty percent of eligible children are not receiving free lunches ("Frontline Issues," 2006, p. 44), a little under half (43%) of the eligible

population are not receiving benefits from WIC, and 46% of eligible people do not receive Food Stamps, reports the USDA ("Frontline Issues," 2006, p. 18). Now we will take a closer look at FSP and WIC.

Policy to reform FSP

Though there is the perception that "the federal government is doing more to end hunger than any administration in history" (Schwartz-Nobel, 2002, p. 13), welfare reform of 1996 actually made billion in cuts to the Food Stamp Program. This is not the policy the government should be making since the FSP has proved itself so successful in increasing nutrient intake. As a result, malnutrition is at its highest since pre-1970s, before the implementation of government assisted malnutrition relief.

The FSP is quite successful in reducing malnutrition, but a few reforms will make it even more efficient for a changing society with changing nutrient needs. Ron Haskins said in his February 1, 2007 speech at Washington and Lee University titled "Welfare Reform at 10 Years", the Food Stamp Program is geared towards a starving America, not a malnourished America. In other words, the FSP aims to reduce food availability. As defined earlier, food availability is not a problem in the U.S. Instead, healthy food access and food use are the obstacles of American diets. Currently, the average FSP benefit is \$1 per meal ("Frontline Issues," 2006, p. 25). It would not be feasible to purchase (access) a healthy meal and inevitably, quality is sacrificed for quantity (food use). Food Stamps should come with an information packet containing the USDA's recommended daily nutrient intake and suggested meals on how to meet these requirements. Since processed foods are such a staple in the American diet, many households do not know how to shop healthily. After all, processed foods, high in fat content and low in

nutrition, are less expensive than health foods. A rational but uneducated consumer will opt to buy these less nutritious foods. By including information on what foods to buy, people will be educated about which foods are healthy. In accordance with education about healthy meals, Food Stamps should be adjusted to a higher dollar amount to be able to afford healthier foods (“Frontline Issues,” 2006, p. 29).

In 2004, the Boston Medical Center did a study called “The Real Cost of a Healthy Diet”. It found that Food Stamp benefit amounts are based on outdated USDA Thrifty Food Plan (TFP) which had not been revised since 1999. The TFP cost is not adjusted for regional variation in cost of food and cost of living. It also assumes that all food is prepared at home, which is not realistic for single parent or working families. Healthy meals can be purchased at restaurants, but they carry a higher price tag than fast foods lacking in nutrients. The current benefits are not enough to meet the government’s most recent nutrition guidelines. A low income family needed monthly benefits 23% higher than current FSP benefits to buy foods following the national nutrition guidelines (“Frontline Issues,” 2006, p. 33).

Policy to increase WIC participation

Maternal Leave

WIC participation rates must be increased because it provides essential assistance for single mother households, which are the most vulnerable to poverty and malnutrition. In these households, one parent must take on dual roles of caretaker and bread winner. Therefore single mothers cannot afford to take much time off from work after the birth of a child. In just a couple months, mothers stop breastfeeding to return to work. It is necessary to earn an income to pay for food, rent and more. But when breastfeeding is ended prematurely (before six months), it is

harmful to the baby. The mother's breast milk provides immunity in the early vulnerable months of the infant. This disadvantage paired with poor nutrition greatly disables the baby. Though WIC promotes breastfeeding and has made strides since 1974 when only 25% of its participants breastfed, still only 57% of participants breastfeed today ("Frontline Issues," 2006, p.). There must be more generous maternal leave time for mothers. Not only will this allow mothers to breastfeed longer, it will boost the immunity of children. The children will be more responsive since they are healthier and mothers will be more responsive parents, provide a stimulating environment for cognitive growth.

Increased information

However, more generous maternal leave will only be implemented when mothers and employers understand the importance of post-natal nutrition and care. Pre-natal and post-natal nutrition information should be more widespread to educate the public on the importance of nutrition in the first years of life. This is also a solution to the obstacles to food use. When the public becomes more conscious of malnutrition's damaging effects, it will pressure employers to allow longer maternal leave.

Policy to counter misinformation

Junk food marketing and the prevalence of unhealthy foods (especially in school lunches) has created an environment of misinformation for children. This misinformation can and should be countered in the school system since virtually all children attend school in the U.S. every weekday and consume one or two meals daily at school. Currently there is no national nutrition education program in schools, but trial programs have yielded positive impacts on children's eating habits. Two specific programs are The Child and Adolescent Trial for Cardiovascular

Health (CATCH) program and the 5-A-Day Power Plus program. CATCH introduced a three year nutrition education and physical activity program in 56 elementary schools. Fifty-one hundred third graders underwent the (“Nutrition Education in Schools,” 2002, p. 1-2). These programs were aimed at reducing fat and sodium consumption as well as fat and sodium content in school lunches. The St. Paul Public School District in Minnesota implemented the 5-a-Day Power Plus curriculum to promote at least five serving of fruits and vegetables a day. Students were not only taught which foods contained essential nutrients, but they also had hands on experience of healthy snack preparation. Packets of nutrition education are also sent home to parents since children’s eating habits often reflect those of their parents. Both nutrition programs improved children’s eating habits. After three years of education, CATCH students decreased intake of fat calories from 33% to 30%. This decrease was maintained three years after the study. Student protest also decreased proportion of calories from fat in school lunches from 39% to 32%. Students in the 5-a-Day Power Plus program increased consumption of fruit and vegetable by more than half a serving a day. The school cafeteria also increased amount and variety of fruits and vegetables offered (“Nutrition Education in Schools,” 2002, p. 2-4). Though marketing and junk food stocked grocery stores cause misinformation about healthy eating, nutrition education in schools can positively shape a child’s eating habit and reduce malnutrition.

Policy to utilize wasted food

One of the resources at the United States’ disposal to fight malnutrition is wasted food. The U.S. has an excess of food and is exporting rice at an average rate of 70 million pounds a day. In fact, 27% of food produced in the U.S. is being wasted. Preventing malnutrition would not impose an undue burden on the U.S. since it will be minimal cost to the government.

Making better use of resources will make the country more efficient and less wasteful. We can first work with the resources readily available to us: un-served food thrown away in restaurants, stores, college campuses, etc. The one hundred billion pounds of safe food thrown away each year is enough to feed every malnourished person in America (Schwartz-Nobel, 2002, p. 17). One such organization is the national Campus Kitchens Project (CKP) located on ten college campuses. It repackages un-served food from university dining services and distributes it to the hungry and malnourished members in the community. Since 2001, CKP has served over 468,000 meals. In 2005 alone, 44,000 pounds of food were recycled into 127,000 nutritious meals (The Campus Kitchens Project, 2005).

Conclusion

Malnutrition in the United States has been denied and overshadowed by international malnutrition. However, it is time for our nation to face the effects of malnutrition within our borders before we forsake and condemn another generation. Especially devastating are the 13 million children who live in food insecure environments. Each passing day is a day lost of cognitive, physical, and psychosocial development. However, these irreversible effects are preventable. By changing the current environment of malnourished children, we are fulfilling the basic human right to flourish. The U.S. has the resources of food availability to provide proper nutrition for each of its citizens with no added burden to the rest of society. To neglect this duty by ignoring food access and adequate food use is to deny social justice. Eradicating malnutrition in the U.S. is within our capabilities and the policies I have presented are the first steps toward attaining the goal. Let us deny this problem no longer so that Bill can have a chance to succeed.

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