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Plagued By Paradox... Guatemalan Children

The greatest legacy of ancient Mayan civilization was the domestication and improvement of maize. It was the green revolution of ancient times, brought about by sophisticated agricultural practices and a cultural reverence so keen that maize was deified and worshipped. Mayan diet was centered on maize, which literally and figuratively nourished the Mayans' complex mathematical, architectural, and artistic achievements. In the 1500's when Spanish conquistadors arrived in Central America maize was a great New World discovery that was transported back to Europe and beyond. Thanks to the early Mayans, corn now feeds the world.

Guatemala was once the heart of Mayan civilization. Paradoxically, 3,000 years after the ancient Mayans flourished, present day children of Mayan descent, who live primarily in rural Guatemala, are among the most malnourished in the world. While Guatemala's lush land and climate are conducive to agriculture, and its vast coastline conducive to fishing, the nutritional benefits of these attributes are largely unrealized by rural indigenous children. For those who survive early childhood, the deprivation in their developing years affects their health and well-being for life. Progress in reducing hunger among children has been offset by another paradox: as urban Guatemalans adopt Western lifestyles obesity is rising.

Guatemala's natural advantages have been constrained by political upheaval. About the size of Tennessee, Guatemala has a diverse terrain with mountains, lowlands, coastal plains, and rain forests. The climate ranges from tropical in the rain forest to cool in the highlands. There is great variety of plant and animal life. Agriculture is a mainstay of the economy with the land abundantly producing crops of sugarcane, corn, bananas, coffee, and beans. However, 70% of the land is owned by only 2 - 3% of the population. (Henning) This inequitable distribution is tied to a long history of repression. When the conquistadors arrived in the 16th century they forced indigenous people into servitude on vast haciendas. Later, after Guatemala became independent of Spain in 1844, powerful dictators ruled the country in the 19th and 20th centuries; repression and displacement of indigenous people persisted as corporate interests and the military elite flourished. Democratic civilian rule was finally established in 1986. Even so, from 1960 to 1996, for 30 years Guatemala was torn by a civil war considered Latin America's bloodiest in the 20th century.

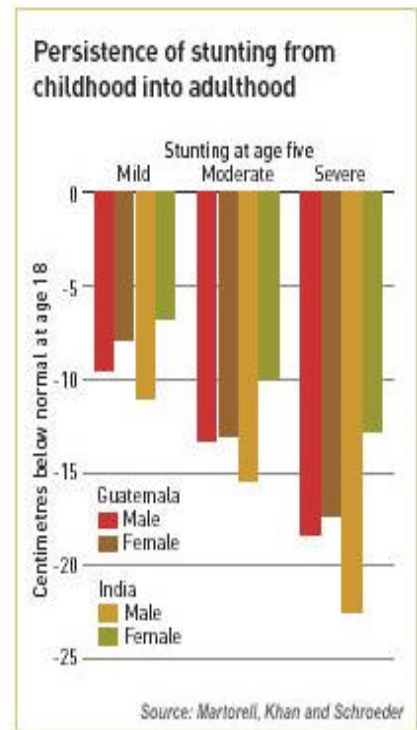
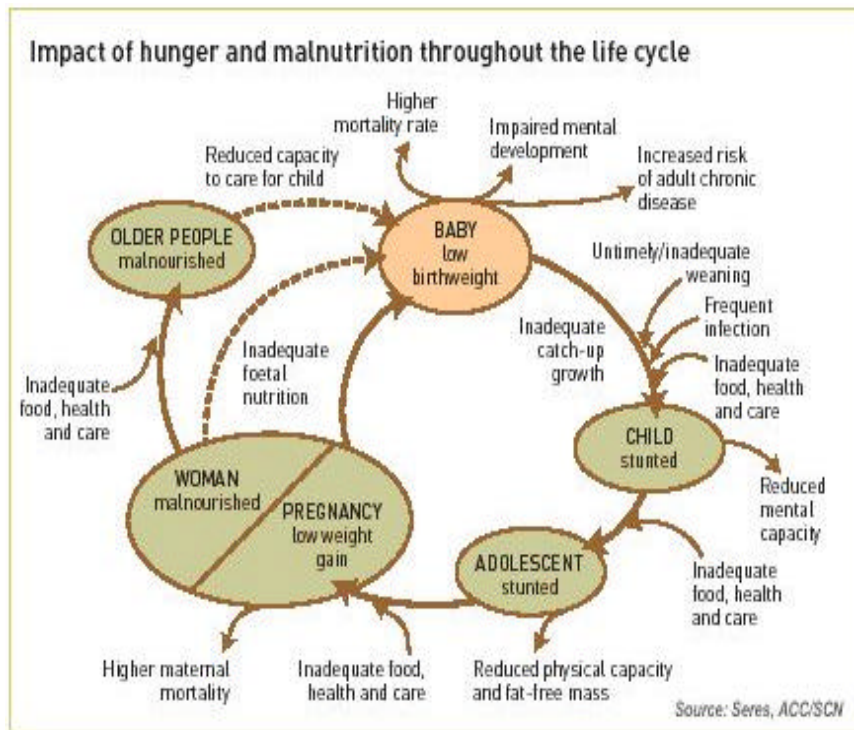
This 400 hundred years long history of repression and displacement culminates in malnourishment among rural Guatemalans limited to subsistence living as peasant farmers, squatters, and migrant workers. With a population of 11 million, Guatemala is the most populous and least urbanized Central American country (61% live in rural areas, 39% live in urban areas). It has the highest rate of chronic malnutrition in Latin America and one of the highest rates in the world.

Children are hit hardest. Almost half of Guatemalan children, 44%, show chronic malnutrition. (Marini, Gagnolati) 58% of indigenous children are malnourished, versus 33% of non-indigenous children. (World Bank) Malnutrition is directly tied to high child mortality. In 2003 the mortality rate for children under 5 was a staggering 47%. (UNICEF) Further evidence of malnutrition in Guatemalan children shows up in two key

areas: growth stunting and micronutrient deficiency.

Guatemala is among the worst countries in the world regarding growth stunting in childhood. Stunting, or height/weight growth deficiency, is profoundly present among Guatemalans -- at 44.2% this registers higher than any country worldwide with the exception of Bangladesh and Yemen. (World Bank) By adolescence, boys with low birthweight (LBW) are shorter than average by 6.3 centimeters, and girls by 3.8 centimeters. Weight is also affected; boys are lighter by 3.8 kilograms, and girls by 5.6 kilograms. (FAO of the UN)

Stunting is apparently worst from birth to age 24 months while children are weaned: *“The weaning period, when infants make the transition from being exclusively fed with breast milk (which provides all of the nutrient and antibodies needed by the infant) to a diet of solid and liquid foods (often contaminated and of poor quality), is a critical period for the baby’s nutritional status. The risk of malnutrition increases during this period, especially if children come from large and poor families, because the babies may not get enough nutrients from the food they are given, either because they are not given enough food or because the food they are given is of poor quality.”* (Marini, Gragnolati)



Breastfeeding is the best source of infant nutrition. Unfortunately, the number of mothers who breastfeed and the number of months children are breastfed have declined over the past few decades. A child breastfed for the first six months of life receives adequate amounts of nutrients and antibodies without risk of infection from contaminated utensils or unsafe water. It also represses the fertility of the mother by extending the period of postpartum amenorrhea, thus increasing the amount of time between children, which helps the

health of the mother, and children to come in that family.

According to a survey in 1999, just 16% of all infants surveyed received required amount of calories, less than one-third received adequate protein, and only 2% met the daily iron intake recommendation. (Marini, Gagnolati) This means that malnutrition is worst during the most critical developmental stage of a child's life. Rapid brain growth occurs during a period of malnutrition and increased vulnerability due to underdeveloped immune systems. Chronic malnutrition at this developmental stage directly contributes to increased rates of child mortality.

For children who survive, the consequences of stunting and LBW within the first five years of life are often irreversible and continue to exact a toll throughout a child's life via impaired cognitive development, impaired health, and impaired learning ability -- all which, in turn, affect future productivity and well-being. If the child is a female, consequences can carry forward and compound into the next generation through pregnancy and childbirth, especially in cases where the mother is already feeble and gains little weight during pregnancy.

There are many socioeconomic factors which contribute to malnutrition among indigenous Guatemalans. The most basic factor is poverty. Although Guatemala has the largest economy in Central America, it also has one of the widest income/land distribution disparities in the world. Estimates place the overall population living in poverty at 56%, with rural poverty at 75%. (IFPRI) The rural Mayan population *"still faces great difficulties, being excluded socially, economically and politically due to language and geographical barriers and to a lack of education and economic opportunities."* (Marini, Gagnolati) Stunting is more prevalent in poor, rural areas and when parents are non-Spanish speaking and undereducated. Indigenous people also rate highly in malnutrition, often in families whose mother does not speak Spanish, but rather the native language of that area, with 58% versus the 33% of non-indigenous people. (World Food Bank)

Education is a great benefit to both children and adults in Guatemala. 60.4% of children whose parents had had no education were stunted, but the percentage of children whose parents had had more than primary education averaged under 25, less than half of non-educated families. The lack of education is prevalent throughout urban and much of rural Guatemala. The main source of this problem is the existence of "squatters." These people are below the poverty line with no home. For shelter, they set up shacks along roadsides, on land owned by the government. Since the land does not belong to the people, the government is not obligated to provide education for the children. This only perpetuates poverty and malnutrition.

Malnutrition is further compounded by sibling rivalry. In families with several children born in close intervals, this creates maternal depletion and increases competition for limited resources and attention, at the same time increasing the transmission of infection among the children. Pregnancies at an early age damage both the mother and the child; the mother may not be physically strong enough to healthfully support a child, and the child, in turn, will be born with a LBW, adding to chronic malnutrition.

Environmental factors also play a key role in the prevalence of stunting. Rural indigenous children raised in households without access to flush toilets, piped water, garbage collection systems, use of bottled water, availability of propane and electricity, etc., face greater exposure to infectious agents. Under 20% of children live with access to flush toilets. Under 15% live with access to garbage collection systems. (Marini,

Gragnotati) Children living in households with greater access to sanitation, hygiene, and clean water have better growth patterns indicative of better nutrition.

Micronutrient deficiency is rampant. When micronutrient deficiencies are examined across Central America, Guatemala shows the highest prevalence. Guatemalan children's diets are generally based on cereals and limited animal products. This diet is usually deficient in Vitamin A, iron, iodine, folic acid, zinc, and vitamin B:

“Micronutrient deficiency is another aspect of the poor nutritional status of the Guatemalan population and is an enormous barrier to the country's socioeconomic development. Its negative effects on health, learning ability and productivity contribute to a vicious circle of underdevelopment and worsening conditions of groups that are already disadvantaged...Poverty, a lack of variation in... diets, a lack of knowledge about optimal dietary patterns, and a high incidence of infectious diseases are among the most important factors that lead to micronutrient malnutrition.” (Marini, Gragnolati)

According to a 1999 UNICEF study only 16% of children surveyed met recommended daily caloric requirement, and of these, 18% were highly deficient in micronutrients. Two thirds of the infants sampled had inadequate protein intake. A whopping 98% of children were deficient in iron (Marini). This is again tied to the Guatemalan diet; large consumption of foods such as cereals, beans, and coffee which suppress iron absorption.

The lack of vitamin A increases the risk of death, due to exposure to preventable infections like diarrhea, pneumonia, malaria, and measles by 20 to 24 percent. (FAO of the UN) Without these needed vitamins, immunities to such diseases are weakened, thus increasing the mortality rate in children. Iron deficiency causes children to grow up with poor motor and perceptive development, leading to reduced productivity as adults. 35% of women are anemic; women with this deficiency are also considerably higher at risk to die in childbirth. Obviously, maternal mortality leads to infant mortality when motherless newborns are deprived of breast milk.

Efforts to compensate for the extremely low-nourishing diets of Guatemalans have been spotty. Only 5% of wheat flour is supplemented with folic acid. Similarly, there is little supplementation of iodine through salt. However, in the 1970's, Guatemala began fortifying sugar with vitamin A to lessen the deficiency of the nutrient. This national effort is noted as one of the most successful control attempts made by a developing country to this day. One positive measure shows that most of the children met the adequate intake for vitamin A. Only 2% had a severe deficiency. Unfortunately, according to the same study, sugar is the product consumed most often by children which may show up in increased rate of diabetes in the future.

Over the past fifteen years, childhood obesity in Guatemala has nearly doubled, going from 2.7 % to 5.4% percent between 1987 and 2000. It is most prevalent in urban areas (7.2 vs. 4.5 percent rural) among non-indigenous people (6.0 vs. 4.7 percent indigenous), whose parents have had a comparatively high education (10.7 vs. 3.95% non-educated parents). Although fewer Guatemalans live in urban areas, 39% overall, urbanization is on the rise with 20% of the population living in Guatemala City alone. Migration from rural to urban areas has stepped up in the last two decades in part due to the civil war which displaced many highland Guatemalans. (IFPRI) If obesity is an urban phenomenon and demographics show that urbanization is increasing, then it's likely childhood obesity will rise, too.

However, at this point, according to the International Journal of Obesity, overeating in Guatemala is still an adult problem, worst among women. They rate highest in all of Latin America with 16% obesity, and second in Latin America in excess weight, where Guatemala has 32% of women with excess weight (Peru outweighs Guatemala at 36%). A study found that obesity was directly correlated with their socioeconomic status (SES). With the increase of education among women, obesity is shown to be more frequent throughout each level. Higher incomes also feed into more reports of overweight. (Marini, Gragnolati)

Obesity even in third world countries brings life-threatening conditions, such as diabetes, high blood pressure, and coronary heart disease (American Obesity Association). These conditions potentially drain social and governmental resources needed to battle the greater problem of undernutrition. Additionally, since mothers strongly influence eating patterns of their children, this is a disturbing trend likely to directly affect children.

Recommendations For Improvement

Addressing malnutrition requires gaining foreign aid from powerful national governments, such as the U.S., and from international relief organizations. With proper funding from these groups, hunger in Guatemala can drop through a number of strategies.

Efforts to compensate for the low-nourishing Guatemalan diet should be upgraded. Wheat flour should be uniformly supplemented with folic acid and salt should be uniformly supplemented with iodine. The fortification of sugar with vitamin A should continue. Alternate sources of food to increase the amount of food available to the population should be developed. Guatemala has numerous bodies of water, such as seas that border the country, lagoons, and inland waters, that are plentiful with fish. However, no viable fishing setup exists. This resource is easily accessible. Not only would fish and shellfish be an excellent source of nutrition to battle hunger, it would provide needed variety to daily diet. Fish are a great source of protein, amino acids, fiber, and a source of healthy fat content.

Outreach efforts should mainly target women (as primary caregivers and food consumers) and children under the age of five (the age group most vulnerable to death or lifelong disablement from malnutrition). Most programs currently in place are in public schools across the country. There are two problems with this. First, children most at risk are under the age of five and, therefore, too young to attend school. Second, children in the most desperate need of help are seldom in schools because undernutrition is highest in rural areas where, for most families, it's too much of a struggle to travel to school everyday; children are also needed to help at home with farm work.

Knowledge is power. The more rural families are educated about the effects of malnutrition, the more empowered they will be to seek and effect solutions, starting with their own families. The vehicle for educating families would need to be Peace Corps type 'embedded' nutrition outreach workers. Language barriers increase difficulty in communication, so translators would be needed, but chances are, the indigenous peoples of Guatemala do not know the magnitude of the problem. Rural families need to be informed of the nutrients their children are lacking, what foods supply the much-needed nutrition, and the recommended amounts their children need to receive daily. The same applies to urban families at risk of obesity. These families tend to be well-educated, and would be much easier to inform. These people need to know what foods to stay away from, such as foods with a high fat content, and like rural families, what nutrients are needed, and the importance of exercise to burn calories.

Since the size of rural families is considerably higher than those in urban environments, family planning needs to be discussed with rural families and contraception supplied. The dangers of having children so close together, and the effects of this competition between siblings need to be put into real life context to illustrate the difference between a healthy child from an undernourished one. The importance of breastfeeding needs to be promoted to all Guatemalans, both rural and urban. Families in cities tend to rely on formula, which is inferior to breast milk, while families in rural areas may try to wean the child too early, which leads to children too close together in age, and ultimately, families too large to support adequately.

Finally, the government in Guatemala needs to reverse the displacement of indigenous Guatemalans by granting land parcels. It must be arable, so people can grow food for sustenance and profit. Effecting this solution will require the political will to revert land from corporate interests to native populations. This will greatly decrease the problem of squatters, and therefore reduce spread of disease since many will be dispersed and at greater distances from each other. As competition for food lessens, what is grown and consumed is likely to be more wholesome.

Conclusion

Although obesity has risen slightly in the population, the far greater overshadowing area of malnutrition concern in Guatemala continues to be underweight children. Reducing the prevalence and severity of underweight characteristics among Guatemalan children is the most likely way to reduce the 47% rate of child mortality for children 5 and under. (A study in Latin America estimates that a reduction in underweight by five percent could trigger a reduction in child mortality by as much as thirty percent.) This is both an issue of human rights and cultural paradox.

Ideally, every child has a birthright to good nutrition. In reality, the rural indigenous children of Guatemala are dying from or disabled by malnutrition with atrocious frequency. In order to bridge the gap between ideal and reality it's imperative to implement the preceding recommendations. In so doing, these children -- the living descendants of the great Mayan civilization who discovered and cultivated maize -- will also have their cultural heritage restored as they again become beneficiaries of the nutritional advances pioneered by their forebears so many generations ago.

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